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PANEL I

DIGITAL TRANSFORMATION AND AI INTEGRATION: ENHANCING COMPETITIVENESS IN THE EU MARKET

Soft Skills: A Modern Trend in the Development of Tourism Businesses in Our Country

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Abstract

The value of soft skills has been increasingly apparent in the changing global tourism landscape, especially in service-oriented industries. The growing importance of soft skills as a contemporary trend on the growth of Albanian tourism enterprises is examined in this study. The paper synthesizes previous research on the impact of interpersonal communication, emotional intelligence, adaptability, teamwork, and customer service in boosting the sustainability and competitiveness of tourism businesses, drawing from an extensive literature analysis. The paper emphasizes how human-centered capabilities are becoming more and more valued by Albanian tourism companies in influencing customer experience, enhancing worker productivity, and promoting organizational expansion. The results highlight the necessity of focused training initiatives, curricular changes in tourist education, and legislative backing to improve the soft skills of the industry's workers. This study gives a conceptual framework for comprehending the strategic integration of soft skills in the Albanian tourist sector and makes recommendations for further research and practice by firmly establishing the discussion in previously published academic work.

***Keywords*:** *Soft skills, Capabilities, Human Resources, Tourism sector, Albania.*

Introduction

It is often acknowledged that the tourist sector is a significant catalyst for economic growth, especially in developing nations. Globally, tourism has changed from being a luxury pastime for a select few to becoming a vibrant, varied industry that supports job growth, infrastructure improvement, and cross-border interaction. In this regard, human capital has taken on a more crucial role in preserving competitiveness and guaranteeing sustainability over the long run. Although tourist development initiatives have historically focused mostly on technical skills, recent changes in customer expectations and service delivery models have elevated soft skills to the fore of the criteria about worker effectiveness and organizational performance.

Soft skills, which include interpersonal communication, emotional intelligence, teamwork, flexibility, and a focus on customer service, are no longer considered supplemental or secondary. Rather, they are becoming more and more recognized as fundamental skills necessary to provide top-notch travel experiences. These abilities have a major impact on employee retention, guest pleasure, service differentiation, and, eventually, business success. The ability of tourism professionals to respond empathetically, communicate clearly, and adjust to a variety of client needs is becoming increasingly important as the industry becomes more individualized and experience-driven.

An interesting case study for analyzing the growing significance of soft skills in the travel industry is Albania. Albania's magnificent scenery, rich cultural legacy, affordability, and better connectivity have all contributed to a noticeable rise in foreign visitor numbers during the last ten years. This increase highlights the necessity of bolstering the sector's human capital to meet changing international standards and reflects Albania's increasing appeal as a Mediterranean travel destination.

Albania's tourist industry is still in a transitional stage and is facing difficulties typical of developing travel markets, despite encouraging growth trends. Seasonality, inadequate professional training, infrastructure limitations, and uneven service quality are a few of them. Notably, tourism businesses and politicians are beginning to realize that the quality of human connections at every point of the visitor experience is just as important to the sector's future growth as tangible assets and marketing. In this sense, soft skills have a largely unrealized potential for improving service delivery and developing a workforce in the tourism industry that is more flexible and adaptable.

The tourist business in Albania is characterized by a youthful workforce, with many individuals joining the field having little formal education or hands-on experience. Historically, technical skills—like hospitality operations, travel logistics, or food and beverage management—have been prioritized at vocational schools and universities, with little attention paid to the development of interpersonal and emotional skills. Additionally, jobs in Albania's tourism industry are frequently informal and largely seasonal, which results in a high employee turnover rate and a lack of continuity in skill development. Together, these elements make it more difficult to develop a skilled, customer-focused staff that can satisfy the needs of increasingly discriminating foreign visitors.

Research conducted in other countries has demonstrated that training in soft skills can significantly impact the growth of the tourism industry. Enhancing soft skills has been connected in studies conducted in nations like Greece, Turkey, and Croatia to higher staff engagement, better service quality, and happier customers. Nonetheless, there is still a great deal to learn about how these processes play out in Albania's distinct socioeconomic and cultural context. The perception, implementation, and benefits of soft skills development in Albanian tourism firms have not been extensively studied empirically or conceptually. By combining previous scholarly work and highlighting the strategic significance of soft skills in Albania's tourist environment, this study seeks to close that gap.

Its twofold focus—first, emphasizing the human aspects of tourism competitiveness, and second, promoting structural changes in education, training, and policy to better meet the demands of the modern labor market—makes this research significant. The soft skills gap that currently restricts the full potential of Albania's tourism workforce must be addressed if the country wants to establish itself as a year-round travel destination with top-notch service standards.

This paper is structured as follows: following the literature review, the methodology section outlines the research design and data sources used to synthesize existing knowledge on soft skills in tourism. The results section identifies key thematic areas—such as communication, emotional intelligence, adaptability, and teamwork—that are critical to Albania's tourism growth. The discussion then interprets these findings in light of national development goals and industry needs, leading to practical recommendations for training providers, educational institutions, and policymakers. The paper concludes by proposing a conceptual framework for integrating soft skills into tourism sector strategies and suggesting directions for future research.

Literature Review

Global scholarly interest has been sparked by the increasing acknowledgment of soft skills as essential resources in the travel and hospitality sector. The ability of employees to effectively communicate, control emotions, and adjust flexibly to changing service environments has become a crucial factor in determining competitiveness and sustainable growth as

the tourism industry continues to transform into a more human-centric and experience-based sector (Baum, 2015; Weber et al., 2009). Although research and policy have not yet fully operationalized soft skills development as a basic workforce strategy, this awareness is gradually spreading in Albania, a nation where tourism is a crucial economic pillar.

Developing Soft Skills in the Travel Industry

Soft skills are often seen as non-technical interpersonal attributes that help people manage social complexity and engage with others in a successful manner (Robles, 2012). Communication, emotional intelligence, teamwork, problem-solving, flexibility, and client orientation are frequently cited as key qualities. These abilities are particularly important in the tourism sector since it depends on interpersonal communication, cultural awareness, and high-quality service (Nickson et al., 2005).

The strategic importance of soft skills in the provision of hospitality services has been repeatedly highlighted by international studies. For instance, Weber et al. (2009) discovered that employers in the hospitality sector valued communication and interpersonal skills more than technical expertise. In a similar vein, Succi and Canovi's (2020) survey of employers in Europe found that among the most desired qualities in graduates in the tourist industry were communication, teamwork, and adaptability.

Albania's Human Capital and Tourism

Over the past ten years, Albania's tourism industry has grown significantly thanks to increasing worldwide recognition, investment, and better infrastructure. Over 10 million foreign visitors visited the nation in 2022, according to INSTAT (2023), establishing tourism as a key industry for economic growth. But this development has not been matched by the quality of workers. Several research and publications show ongoing difficulties with worker preparedness, particularly with regard to customer service and quality (UNDP Albania, 2021).

Research on soft skills in tourism is still in its infancy in Albania, although it is expanding. According to a study by Shahu and Prifti (2020), soft skills were underrepresented in both content and pedagogical technique when looking at tourism education curriculum in public universities. According to a research by the Albanian Investment Development Agency (AIDA, 2022), there is a discrepancy between the skills that educational institutions teach and the abilities that the private tourist industry requires, particularly in the areas of communication, adaptability, and problem-solving.

Organizational Performance and Soft Skills

Numerous disciplinary viewpoints have been used to analyze the connection between soft skills and organizational effectiveness in the tourism industry. Effective teamwork and communication have been associated with higher employee retention and satisfaction from the perspective of human resource management (Goleman, 1998; Kundu & Gahlawat, 2016). It has been discovered that emotional intelligence, in particular, affects both individual performance and customer happiness, which is a critical result in the service-based tourist sector (Wang & Groth, 2014).

However, there aren't many empirical studies that directly connect soft skills to business outcomes in the Albanian tourism industry. However, anecdotal evidence from policy reviews and industry interviews (World Bank, 2020) indicates that businesses that put a high priority on staff development and customer service training typically outperform rivals in terms of online reputation and customer loyalty, two important measures of competitiveness in the digital age of tourism.

Gaps in Education and Training

The insufficiency of formal education and vocational training programs is one of the main obstacles to the development of soft skills in Albania's tourism industry. Technical knowledge is frequently prioritized above soft skill competences at vocational schools and universities, and internships and other practical learning opportunities are not always applied consistently (Shahu & Prifti, 2020). Furthermore, many front-line workers in rural and coastal areas still struggle with language proficiency, which is crucial for interacting with foreign visitors (UNDP Albania, 2021).

The necessity for instructional change is supported by international literature. Jackson (2010) contends that in order to promote soft skills, higher education must move away from conventional lecture-based approaches and toward experiential, student-centered learning. It has been demonstrated that including role-plays, simulations, and industry placements in tourism-specific programs enhances graduate preparedness and aligns education with industry demands (Barron, 2008).

Implications for Strategy and Policy

Many nations throughout the world have started incorporating the development of soft skills into their national tourist plans. For instance, workforce competency and customer service training were highlighted as crucial pillars of industry competitiveness in Australia's "Tourism 2020" strategy (Australian Government, 2015). On the other hand, Albania's

tourism plans have paid less attention to the development of human resources and more on infrastructure, promotion, and investment.

By offering skills development training and promoting reform in tourist education, recent donor-supported initiatives—like EU-funded tourism development programs—have started to close this gap (GIZ Albania, 2022). These interventions' scope and sustainability are still constrained, though.

Incorporating soft skills into national curriculum, employer-led initiatives, and vocational training systems requires a fundamental shift in policy. A unified framework for workforce development that meets the demands of a competitive tourism economy will require multi-stakeholder engagement, including from government agencies, educational institutions, and tourism groups.

Research Methodology

This study examines the importance of soft skills on the growth and competitiveness of Albanian tourism businesses using a qualitative, literature review-based research technique. Drawing on scholarly journals, industry reports, policy documents, and empirical research that investigate the relationship between human resource development, soft skills, and tourist sector performance, the technique is based on secondary data analysis.

For exploratory research that aims to synthesize fragmented knowledge across several fields, including educational sciences, tourism management, and organizational behavior, the literature review approach is especially appropriate. With relation to the integration of soft skills in service-oriented businesses, this approach makes it possible to identify best practices, dominant theoretical frameworks, and knowledge gaps.

Using keywords like "soft skills," "tourism competitiveness," "human capital," "customer service," and "Albania tourism sector," sources were systematically found in scholarly databases including Scopus, Web of Science, and Google Scholar. Peer-reviewed papers, global case studies, and region-specific assessments released in the last 15 years were the main emphasis of the inclusion criteria. Grey material from institutions like the European Training Foundation (ETF), the World Tourism Organization (UNWTO), and Albanian government development agencies was also examined.

Recurring themes on soft skills—like communication, emotional intelligence, flexibility, and teamwork—and their proven or hypothesized effects on organizational success were extracted from the data through thematic analysis. The creation of a conceptual framework that connects soft skills to the four main facets of corporate competitiveness—customer experience, staff engagement, innovation capacity, and service quality—was made possible by this thematic synthesis.

Using a literature-based methodology, this study identifies areas that require empirical validation in subsequent research while offering a thorough basis for policy and practice suggestions.

Discussion and Research Findings

A fundamental shift in the way worker competences are valued within the tourism industry globally is reflected in the rising scholarly consensus on the vital importance of soft skills in the travel and hospitality sector. Soft skills like communication, emotional intelligence, teamwork, flexibility, and client orientation are now essential factors that determine an organization's competitiveness and long-term success, as this review has emphasized. This is especially important in light of the tourist industry's shift to a more experience and human-centered economy, where customer engagement and service quality are crucial differentiators (Baum, 2015; Weber et al., 2009).

International studies have shown that companies are placing a greater value on soft skills than technical knowledge, with interpersonal and communication skills coming in first (Weber et al., 2009; Succi & Canovi, 2020). This pattern demonstrates the widespread understanding that the tourism industry greatly relies on complex interpersonal relationships and cultural awareness, two attributes that technical expertise by itself cannot offer. As a result, workforce strategies that do not incorporate the development of soft skills run the danger of failing to meet the changing needs of employers and customers.

The tourism sector in Albania has grown rapidly, as evidenced by increased infrastructural investment and a notable increase in visitor numbers (INSTAT, 2023). However, there hasn't been a corresponding gain in labor quality, especially in the area of soft skills, to match this quantitative expansion. The literature shows a glaring discrepancy between industrial demands and educational outcomes. There is a skills gap in communication, adaptability, and problem-solving among tourism professionals as a result of Albanian tourism education's underrepresentation of soft skills in curriculum design and pedagogical approach, according to studies by Shahu and Prifti (2020) and the Albanian Investment Development Agency (2022).

The competitiveness of the sector and organizational performance are directly impacted by this disparity. Effective soft skills are linked to favorable company outcomes like customer satisfaction, work satisfaction, and staff retention, according to international human resource management studies (Goleman, 1998; Kundu & Gahlawat, 2016; Wang & Groth, 2014). Anecdotal evidence from industry interviews and policy analyses (World Bank, 2020) indicates that Albanian tourism businesses that invest in employee development and customer service training typically outperform competitors, especially in digital reputation and customer loyalty, despite the lack of empirical data specifically related to Albania. In order to increase

sector resilience and competitiveness, these findings highlight the strategic importance of including soft skills training into human capital development programs.

The literature also points out serious deficiencies in Albania's current system in terms of training and education. Formal education and vocational training are dominated by technical skills, with little focus on experiential learning strategies that have been shown to be successful in acquiring soft skills (Jackson, 2010; Barron, 2008). Students' exposure to real-world difficulties is limited by the uneven implementation of internships and practical placements. Furthermore, problems with language competency, particularly in rural and coastal areas, make it difficult to communicate effectively with foreign guests, which compromises the quality of services and visitor happiness (UNDP Albania, 2021).

In order to address this educational mismatch, learner-centered, interactive pedagogies that include role-playing, simulations, and industry interaction must be implemented immediately. In addition to improving graduates' readiness for the job, these reforms would bring Albania's workforce capacities into line with global best practices and standards.

The literature highlights a significant weakness in Albania's tourism strategy with regard to the development of human capital from a policy standpoint. Albania's strategic focus has traditionally been on infrastructure and investment, in contrast to nations like Australia, whose national tourism frameworks place a higher priority on staff competency and customer service training (Australian Government, 2015). Soft skills training has only lately been addressed by donor-supported initiatives, although its scope and sustainability are still constrained (GIZ Albania, 2022). This implies that integrating the development of soft skills into national employment and education policy requires a comprehensive, multi-stakeholder approach. In order to develop a cohesive framework that fills in existing gaps and foresees industry expectations, government agencies, academic institutions, private sector players, and civil society organizations should collaborate.

Conclusions and Recommendations

The assessment of the literature emphasizes the expanding strategic significance of soft skills in the global tourist business, emphasizing their critical role in enhancing customer happiness, service quality, and overall industry competitiveness. This pattern is especially pertinent to Albania, where the travel and tourism sector is growing quickly and playing a big role in the country's economy. Notwithstanding this encouraging trend, the industry still faces significant obstacles because of its workforce's inadequate soft skill development. These difficulties are caused by enduring deficiencies in educational and career-training programs, which frequently place more emphasis on technical expertise than on interpersonal, communication, and problem-solving skills.

Furthermore, the development of soft skills has not yet been completely included as a priority into existing policy frameworks, resulting in a disjointed approach that impedes sector-wide capacity creation and coherent workforce planning. Albania runs the risk of reducing its ability to maintain a competitive edge in the increasingly service-oriented and dynamic global tourist market if these shortcomings are not addressed with a concentrated effort. The literature emphasizes the need for a multifaceted approach that includes creating integrated policies that follow global best practices, strengthening collaboration between educational institutions and industry stakeholders, and implementing comprehensive curriculum reform to integrate soft skills training at all educational levels.

Such interventions are essential for supporting sustainable tourism growth that benefits local communities and conserves cultural heritage, as well as for giving tourism professionals the flexibility and resilience they need to meet changing market demands. In the end, improving the development of soft skills becomes a fundamental tenet for raising the caliber and competitiveness of Albania's tourist industry, empowering it to successfully handle both present difficulties and upcoming prospects.

It is advised to put in place a coordinated national plan that gives soft skills training top priority in both formal education and vocational programs in order to close the gaps that have been found and improve the development of soft skills in Albania's tourism industry. In order to develop and implement curriculum that strike a balance between technical proficiency and interpersonal, communication, and problem-solving abilities, this approach should promote solid collaborations between governmental organizations, academic institutions, and industry players.

Policymakers should also create monitoring systems to assess progress and incorporate soft skill development as a fundamental part of workforce planning for the tourism industry. Putting money into ongoing professional development and launching awareness campaigns emphasizing the importance of soft skills can help to increase staff resilience and adaptability. When taken as a whole, these actions will promote a more capable and competitive tourist sector that can satisfy changing needs from the worldwide market.

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Fiscal Incentives: Important Instruments for the Development of Sponsorship Activities

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Abstract

Many countries are using philanthropy to address today's social and economic challenges. Today, there is a greater belief that institutional philanthropy stimulates strategic investments and has a growing impact to improve the quality of life and to support initiatives that benefit the community and society at large.

Sponsorships play an important role in supporting events, projects and organizations. In business, sponsorships are used to assist in marketing and to create positive relationships with consumers. In sports, culture, and other events, they provide funding to enable their development and success. Sponsorships also have a significant impact on research and development by providing funds to finance technological advancement and knowledge in various fields.

In Albania, sponsorships have been developing significantly in recent years. Various companies and organizations are engaging in numerous sponsorships, including culture, sports, social events and various community projects. This practice has greatly helped in financing many activities and events, contributing to increasing public awareness and building a positive brand image. Therefore, it is important to create a favorable environment for these activities by providing tax support and appropriate fiscal incentives for both providers and beneficiaries.

Today, the question is rightly asked: How are fiscal incentives being used in Albania for the development of sponsorship activities?

***Keywords**: philanthropy, sponsorship, promotion, financing, fiscal incentives.*

The Role of Sponsorship in the Social and Economic Development of a Country, Study Methodology, and Various Theories in This Field

Philanthropy, where sponsorship is an important element, plays a significant role in mobilizing private resources for public good. It is not only a social practice but is increasingly becoming a tool of public policy by mobilizing private resources for public good.

The main element of sponsorship is voluntary donation, which can be provided in the form of financial payment, material goods, or services for a specific project or activity. Unlike a donation, which does not create benefits for the donor, sponsorship enables direct benefits for the sponsor.

The experience of many developed countries shows that the benefit can be in the promotion of the sponsor's name, firm, or trademark. This is realized based on a written agreement between the sponsor and the recipient of the sponsorship. The main

difference between a donation agreement and a sponsorship agreement is that in the sponsorship agreement, it must be clearly defined how the promotion will be carried out.

In Albania, companies and organizations are increasingly engaging in sponsorships, including culture, sports, social events, and various community projects. This practice has greatly helped in financing many activities and events, contributing to public awareness and building a positive brand image. Sponsorships have also served to help non-profit social welfare organizations. This is an effective way to connect businesses with the community and create a positive impact at the local and national levels.

It is important to define public activities, clearly distinguishing the public interest for these activities to qualify for tax incentives.

Based on the legislation of many countries, domestic or foreign physical and legal persons can be donors or sponsors, who must carry out their activities in accordance with the Constitution, laws, and international agreements. Therefore, any physical and legal person can be a recipient of sponsorship. The recipient fulfills their obligations regulated in the sponsorship agreement concluded with the sponsor, where the promotion of the sponsor's name, sign, and trademark can be determined.

Developed countries are using philanthropic instruments such as sponsorships to address social, environmental, and health challenges. Foundations and individuals are contributing to educational, health, research, and other necessary projects. They can invest in innovation and economic development to improve the quality of life and support initiatives that benefit the community and society as a whole.

In developing countries, these instruments can be used to fight poverty, provide necessary health and educational resources, and protect the environment. Non-governmental organizations and philanthropic individuals help in emergency situations, build social infrastructure, and develop projects to improve the quality of life. Global philanthropy is also a tool to improve international cooperation and address global challenges.

Study Methodology

For the purposes of this study, a qualitative method was used, analyzing and interpreting data obtained from secondary sources such as the works and positions of various authors in this field, the experience of different European countries and Western Balkan countries, as well as the current experience of developing these activities in Albania.

The aim of the study is to identify and analyze the problems encountered in the development of sponsorship activities in Albania and to provide appropriate recommendations for the development of these activities for the benefit of business and society.

Main Objectives of the Study

- To study and analyze the positions of various authors in the field of sponsorships.
- To study and analyze the experience of European Union countries and Western Balkan countries with the aim of using the experiences of countries that have used these instruments efficiently in the development of business activities and for the benefit of society in the development of these activities in Albania.
- To identify the problems from the development of sponsorship activities in Albania and to provide appropriate recommendations for the development of these activities in the interest of the social and economic development of the country.

Research Question: How are fiscal incentives being used in Albania to develop sponsorship activities?

Literature Review

- Connaughton, B., in "How to Write a Winning Sponsorship Proposal" [2023], emphasizes that writing a compelling sponsorship proposal is the main gateway to increasing positive responses from event sponsors and helping achieve the desired goals and objectives.
- Ungar, K., in "Sponsorship Strategy: Practical Approaches to Powerful Sponsorships"[2020], advises that an excellent strategy means the difference between success and failure in sponsorship. The sponsorship strategy provides direct advice, including how to identify the best audience for sponsorship, improve a sponsor's brand image, and use unique strategies as well as corporate social responsibility.
- Lunt, T., & Nicotra, E., in "Event Sponsorship and Fundraising: An Advanced Guide" [2018], underline that securing sponsorship and other funding sources for events is becoming increasingly competitive, making differentiation and distribution vital.
- Fast, J., in "How Challenging the Norm Is the Only Route to Success in Selling Sponsorship" [2017], advises that using sponsorship is one of the most effective and profitable strategic business tools for any organization.

- Skildum-Reid, K., in "The Corporate Sponsorship Toolkit" [2012], emphasizes that sponsorship is a privilege - do not abuse it. When using sponsorship to build a brand, you are using the most powerful marketing tool you have.
- Collett, P., & Fenton, W., in "The Sponsorship Handbook: Essential Tools, Tips and Techniques for Sponsors and Sponsorship Seekers" 1st Edition [2011], argue that everyone in the sponsorship industry, from the largest events and properties to the smallest, benefits from growing knowledge, data availability, and professionalism in the use of sponsorship.

A large number of events today are using sponsorship support to provide more exciting programs and to help cover rising costs, sponsorship can have a significant impact on customer relationships.

The questions that arise are:

1. Is this instrument being used for the development of a country's business and society?
2. How are different countries using this instrument to benefit social and economic development?

Experience of different countries in using sponsorship as an instrument of social and economic development of the country

European Union countries are using sponsorship as an instrument to develop social and economic projects in their countries and in other countries. This practice can be part of various aids and programs that aim to help increase economic development and fulfill social goals at the local and international level.

It is important to create a favorable legal and regulatory environment through constructive dialogue and cooperation with state institutions, in addition to increasing the culture and philanthropic values, which are essential for the development of philanthropy in a country. Today there is a greater belief that institutional philanthropy can stimulate strategic investments and have a growing impact on economic and social issues.

Philanthropy has been used by different countries in many ways to help social and humanitarian needs. Some countries and individuals create foundations and non-governmental organizations to provide financial contributions and resources to various projects, so philanthropy is being used to create positive change and address social and economic challenges at the local and international levels.

Creating a philanthropic environment aims to encourage and facilitate these activities, making it easier for users. But, what is meant by an enabling environment for philanthropy?

According to the "Lilly Family School of Philanthropy" "an enabling philanthropic environment provides appropriate incentives and constraints to positively influence the capacity and propensity of individuals and organizations to freely engage in philanthropic activities in a sustainable and effective manner. This enabling environment is the product of a set of interrelated conditions that are the result of deliberate policy choices made by government actors and the historical, cultural, and socio-political traditions, resources, and legacies of a country or economy."

According to the European Philanthropy Association "Philea", an enabling environment for philanthropy consists of shaping the national, European and international legislative environment by implementing the European Advocacy Roadmap for a Single Market for Philanthropy. The Single Market for Philanthropy aims to unlock the potential of philanthropy in Europe's recovery and future, by mobilizing complementary private resources for the public good and by facilitating cross-border giving and philanthropic action. Importance in the development of these activities are fiscal incentives, which many countries are using as a tool to encourage philanthropic activities by offering tax benefits for donations and contributions made to NGOs and projects. Fiscal incentives include tax deductions for donations and contributions, increasing the threshold of donations that can qualify for tax deductions, tax process facilitations by facilitating procedures for donors to obtain tax benefits, as well as specific tax incentives for specific sectors and services.

But how are fiscal incentives being used to support companies in philanthropic activities in some European and Western Balkan countries:

1. Bulgaria has a number of activities eligible for tax deductions (Article 31 of the Law defines the list of donations). According to the Law on Corporate Income Tax, for tax purposes, accounting expenses for donations are recognized in the total amount of up to 10% of the positive accounting result.
2. Croatia. According to the Croatian Law on "Corporate Income Tax", the tax deduction for the specified activities is up to 2% of their income from the previous year. However, this percentage may be higher by decision of the ministry competent for financing specific programs and actions.
3. Romania. Under Romanian law, private entities enjoy a reduction of their taxable base, not exceeding:
   (i) 10% of the taxable base in the fields of culture, art, education, health, social assistance and services, humanitarian activities and environmental protection;

(ii) 8% of the taxable base for sponsorship in the fields of human rights, science and basic and applied research, philanthropy, maintenance, preservation and enhancement of the value of historical monuments and sports, except football;
(iii) 5% of the taxable base for sponsorship in religious, social and community fields, in representing the interests of professional associations in football.

4. Slovenia. Taxation in Slovenia depends on the nature and structure of the business carried out by a company. According to the Corporate Income Tax Act (Article 55), the taxpayer may claim:
   (i) a reduction of the tax base in the amount of 100% of the amount representing investments in research and development during this period, but not more than the amount of the tax base;
   (ii) a deduction of 40% of investments in certain equipment and intangible assets; (investments in digital transformation and green transition), but not more than the amount of the tax base.
5. France. In France, corporate donors can benefit from a tax reduction equal to 60% of donations to public service foundations and endowment funds up to EUR 10,000 or up to 0.5% of their annual turnover if this amount is higher than €10,000.
6. Italy. Italy uses both tax credit and tax deduction regimes. Donations are made to legal entities exclusively pursuing education, entertainment, social and health care and scientific research in a total amount not exceeding 2% of the declared corporate income. Also, a 30% deduction from income tax of money donated in favor of populations affected by public disasters or other exceptional events.
7. Netherlands. Dutch corporate income tax offers an opportunity to deduct gifts. Gifts are deductible up to a maximum of 50% of the profit with a maximum of EUR 100,000. Gifts to cultural entities can be taken into account at the rate of 150%. However, the maximum additional deduction is EUR 2,500.

The use of fiscal incentives by Western Balkan countries to support companies in donation and sponsorship activities:

8. Bosnia and Herzegovina. According to the Law on Corporate Income Tax, expenses for donations are recognized as – deductible expenses up to 3% of total income in the period for which the tax is determined.
9. Kosovo. In Kosovo, deductions of up to 10% of taxable income, calculated before deduction of these contributions, are allowed. Taxpayers who contribute to sports are entitled to deduct up to 30% of the Corporate Income Tax; meanwhile, those who contribute to youth and culture will be granted a deduction of up to 20%.
10. Montenegro. Donations from companies are recognized as deductible expenses up to a threshold of 3.5% of total income.
11. North Macedonia. Donation expenses are taxable if the annual amount by the taxpayer does not exceed 5% of his total income, while sponsorship expenses are taxable if above 3% of the taxpayer's total income. Subject to the fulfillment of certain conditions, donations to national sports federations, sports clubs and active athletes, who have acquired this status in accordance with the conditions set out by law in the "Law on Sports", may reduce the liability for corporate income tax for the year by up to 50% of the assessed corporate income tax.

Legal Environment for Sponsorships in Albania

In Albania, some of the main obstacles that may be encountered in the field of sponsorships include the lack of developed culture and tradition in this field, complex administrative procedures, legal and financial uncertainty, and limited knowledge about fiscal advantages. The activities foreseen to benefit from fiscal incentives are very narrow; they should include more areas of public interest than those provided by law.

Also, in cases of natural disasters (pandemics, floods, earthquakes, etc.) and economic crises, the legal framework should have more incentives for donations and sponsorships given in the affected sectors. Sponsorship activities are carried out based on Law No.7892, dated 21.12.1994 "On Sponsorships", as amended, and Law No.29 2023 "On Income Tax", as amended (Article 50 points p/i,ii,iii). Article 5 of the Law "On Sponsorship" recognizes as deductible expenses up to 5 percent of profit before tax for publishers and publications of literature, scientific works, and encyclopedias; as well as cultural, artistic, and sports activities and up to 3 percent for all other corporate entities. This rule excludes businesses that generate an annual tax of over 100 million ALL (approximately 878,000 euros) and sponsor the activities of sports teams, as part of sports federations.

According to Article 50 points p/i,ii,iii of the Law "On Income Tax", the amounts sponsored are not recognized as deductible expenses:

(i) That exceed 5 percent of profit before tax for publishers of the press and publications of literary, scientific, encyclopedic works, as well as for cultural or artistic activities.
(ii) That exceed 5 percent of profit before tax for sports activities. The sponsored amounts, within this limit for the activities of sports teams, are deductible up to three times the value of the sponsored amount. Their carryover to future tax periods is not allowed.
(iii) That exceed 3 percent of profit before tax for sponsorships of other activities, which are not included in sub-items (i) and (ii) of this paper.

The above laws do not define activities carried out within the framework of corporate social responsibility and community development, which are broader than those provided in these laws. If a business wants to invest in long-term projects, it cannot seek tax relief based on these laws. Also, these two laws define legal persons and do not define physical persons, so if an individual wants to sponsor an event or specific activity, they cannot seek tax relief.

Conclusions and Recommendations

In the laws regulating philanthropic activities, it is necessary to have clear definitions for "donations", "sponsorships", "philanthropy", "crowdfunding". The procedures for seeking tax relief should be more detailed but not burdensome.

1. The range of fiscal incentives should be expanded, as they are not sufficient. Tax incentives should include all categories of income to serve as incentives for donating and sponsoring, respectively: Tax incentives on Personal Income Tax/PIT that can be utilized in two ways, depending on whether the tax has been paid or not:
   a. when PIT has not yet been paid, reduction of the calculated PIT, while it has not yet been paid; or
   b. when PIT has been paid, the return of the paid tax verified based on the submission of the annual tax declaration (tax credit).
2. Tax incentives on Corporate Profit Tax.
   Donors of donations and sponsors, who are legal persons:
   a. can determine the amount of tax relief for the given donation/sponsorship based on the total realized income, based on the experience of European countries; or
   b. register the amount as an accepted deductible expense.
   In this perspective, the form of tax incentive is non-payment of the tax obligation and the value of the donation/sponsorship is reduced from the tax base.
3. Tax incentives on Value Added Tax/VAT. Tax incentives on VAT relate to the circulation of material goods and services from the donor to the recipient of the donation, carried out for the realization of the donation with public interest, whether donated or paid from donated funds. The calculated value-added tax for these material goods/services, which is included in the invoice and paid by the one who carries out the circulation in a special account in the State Budget, is returned to the donor based on the request submitted by the recipient of the donation.
4. Tax incentives on donations/sponsorships of gifts, inheritance, and property. The recipient can utilize tax incentives on property taxes related to the donation they have received from the donor.
   Tax incentives on property taxes consist of:
   a. non-payment of inheritance and gift tax for immovable property when the donor transfers the right of enjoyment and use to the recipient; and
   b. non-payment of property tax for the ownership of the donated immovable property in the next five years, after the year in which the donation was made.

The main element of sponsorship is voluntary donation, which can be provided in the form of financial payment, material goods, or services for a specific project or activity. Unlike a donation, which does not create benefits for the donor, sponsorship enables direct benefits for the sponsor. The benefit can be the promotion of the sponsor's name, firm, or trademark. This is realized based on a written agreement between the sponsor and the recipient of the sponsorship.

The main difference between a donation agreement and a sponsorship agreement is that in the sponsorship agreement, it must be clearly defined how the promotion will be carried out. To prevent a situation where the tax authority would requalify the donation agreement as a sponsorship agreement, it is recommended to include a clause that clearly states that no benefit arises for the donor from the conclusion of the agreement.

Both donations and sponsorships are given for public interest activities. A donation is given to meet publicly confirmed needs and for the purposes of the recipient and/or to solve specific situations and problems. Sponsorship serves for the purpose of implementing the sponsorship agreement.

Now an important tool that supports community actions through live and online platforms is crowdfunding, so it is important that this activity also has sufficient legal and regulatory basis, appropriate fiscal incentives, and the necessary information about the programs it contributes to.

Based on the best international practices, public interest and activities of public interest are socially beneficial activities, which are of interest to the general public, community, or group of people who need these activities.

Fields such as research and development, social enterprises, fundamental human rights, and applied sciences (but not limited to these fields), are important to address in legal and regulatory changes.

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Financial Inclusion and Artificial Intelligence in Albania

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Abstract

Financial inclusion remains a significant challenge in Albania, particularly for rural and low-income populations. Despite recent advancements in economic development and financial sector reforms, a large portion of the population remains unbanked or underbanked. Artificial Intelligence (AI) offers promising solutions to overcome these barriers, providing innovative and scalable ways to extend financial services to underserved communities. This paper explores how AI can enhance financial inclusion in Albania by addressing key obstacles such as limited access to financial services, low financial literacy, and reliance on informal financial practices.

AI-driven technologies, including alternative credit scoring, mobile banking solutions, fraud detection, and personalized financial literacy programs, can play a critical role in expanding financial access. By utilizing alternative data sources and machine learning algorithms, AI can assess creditworthiness for individuals without traditional credit histories, enabling broader access to loans and other financial products. AI-powered mobile platforms can extend banking services to remote areas, while real-time fraud detection systems enhance security and build trust in digital financial systems.

However, the implementation of AI in financial services also presents challenges, including data privacy concerns, the need for robust regulatory frameworks, and potential resistance to digital adoption due to cultural and historical factors. This paper highlights the importance of addressing these challenges through investments in digital infrastructure, regulatory development, public-private partnerships, and comprehensive financial literacy campaigns.

The findings underscore the potential of AI to transform financial inclusion in Albania, fostering economic growth and social equity. By leveraging AI responsibly and inclusively, stakeholders can create a more equitable financial landscape that benefits all segments of society.

Key Words: *Financial inclusion, economic development, AI, Albania.*

Introduction

Financial inclusion is the process of ensuring access to essential financial services for all individuals and businesses, particularly those who are underserved or excluded. It is a key driver for reducing poverty and fostering economic growth. In Albania, while there have been notable improvements in the financial sector, a substantial portion of the population remains excluded from formal financial services. This exclusion is more pronounced in rural areas, where infrastructure is limited, and financial literacy levels are low.

Artificial Intelligence (AI) has emerged as a transformative tool in various sectors, including finance. AI can provide innovative solutions to traditional barriers to financial inclusion, such as geographic constraints, lack of credit history, and operational costs associated with serving low-income populations. This paper examines the current state of financial inclusion in Albania, explores how AI can address these challenges, and provides policy recommendations for leveraging AI to promote inclusive financial systems.

Review of the Literature

Global Perspectives on Financial Inclusion

Financial inclusion has been a focus of global development agendas, with institutions such as the World Bank and the International Monetary Fund emphasizing its importance. Research has shown that financial inclusion can lead to poverty reduction, economic stability, and increased economic participation. Studies by Demirguc-Kunt et al. (2018) highlight that access to financial services can improve individuals' ability to manage risk, invest in education, and improve their overall economic situation.

AI in Financial Services

The integration of AI into financial services is a growing trend globally. AI technologies such as machine learning, natural language processing, and robotic process automation are being used to improve efficiency, reduce costs, and enhance customer experience. Studies by McKinsey (2020) and PwC (2021) indicate that AI can transform banking operations, risk management, and customer engagement, making financial services more accessible and inclusive.

Case Studies of AI-Driven Financial Inclusion

Various case studies demonstrate the impact of AI on financial inclusion. For instance, in India, AI-powered platforms have enabled millions to access credit and savings products. Research by Suri and Jack (2016) on M-Pesa in Kenya shows how mobile banking, supported by AI, has significantly increased financial inclusion in rural areas. These studies provide valuable insights into how similar technologies can be adapted to the Albanian context.

Challenges in AI Implementation

Literature also highlights challenges in implementing AI in financial services. Issues such as data privacy, algorithmic bias, and the need for regulatory frameworks are commonly discussed. Studies by Binns (2018) and Eubanks (2018) emphasize the ethical implications of AI in finance, stressing the need for transparent and accountable AI systems. These challenges are particularly relevant for countries like Albania, where regulatory and technological infrastructure is still developing.

Financial Inclusion in Albania

Research on financial inclusion in Albania is limited but growing. Studies by the Bank of Albania and the European Bank for Reconstruction and Development (EBRD) provide an overview of the financial landscape, highlighting the barriers to financial inclusion such as low financial literacy, limited access to banking services, and a high reliance on cash transactions. These studies suggest that digital financial services, including those powered by AI, could address many of these challenges.

The State of Financial Inclusion in Albania

Current Landscape

Despite improvements in financial infrastructure, Albania still faces significant challenges in achieving full financial inclusion. According to recent surveys, about 40% of adults in Albania do not have a bank account. This percentage is higher in rural areas, where access to financial institutions is limited. Additionally, there is a notable gender gap, with women being less likely to have access to financial services compared to men.

The digital payments sector is growing, but its penetration is still below regional averages. Only 35% of adults in Albania have made or received digital payments, indicating a reliance on cash-based transactions. This reliance poses a barrier to the broader adoption of formal financial services and the benefits they bring.

Barriers to Financial Inclusion

Several factors contribute to the low levels of financial inclusion in Albania:

a. **Geographical Constraints**: Rural and mountainous areas often lack the necessary infrastructure for traditional banking services.
b. **Lack of Trust**: Historical economic instability has led to a mistrust of financial institutions among the population.
c. **Low Financial Literacy**: Many Albanians have limited understanding of financial products and services, which hinders their ability to effectively use these services.
d. **Cash Dependency**: Cultural preferences and lack of access to digital payment systems have perpetuated a cash-based economy.

Opportunities for AI-Driven Financial Inclusion in Albania

Alternative Credit Scoring

Traditional credit scoring methods rely on formal financial histories, which many underserved populations lack. AI can leverage alternative data sources such as mobile phone usage, utility payments, and social media activity to assess creditworthiness. This approach allows financial institutions to extend credit to individuals who would otherwise be excluded from formal lending systems.

Mobile Banking Solutions

AI-powered mobile banking platforms can deliver financial services to remote areas, reducing the need for physical bank branches. These platforms can offer a range of services, including account management, loans, and savings products, all accessible through a smartphone. AI can also provide personalized financial advice and reminders, helping users manage their finances more effectively.

Fraud Detection and Security

AI can enhance the security of digital financial systems by detecting and preventing fraudulent activities in real-time. Machine learning algorithms can analyze transaction patterns to identify unusual behavior, enabling financial institutions to act swiftly to prevent fraud. This increased security can help build trust in digital financial services, encouraging more people to adopt them.

Financial Literacy Programs

AI-driven educational tools and chatbots can provide personalized financial literacy training in local languages. These tools can help users understand financial products, make informed decisions, and develop healthy financial habits. By improving financial literacy, AI can empower individuals to participate more fully in the formal financial system.

Microfinance and Savings Platforms

AI can assist microfinance institutions in designing customized loan and savings products that meet the specific needs of low-income populations. AI can also help optimize loan repayment schedules and provide insights into borrowers' financial behavior, reducing default rates and improving financial sustainability.

Case Studies Relevant to Albania

Rural Mobile Banking Initiatives

In other developing economies, mobile banking initiatives have successfully extended financial services to rural populations. For example, Kenya's M-Pesa platform has revolutionized access to financial services through mobile technology. Similar initiatives in Albania, powered by AI, could replicate this success and bring banking services to remote areas.

AI Credit Assessment in Emerging Markets

Companies like Tala and Branch use AI to provide credit to individuals in emerging markets by analyzing alternative data. These models could be adapted to the Albanian context to help small businesses and self-employed individuals access the credit they need to grow.

AI-Powered Digital Wallets

Digital wallets integrated with AI can encourage the transition from cash to digital payments. These wallets can offer features like budgeting tools, expense tracking, and financial goal setting, making it easier for users to manage their finances and transition to formal financial services.

Challenges in Implementing AI for Financial Inclusion in Albania

Digital Infrastructure

While internet penetration is increasing, access remains uneven, particularly in rural areas. Expanding digital infrastructure is essential for the successful implementation of AI-driven financial services.

Regulatory Frameworks

Albania's financial regulations need to be updated to accommodate AI-driven services. This includes establishing guidelines for data privacy, security, and ethical AI use to protect consumers and build trust in AI technologies.

Data Privacy Concerns

AI systems rely on large amounts of data, raising concerns about privacy and data security. Robust legal frameworks are needed to ensure that data is handled responsibly and that individuals' privacy is protected.

Resistance to Change

Cultural and historical factors may lead to resistance in adopting digital and AI-based financial systems. Addressing this resistance requires targeted education and awareness campaigns to build trust and familiarity with new technologies.

Recommendations

Infrastructure Investments

Expanding internet and mobile network coverage is crucial to ensure that all regions of Albania can access AI-driven financial services. Investments in digital infrastructure will enable more people to participate in the formal financial system.

Regulatory Development

Developing clear and comprehensive regulations for AI in financial services is essential. These regulations should address data privacy, security, and ethical considerations to protect consumers and encourage responsible AI use.

Public-Private Partnerships

Collaboration between the government, financial institutions, and technology companies can drive the development and adoption of AI-driven financial solutions. Public-private partnerships can facilitate knowledge sharing, resource pooling, and the scaling of successful initiatives.

Education and Awareness

Nationwide financial literacy campaigns are needed to educate the population about the benefits and use of AI-driven financial services. These campaigns should focus on building trust and addressing concerns about digital financial systems.

Pilot Programs in Rural Areas

Implementing pilot programs in rural areas can demonstrate the benefits of AI-driven financial services and provide valuable insights into the challenges and opportunities of scaling these solutions nationwide. These programs can serve as models for expanding financial inclusion across Albania.

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Enhancing Foreign Tourist Experiences Through Gamification: A Case Study of Digital Scavenger Hunts in Tirana

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Abstract

This study explores the potential of gamification to enhance tourist experiences through the implementation of digital scavenger hunts in Tirana, Albania. Using the Actionbound app, the author designed the game Explore Tirana, an interactive and multimedia-based scavenger hunt aimed at engaging tourists with the city's central points of interest. The research involved 16 foreign tourists who participated in this gamified exploration of Tirana. A qualitative methodology was employed, combining focus group discussions and direct observation, with thematic analysis used to examine participants' perceptions and interactions. The study investigates the relationship between gamification elements and four experiential dimensions: education, aesthetics, entertainment, and escapism. By incorporating challenges, points, and collaborative tasks, the Explore Tirana scavenger hunt guided participants through Tirana's cultural and historical landmarks, transforming traditional sightseeing into an enriched experience. The findings reveal that gamification significantly enhanced the tourist experience. The educational dimension was addressed through tasks that sparked curiosity and deepened participants' understanding of Tirana's cultural heritage. The aesthetic dimension was amplified as participants observed and appreciated overlooked architectural and landmark details. Entertainment was evident in the dynamic group interactions and the enjoyment derived from the gamified challenges. The escapism dimension was fostered through the immersive experience, enabling participants to disconnect from daily routines and fully engage with their surroundings. This research highlights the transformative potential of gamification in tourism, particularly in emerging destinations like Tirana. It contributes to the discourse on smart tourism, emphasizing the role of gamified strategies in fostering meaningful connections between tourists and destinations. The study also offers practical implications, encouraging the integration of gamification into tourism planning to meet the evolving preferences of modern travelers. It provides policymakers, tourism operators, and designers with a framework to optimize and elevate the tourist experience, paving the way for more engaging and innovative approaches to destination marketing and management.

Keywords: *Tourist experience, Gamification, Digital scavenger hunts, Innovation.*

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Introduction

Tourism is a complex and dynamic sector that plays a pivotal role in the cultural, social, and economic development of cities (Pawalluri, 2023; Rapo & Zenelaj, 2025). With the intensification of global competition in the tourism industry, destinations are increasingly adopting innovative strategies to attract and engage visitors, leveraging technology as a transformative force (Almasoodi et al., 2023). Among these innovations, gamification—defined as the application of game-design principles in non-game contexts—has emerged as a powerful approach to enhance user engagement, motivation, and satisfaction (Zhao, 2024). In the realm of tourism, gamification transforms passive sightseeing into immersive and interactive experiences, fostering deeper connections between visitors and their destinations (Kumar et al., 2024). Tirana, Albania's capital, presents a unique case for such innovation, blending rich historical and cultural heritage with a rapidly evolving urban landscape (Papa, 2024; Rapo & Kruja, 2024). As an emerging tourist destination, Tirana faces challenges in sustaining visitor interest and promoting exploration beyond traditional landmarks; a promising solution lies in digital scavenger hunts—gamified activities that combine exploration, education, and entertainment, allowing participants to solve clues and complete tasks for a memorable and personalized engagement with urban spaces (Manzoor et al., 2020; Eshaghi, 2020). This study examines the potential of gamification, specifically through digital scavenger hunts, to enhance the tourist experience in Tirana. By exploring the intersection of technology, engagement, and cultural discovery, it investigates how such initiatives can inspire a sense of adventure and create meaningful connections between visitors and the city. Using a mixed-methods approach, the research incorporates both primary and secondary data, including feedback from participants of digital scavenger hunts conducted in Tirana, to evaluate the efficacy of this gamified approach in addressing the diverse expectations and needs of tourists. The research aligns with the broader framework of smart tourism, which emphasizes the use of digital technologies to create sustainable, inclusive, and engaging travel experiences. Focusing on Tirana, a city undergoing significant cultural and urban transformation, the study not only highlights local opportunities but also contributes to the global discourse on innovative tourism strategies. The findings aim to provide actionable insights for policymakers, tourism operators, and technology developers seeking to integrate gamification into tourism frameworks. Ultimately, this research argues that gamification represents more than a passing trend; it is a transformative tool for reimagining the future of tourism. By embedding elements of play, interactivity, and discovery into the exploration of Tirana, digital scavenger hunts demonstrate how destinations can captivate contemporary travelers, creating experiences that are not only enjoyable but also deeply meaningful.

Literature Review

Gamification

Gamification, the application of game elements and mechanics in non-game contexts, has emerged as a powerful tool for enhancing engagement, motivation, and participation in various domains (Luo, 2022). At its core, gamification seeks to tap into human psychology, leveraging elements such as competition, rewards, challenges, and achievements to create compelling and immersive experiences (Christopoulos & Mystakidis, 2023). Its effectiveness stems from its ability to trigger intrinsic motivation, encouraging individuals to complete tasks for the sense of accomplishment or enjoyment they provide, rather than external rewards alone (John et al., 2023). Key game mechanics used in gamification include points, leaderboards, badges, levels, and missions (Parapanos & Michopoulou, 2021). These elements foster a sense of progress and recognition, often making mundane or complex tasks more enjoyable (Swacha, 2023). Digital platforms and mobile applications have significantly amplified the reach and potential of gamification by providing scalable, interactive environments (Mohammadpourlima et al., 2024). While initially applied in fields like education, health, and corporate training, gamification has expanded into areas such as marketing, user experience design, and tourism, where it continues to redefine user engagement paradigms (Wang et al., 2022).

Gamification in Tourism

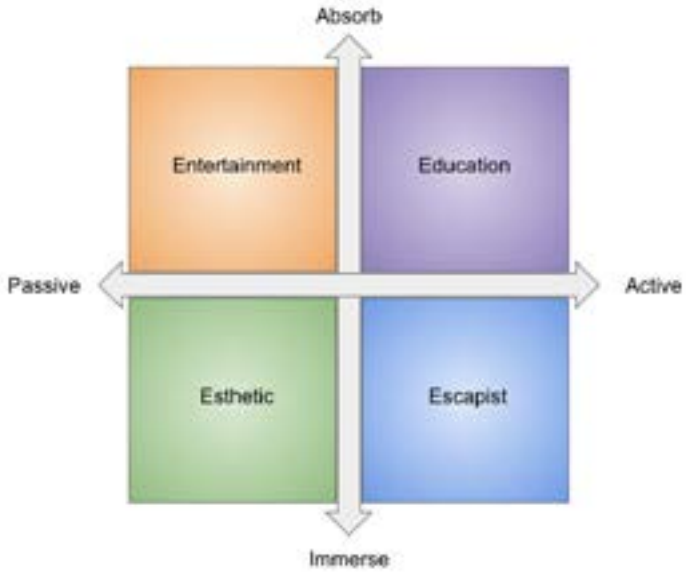
In tourism, gamification has been widely adopted to create enriched and interactive visitor experiences (Xu et al., 2017). By integrating game elements into travel activities, destinations can transform passive sightseeing into active, engaging adventures (Weber, 2017). Tourists are encouraged to explore, learn, and connect with cultural, historical, and natural landmarks in ways that are both educational and entertaining (Zhu et al., 2024). Mobile apps and digital platforms have been instrumental in implementing gamified tourism strategies (Chan, 2024). Features such as location-based challenges, augmented reality, and scavenger hunts allow tourists to navigate and interact with destinations innovatively (Kubitzek, 2021). Gamification is particularly effective in encouraging exploration of lesser-known attractions, promoting sustainable tourism practices, and fostering a deeper connection with the local culture (Shashwat et al., 2024). Beyond enhancing

the tourist experience, gamification also serves as a valuable marketing and branding tool for destinations (Pasca et al., 2021). It provides shareable and memorable experiences that resonate with modern travelers, particularly Generation Z, who seek personalized, tech-driven, and participatory activities (Chan, 2024). Additionally, gamified tourism supports social engagement by enabling group interactions, competitions, and collaborative challenges, making it ideal for families and peer groups (Chan, 2024; Singh, 2022). As the tourism industry embraces sustainability and digital transformation, gamification represents a forward-thinking approach to meeting the evolving needs and expectations of tourists (Rapo, 2024; Mandalia, 2023). By blending the principles of play with the objectives of exploration and learning, it has the potential to reshape how destinations are experienced, marketed, and remembered (Albrecht & Raymond, 2023).

Tourist Experience

Tourist experience plays a crucial role in shaping the satisfaction, engagement, and overall impact of travel (Zhou & Yu, 2022). Kruja and Drishti (2020) state "tourist experience is increasingly recognized as a key research theme." Pine and Gilmore's (1998) experience economy model identifies four key dimensions of consumer experience: education, aesthetics, entertainment, and escapism. These dimensions collectively contribute to creating profound and memorable encounters that resonate emotionally and intellectually with tourists (Wu et al., 2024).

FIGURE 1



Source: Experience Economy Dimensions Adopted from Pine and Gilmore (1998)

The educational dimension of tourist experiences emphasizes learning and intellectual growth (Tomasi et al., 2020). It engages visitors through opportunities to acquire new knowledge, explore cultural or historical insights, and stimulate curiosity (Kastenholz & Gronau, 2022). Experiences that are perceived as educational enrich the visitor's perspective, often creating a sense of accomplishment (Annechini et al., 2020). Tourists may value encounters where they feel informed about local traditions, historical contexts, or natural phenomena, transforming their journey into a real learning experience (Breiby et al., 2020). This aspect is particularly significant in heritage tourism, museums, and eco-tourism settings, where learning is integral to the engagement process (Selvakumar et al., 2024). The esthetic dimension focuses on the sensory and emotional appeal of a destination (Kastenholz et al., 2020). It encapsulates how the visual, auditory, and atmospheric qualities of a setting contribute to a tourist's overall sense of harmony and pleasure (Li et al., 2023). A well-designed, attractive environment can evoke feelings of tranquility and admiration, providing a seamless and immersive experience (Khan, 2021). Natural landscapes, architectural marvels, and culturally rich environments are prime examples of settings that offer esthetic value (Al-Kodmany, 2024). This dimension often leads to deep emotional connections, influencing the way visitors perceive and remember a destination (Akgün et al., 2020). Entertainment as a component of tourist experience involves enjoyment derived from activities or performances observed at a destination (Luo et al., 2020). Whether through organized events, street performances, or informal group activities, entertainment captivates tourists, offering relaxation and amusement (Bala & Stevenson, 2024). Watching others participate, engaging with cultural festivities, or observing local rituals creates a lively atmosphere that enhances enjoyment (Darvishmotevali et al., 2023). This dimension is particularly prominent in theme parks, cultural festivals, and live performances, where active and passive engagement with the surroundings provides delight and novelty (Moulton, 2022). The escapism dimension transports tourists into an alternate reality, allowing them to step away from their everyday lives (Ponsignon et al., 2021). This element involves active participation and emotional immersion,

enabling individuals to imagine themselves in different roles, times, or places (Cummings et al., 2022). Whether through historical reenactments, adventure tourism, or fantasy-themed attractions, escapism fosters personal transformation and deep emotional engagement (Huang et al., 2024). It allows tourists to connect with destinations on a psychological level, offering a sense of freedom and renewal (Sheldon, 2020).

Methodology

This study employed a qualitative research approach, utilizing a case study design to explore the impact of gamification on enhancing tourist experiences in Tirana. The research methods included focus group discussions and direct observation, enabling an in-depth understanding of participants' perceptions, behaviors, and interactions with the gamified activity. Four focus groups, each consisting of four participants, were conducted, totaling 16 individuals. Participants were selected using purposive sampling based on their willingness to engage with the gamified scavenger hunt and their familiarity with mobile applications. Each focus group session lasted between 60 and 90 minutes and took place following participants' completion of the digital scavenger hunt *Explore Tirana*. The discussions were semi-structured, guided by open-ended questions designed to explore participants' experiences with the gamified activity. Key areas of inquiry included emotional responses, perceived educational value, engagement with the esthetic aspects of the locations, entertainment elements, and any feelings of escapism prompted by the experience. The questions were developed based on existing literature and were aligned with the main dimensions of tourist experience (Bagheri et al., 2024). The semi-structured format encouraged an interactive dialogue, allowing participants to share their thoughts and engage in a collaborative discussion of their perspectives. In addition to the focus groups, direct observation was conducted during the scavenger hunt activities. This method allowed the researcher to capture real-time interactions, behaviors, and reactions as participants engaged with the Explore Tirana game and the designated sites in Tirana. Notes were taken on participants' navigation of tasks, group dynamics, emotional responses, and the overall flow of the activity. Observational data provided valuable context, supplementing the insights gained from the focus groups and offering a holistic view of the gamified tourist experience. Data from the focus groups and observations were analyzed thematically. Transcripts of focus group discussions were reviewed to identify recurring themes and patterns related to the educational, esthetic, entertainment, and escapism dimensions of the tourist experience. Observational data were similarly categorized to highlight behaviors and interactions that aligned with these themes. This combination of methods ensured a comprehensive understanding of how gamification influenced the participants' tourist experience. To ensure participant confidentiality, each individual was assigned a unique anonymous code, with no identifying information linked to these codes. All data, including focus group transcripts and observational notes, were securely stored and accessible only to authorized researchers. Participants provided informed consent after being assured their identities would remain protected throughout the study. In reporting, responses were attributed to these codes (e.g., "Participant A1 expressed..."), preserving anonymity while enabling clear and consistent qualitative analysis. This approach safeguarded privacy while maintaining the integrity of the data.

TABLE 1.1 Participant Codes by Group

Group	Participant 1	Participant 2	Participant 3	Participant 4
A	A1	A2	A3	A4
B	B1	B2	B3	B4
C	C1	C2	C3	C4
D	D1	D2	D3	D4

Context of the Case Study: *Explore Tirana*

This case study was conducted in Tirana, Albania, utilizing the Actionbound application to develop an interactive exploration game titled *Explore Tirana*. The study aimed to integrate gamification into the tourist experience by designing a digitally augmented scavenger hunt that promoted education, esthetics, entertainment, and escapism. Tirana was chosen for its rich sociocultural, historical, and geographical significance, offering an ideal setting for gamified exploration. The city's diverse landmarks reflect Albania's historical trajectory, architectural variety, and urban development, providing a compelling backdrop for the study. The game guided participants through key sites in Tirana, selected for their cultural, historical, and architectural value. Starting at Skanderbeg Square, with its statue of Albania's national hero, the journey continued at the National Museum to explore the country's history. The iconic Clock Tower offered a link to the city's architectural heritage, while Bunk'Art provided insights into Albania's communist era. Tanner's Bridge highlighted Ottoman engineering, and the New Bazaar showcased vibrant local commerce. The Pyramid of Tirana symbolized the city's evolving identity, transitioning from a monument of dictatorship to a modern cultural hub. Italia Square exemplified contemporary urban planning, and the Palace of Congress represented the city's development. These sites collectively

offered a rich narrative of Tirana's past and present. The *Explore Tirana* game incorporated several gamification elements such as group photos, video recordings, and quizzes to foster engagement, physical activity, creativity, and problem-solving. One notable aspect of the game was its focus on linguistic and cultural immersion. Participants practiced basic Albanian phrases and engaged with locals, fostering cultural awareness, building practical language skills, and encouraging meaningful interactions within the community. Navigation was facilitated through the Actionbound app's GPS-enabled interface, which provided real-time directional prompts to guide participants seamlessly through the city's key sites. This design minimized confusion and enhanced the flow of the game, ensuring participants could easily navigate while reinforcing the gamified experience. A competitive element was introduced through a scoring system that rewarded accuracy and timeliness while penalizing delays or errors. Points were awarded for task completion, and multimedia submissions such as videos and audio recordings enriched the experience. Tasks requiring participants to document their reflections, such as describing local crafts or narrating the history of a landmark, encouraged deeper cultural engagement with Tirana's heritage. The success of the study was supported by Tirana's widespread adoption of digital technologies, including high-speed internet and mobile connectivity, which ensured the smooth operation of the Actionbound app. This technological infrastructure allowed participants to rely on GPS navigation and smartphone interfaces without technical issues, further enhancing their experience. The decision to conduct the study in Tirana was informed by the city's growing popularity as a tourist destination. The game aligned with current tourism trends that emphasize active participation, personalization, and immersive experiences. By leveraging Tirana's unique cultural and historical assets, *Explore Tirana* offered an innovative, dynamic framework for engaging foreign tourists and enhancing their experience.

Findings

Thematic Analysis of Focus Group Responses

The focus group interviews provided rich insights into participants' experiences with the gamified scavenger hunt in Tirana, highlighting the multidimensional impact of the activity across educational, esthetic, entertainment, and escapism themes. Participants consistently emphasized the learning opportunities provided by the scavenger hunt. A1 reflected, *"The task at the Et'hem Bey Mosque helped me connect with its history—I had never paid attention to the details of its design before."* Similarly, B3 shared, *"The puzzles encouraged me to think about Tirana's history in ways I hadn't before. I now feel like I know the city better."* When the researcher asked, *"Did the tasks stimulate your curiosity to learn more about Tirana?"* C4 responded, *"Definitely. After the hunt, I looked up more about the Bunk'Art Museum—it was such a fascinating experience."* This sentiment was echoed by D2, who noted, *"It wasn't just a game; it felt like a real learning experience."* The esthetic qualities of the setting deeply resonated with participants. A3 remarked, *"Walking through Skanderbeg Square during the game gave me a new appreciation for its architecture. It felt like everything came together in harmony."* Similarly, B2 described the experience at Pazari i Ri, saying, *"The vibrant colors and energy of the marketplace made the app-guided challenge even more enjoyable."* When the researcher probed, *"How did the physical environment enhance your experience?"* C1 noted, *"The way the app highlighted small details, like the mural at one stop, made me see things I'd never noticed before."* D4 added, *"Even places I've seen before felt different—it was like seeing them through a new lens."* Participants expressed enthusiasm about the entertainment aspect, particularly the interactive and social dynamics of the scavenger hunt. A2 mentioned, *"The photo challenges were so much fun, especially when we got creative as a group."* B4 highlighted, *"Watching how others solved the riddles or approached tasks was as entertaining as doing it myself—it kept the energy high."* Responding to the question, *"What specific activities did you find most enjoyable?"* C3 shared, *"The trivia challenges were my favorite—they were not only fun but also gave us something to laugh about when we got them wrong."* D3 noted, *"The competitive edge between groups made the experience even more exciting."* Escapism emerged as a transformative aspect for many participants. A4 stated, *"I felt like I was part of a story, exploring the city like an adventurer."* Similarly, B1 shared, *"For those few hours, it felt like I was living in a different time—it was a refreshing break from everyday life."* When asked, *"Did the activity make you feel disconnected from your usual routine?"* C2 responded, *"Absolutely. I didn't even think about work or my phone notifications—it was fully immersive."* D1 added, *"The way the app blended history with the challenges made me feel like I was stepping back in time."* Participants also provided constructive feedback for enhancing the experience. A2 suggested, *"Adding audio guides for each location would make it even better for first-time visitors."* B3 recommended, *"Augmented reality features could make it more immersive, like seeing historical figures appear at landmarks."* C4 noted, *"Some of the tasks were too easy—I'd like to see more challenging puzzles."* Similarly, D2 proposed, *"Having a longer scavenger hunt covering more sites would be great. We didn't want it to end!"* Overall, individual feedback highlighted how the gamified scavenger hunt seamlessly combined learning, esthetics, fun, and escapism into a holistic experience.

TABLE 1.2 Insights from Focus Group Discussions

Group	Educational Value	Esthetic Appeal	Entertainment	Escapism	Suggestions for Improvement
Group A	Found the scavenger hunt enhanced historical understanding; tasks deepened appreciation of landmarks.	Noticed harmony and architectural details in key sites.	Enjoyed photo challenges and creative group dynamics.	Felt immersed, like an adventurer exploring the city.	Suggested adding audio guides to enhance context.
Group B	Emphasized learning through puzzles and tasks, increasing curiosity about local history.	Appreciated vibrant settings like markets for their energy and color.	Enjoyed observing others' problem-solving approaches.	Felt disconnected from daily life, immersed in a unique experience.	Recommended augmented reality features for interactivity.
Group C	Described tasks as stimulating curiosity; continued exploring topics after the activity.	Highlighted how small details and murals gained new significance.	Enjoyed trivia challenges for their mix of fun and humor.	Experienced full immersion, forgetting work and notifications.	Suggested more challenging puzzles for experienced users.
Group D	Reported a meaningful learning experience beyond the game's entertainment.	Familiar sites felt fresh and engaging through the app's lens.	Found the competitive aspect particularly exciting.	Described the activity as stepping back in time.	Proposed a longer scavenger hunt covering additional sites.

Observational Findings: Participant Engagement and Experience in Gamified Exploration

Observational data from the gamified scavenger hunt *Explore Tirana* revealed several key patterns in participant engagement, interaction, and response to the activity. Participants demonstrated a high level of cognitive engagement, actively interacting with the content and environments of each location. Observation showed that tasks requiring critical thinking, such as quizzes and puzzles, elicited collaborative problem-solving within groups. At historical sites, such as the National Museum and Bunk'Art, participants were seen discussing exhibits, reading informational plaques, and referencing the app's prompts to connect with the locations' historical narratives. This behavior suggested that the game facilitated both individual and group learning. Participants appeared highly responsive to the esthetic aspects of Tirana's landmarks. Observers noted moments of awe, particularly at visually striking locations like the Pyramid of Tirana and Pazari i Ri. Participants frequently paused to take photographs of architectural details and colorful surroundings, often remarking on these features aloud. The scavenger hunt's focus on overlooked elements, such as murals and intricate designs, encouraged participants to notice details they might have otherwise ignored. The gamified structure was a source of visible enjoyment for participants. Tasks such as group photo challenges and trivia were met with laughter and playful interactions. The competitive aspect of the game, highlighted by a scoring system, fostered a sense of excitement and motivation. Observers noted heightened energy and camaraderie during moments of competition, as participants encouraged one another and celebrated completed tasks. This dynamic was especially evident during team-based challenges, where collaboration contributed to a shared sense of accomplishment. Participants displayed signs of immersion, with many appearing fully engaged and disconnected from external distractions. Observers noted that individuals frequently verbalized their enjoyment of the activity, describing it as a unique and refreshing experience. At sites like Tanner's Bridge and Skanderbeg Square, participants exhibited behavior indicative of role-playing, imagining themselves as explorers or historical figures. These actions highlighted the activity's capacity to provide a sense of escape and immersion. Observation revealed that group cohesion played a significant role in the overall experience. Participants who collaborated effectively tended to express more satisfaction, while less coordinated groups occasionally faced delays in task completion. Overall, the gamified scavenger hunt fostered social interaction and collective engagement, reinforcing the activity's interactive and participatory nature.

Discussion

The integration of gamification into tourism, as observed during the case study in Tirana, reveals its potential to reshape the tourist experience by aligning with the dimensions of Pine and Gilmore's (1998) experience economy model: education, aesthetics, entertainment, and escapism. This discussion synthesizes findings from focus group interviews and observational data with the theoretical underpinnings presented in the literature review. Gamification emerged as a compelling tool for enhancing the educational dimension of the tourist experience. During the digital scavenger hunt, participants reported engaging deeply with the historical and cultural narratives of Tirana's landmarks. The tasks not only prompted them to explore previously unnoticed details but also stimulated curiosity, leading many to seek additional information post-

activity. This finding aligns with Kastenholz and Gronau (2022), who emphasize the role of learning in enriching tourist experiences. The gamified approach transformed passive observation into active engagement, reinforcing the notion that gamification fosters intellectual growth and meaningful interactions with destinations (Annechini et al., 2020). The esthetic dimension was particularly evident as participants expressed a heightened appreciation for Tirana's architectural and cultural landscapes during the gamified experience. By directing attention to visual and sensory elements, such as murals and historic structures, the scavenger hunt facilitated a deeper emotional connection to the city. These findings echo the work of Li et al. (2023), who highlight the importance of sensory engagement in creating harmonious and immersive experiences. The observation that even familiar settings were perceived anew underscores the role of gamification in enhancing the sensory appeal of destinations. Gamification also amplified the entertainment value of the tourist experience. Participants found joy in the competitive and interactive aspects of the scavenger hunt, with activities like riddles and photo challenges fostering both individual amusement and group dynamics. This aligns with Darvishmotevali et al. (2023), who note the significance of shared enjoyment in enhancing tourist satisfaction. The observation of lively group interactions supports the assertion by Chan (2024) that gamified tourism promotes social engagement, making it particularly appealing to families and peer groups. The playful and lighthearted nature of the activities contributed to an atmosphere of relaxation and fun. The escapist dimension, characterized by emotional immersion and psychological detachment from daily routines, was strongly evident in participants' responses. The gamified challenges created a narrative-driven experience, allowing tourists to imagine themselves as adventurers uncovering Tirana's secrets. This aligns with Huang et al. (2024), who emphasize the transformative potential of escapism in fostering emotional and psychological renewal. The immersion observed during the scavenger hunt supports Sheldon's (2020) argument that escapist activities enable tourists to connect with destinations on a profound, personal level. The findings indicate that gamification is a highly effective strategy for engaging tourists across multiple dimensions of experience.

Conclusion and Implications of the Study

This study examined the role of gamification in enhancing tourist experiences in Tirana, focusing on the dimensions of education, aesthetics, entertainment, and escapism. Findings indicate that gamification, implemented through digital scavenger hunts, effectively transforms traditional tourism into an engaging and meaningful activity. By fostering active participation, gamified activities create opportunities for learning, aesthetic appreciation, enjoyment, and immersion, offering tourists a deeper connection with the destination. The educational aspect of gamification stood out, as tasks integrated with historical and cultural elements enhanced participants' knowledge and curiosity about Tirana. Similarly, the gamified approach heightened aesthetic engagement by drawing attention to often-overlooked urban and cultural details. The entertainment dimension contributed to high levels of enjoyment and collaboration, making the experience dynamic and socially interactive. Escapism was another notable outcome, as participants described feeling immersed and temporarily disconnected from their routines, reinforcing the emotional and psychological impact of the activity. The study's implications emphasize the value of gamification as an innovative strategy for enriching tourist experiences. Tourism operators and destination managers can leverage gamified activities to engage visitors actively and promote cultural exploration in an interactive and memorable way. Furthermore, gamification offers a practical means to showcase unique urban features and enhance the appeal of lesser-known landmarks, providing a sustainable approach to destination management. In conclusion, gamification proves to be a powerful tool for modern tourism, transforming passive sightseeing into immersive, educational, and enjoyable experiences. By adopting gamified strategies, destinations like Tirana can meet evolving tourist expectations while strengthening their cultural and urban appeal.

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The effect of demographic factors on university students' digital proficiency

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Abstract

This study investigates the connection between university students' digital skills and demographic factors. Understanding the elements impacting students' digital abilities is essential given the growing dependence on digital technologies for social, professional, and academic activities. The study looks at how students' skills with digital tools and online platforms are impacted by demographic factors such as gender, location, employment, and education level. A broad sample of university students from a range of academic fields participated in a scheduled survey to provide data. According to the data, students from specific backgrounds exhibit varying degrees of digital proficiency, indicating notable differences in digital skills depending on demographic structures. For example, students who are full time employed tend to have high level of operational skills, and differences in gender and location also affect how familiar students are with different digital tools, as internet skills, information navigation skills, creative skills, etc. In addition to highlighting the need for focused educational interventions to close the digital divide among university students, this study offers insightful information on how demographics shape digital literacy. The findings can guide plans and policies to improve training in digital skills, guaranteeing that all students have equal access to and opportunities in the digital age.

Keywords: *Digital skills, Demographic factors, Digital divide, Universities, Albania.*

Introduction

Digital technology has become essential to almost every facet of life in the modern day, including social contact, work, education, and communication. Effective use of digital tools, also known as "digital skills," has become a critical competency for people to thrive in both academic and professional settings. Digital literacy is crucial for university students in particular, not just for conducting research and gaining access to learning resources, but also for building the skills needed in a competitive and quickly changing labor market.

Digital skills are becoming more and more important, but access to and competence with digital technology are still not equally distributed. Several demographic characteristics, including gender, location, socioeconomic class, education level, and work status, have an impact on this phenomenon, which is frequently referred to as the "digital divide." Students may experience unequal chances as a result of these discrepancies, which may impair their capacity for academic success and future employability. It is especially critical to comprehend the demographic determinants of digital skills in areas like Albania where technological and educational infrastructures are still evolving.

Digital skills include the critical and safe use of information technology in the workplace, leisure, and communications. They cover a range of skills, knowledge, attitudes, and strategies necessary to make use of digital media and information and

communication technologies. Globally, the use of digital technology has given society access to a wealth of information, requiring new skill sets to access, manage, integrate, and evaluate information.

With the rise of new advancements in technologies and information systems, there is a need to understand the digital skills required to make use of and benefit from them. In this context, educational institutions play an important role in preparing students to acquire digital skills and perform accordingly to achieve desired outcomes.

As "students come to college with differing technological skills, stratified by gender, socioeconomic status, and racial backgrounds," (Goode, 2010), it is difficult to provide customized solutions. The danger of digital exclusion is a threat to anyone who does not have the necessary skills to face digitization across all areas of humanity. Students' exposure to digital technologies does not necessarily mean that they are digitally skilled. Understanding the elements impacting students' digital abilities is essential given the growing dependence on digital technologies for social, professional, and academic activities

Findings emerging from recent research emphasize the intricate relationship between demographic traits and digital abilities. For instance, studies indicate that male students might be more comfortable utilizing specific digital technologies, and urban students generally have greater access to digital resources and high-speed internet than their rural counterparts. In a similar vein, students who work, especially in office-based or digital professions, frequently pick up useful digital skills that their counterparts without jobs might not have. These differences highlight the need to investigate how different backgrounds influence university populations' digital literacy.

With an emphasis on Albanian students, this study attempts to examine the connection between important demographic factors and the digital skills of college students. The study looks for trends and gaps in students' digital proficiency by examining survey data from a varied student body. The results are meant to guide the development of focused interventions and legislative actions that support equitable access to online learning and guarantee that every student may succeed in the digital era.

Literature Review

Due to the digital revolution in education, university students now need to be proficient in digital skills. However, these abilities are not evenly distributed. Rather, they are impacted by several demographic variables, such as gender, place of residence, work status, and previous schooling. Designing inclusive educational policies and practices requires an understanding of these discrepancies.

Digital skills encompass the knowledge and ability to recognize information needs through digital technologies. This involves understanding how to navigate digital environments, identify relevant data sources, and determine the best tools for addressing specific tasks or problems. In addition to accessing information, digital skills also involve the effective use of digital tools and equipment to organize, evaluate, and create digital content. These competencies are essential for participating in today's digital society and economy (Oboreh & Nnebe, 2019).

There is ample evidence of gender disparities in digital proficiency. According to a number of worldwide studies, male students frequently exhibit higher levels of confidence and proficiency in technical facets of digital competency, such as using software or creating online material. In a Spanish study, for instance, female students were better at using institutional communication systems like university email, whereas male students reported being more skilled at making online presentations (García-Holgado et al., 2017). According to another study, female students who used a variety of learning techniques, including traditional, collaborative, and autonomous learning, tended to score higher on tests of digital competency (García-Peñalvo et al., 2017). These results imply that the digital divide may be exacerbated by gender-based choices in education and technology use.

Students' access to digital resources and, in turn, their digital skills are greatly influenced by their geographic location. Better facilities, internet access, and institutional support are generally advantageous for students who attend schools in urban or central locations. According to Silva-Quiroz and Morales-Morgado (2022), university students in Chile's central regions had noticeably greater levels of digital competency than those in the country's northern and southern regions. In a similar vein, a Chinese study discovered that urban students were better at digital learning than their rural counterparts (Chen et al., 2025). The significance of location-based interventions and investments in digital infrastructure is highlighted by these inequalities.

Inequality between regions is also evidenced in the Albanian environment. According to a Durrësi case study, digital technology increased student involvement in the classroom; yet, the full potential of digital integration was constrained by problems such as inadequate teacher training, outdated equipment, and poor internet connectivity (Osmani & Tartari, 2024). A national brief that outlined the structural obstacles blocking equal access to digital learning opportunities throughout Albania lends credence to these findings (Gishti, 2018).

A European study on digital entrepreneurial competence among university students found that those with employment experience perceived themselves as having significantly higher levels of digital competence (Delgado-Almonte et al., 2022). This suggests that real-world applications and practice can complement academic instruction in improving digital literacy. Students' employment status can also shape their digital competencies. Employed students are frequently required to use digital tools in the workplace, which enhances their operational and problem-solving skills.

Digital competency is significantly influenced by the quality and amount of prior education and ICT training. Prior to enrolling in college, students who received formal instruction in digital tools demonstrated superior performance in areas like communication, information management, content creation, and safety (Cervera et al., 2021). Due to superior resources and instructional strategies, students from private schools also typically possess more sophisticated digital abilities (Silva-Quiroz & Morales-Morgado, 2022).

ICT integration in secondary education in Albania has been patchy and poorly supported. Digital skills are a crucial area for growth, according to the National Employment and Skills Strategy (NESS); nonetheless, obstacles to implementation have included a lack of institutional and financial resources (Gishti, 2018). Furthermore, studies that examine the potential of ICT as a teaching tool point to certain barriers, such as a lack of technological resources, a lack of digital content available in the student's native language, and restricted student access to the internet on schools (Axhami, 2023). These barriers suggest a fragmentation in ICT implementation and usage patterns in Albania, which should be tackled by appropriate funding and adequate infrastructure through advocacy and policy efforts.

Research Methodology

This study uses a quantitative research approach to investigate the association between important demographic characteristics and the digital skills of university students. A standardized, self-administered questionnaire was used to gather data. The measurement instrument was adopted from Van Deursen et al. 2014 and aims to evaluate students' digital competences in four key dimensions: social skills, online navigation skills, operational skills, and creative skills. Social skills are skills central to most social network sites and enable social sharing, and adequate social interaction. Online navigation skills include skills related to online research. Operational skills include skills to properly operate digital media, from operating an Internet browser to online search engines, and navigation on the Internet (Van Deursen & Van Dijk, 2008). Lastly, creative skills include skills centered to content creation and content integration (Li & Hu, 2020).

A series of self-reported items evaluated on a Likert scale were used to test each component. These items were intended to gauge how frequently and confidently students perform different digital tasks. The study sample was selected randomly, and the questionnaire was shared electronically by email. However, participation was completely voluntary in order to maintain integrity, openness, morality, and participant safety.

When administering the primary survey, we implemented several measures to address frequently encountered problems with online surveys. We customized the Google Forms survey to only accept one response per participant in order to avoid duplicate entries and double responses. To reduce the possibility of quickly filled or unmotivated responses, we made the questionnaire short and simple. We considered that this strategy would discourage participants from giving less genuine and considerate answers.

To ensure clarity and reliability, the survey instrument was initially pilot-tested with a small group of students after being designed using validated frameworks from the body of current literature on digital skills evaluation. Based on pilot feedback, minor changes were considered to enhance the item's structure and phrasing and to improve understanding.

Data collection was conducted online over a period of four weeks. Participation was voluntary and anonymous, with informed consent obtained from all respondents.

A total of 321 responses came back which were further refined to remove the response in which consent to use the data shared was not granted by participants. This step resulted in a final sample of 268 usable questionnaires, which were considered sufficient for the analyses.

Study participants completed a structured self-reported questionnaire concerning a set of digital skills assessing the four main dimensions:

1) operational skills,
2) internet navigation skills,
3) creative skills, and
4) social skills.

These dimensions were considered and analyzed in association with socio-demographic factors. The collected data were analyzed using descriptive statistical methods.

CHART 1. Four main dimensions of digital skills.



By guaranteeing diversity across academic fields, academic year, and geographic location, the sampling technique resulted in a representative sample of students in higher education. Demographic variables assessed through questions on gender, employment status, place of residence (rural or urban), and educational attainment (bachelor's or master's) were also included in the questionnaire.

Data Analysis and Research Findings

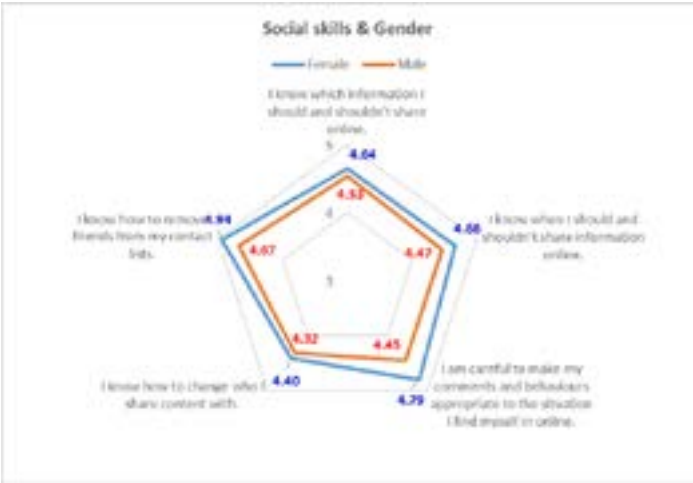
For the aim of this study we used bivariate analysis since our scientific inquiry is not just about describing and analyzing isolated occurrences that happen separately from one another. Bivariate analysis can be used to examine the relationship between two variables without a cause-and-effect link or how the outcome variable depends on or is explained by the explanatory variable.

The radar chart titled "Social skills & Gender" compares self-reported online social skills between females and males across five categories. The scores range from 1 to 5, with higher values indicating greater proficiency.

This chart compares online social skills between females and males across five categories, showing that females consistently report higher proficiency in all areas. Females rated themselves highest in making appropriate online comments and behavior (4.79) and lowest in knowing how to change who they share content with (4.40).

Males rated themselves highest in removing friends from contact lists (4.67) and lowest in changing content-sharing settings (4.32). The greatest gender gap is seen in appropriate online behavior, with females scoring significantly higher. Overall, the chart suggests that females perceive themselves as more skilled in managing online social interactions and privacy.

CHART 2. Social skills & Gender



Gender plays an important role, where females report higher social skills as compared to males. Females perceive themselves as more competent in managing online social behaviors and privacy settings than males, with the most notable differences in socially sensitive communication and content-sharing awareness.

The radar chart titled "Operational Skills & Location" compares basic digital operational skills across three geographic areas: urban, peri-urban, and rural. This radar illustrates differences in basic digital skills among students from urban, peri-urban, and rural areas. Urban and peri-urban residents report similarly high proficiency across all five operational tasks, such as opening downloaded files, using shortcut keys, and bookmarking websites. In contrast, rural residents show notably lower skill levels in most areas, particularly in using shortcut keys, opening new browser tabs, and handling downloaded files.

The only category where rural participants nearly match others is bookmarking websites. Overall, the chart highlights a clear digital skills gap between rural and more urbanized areas.

The urban and peri-urban residents demonstrate higher self-reported competence in basic digital operations compared to rural residents, suggesting a digital divide based on location. This gap is especially evident in more technical or less commonly taught actions like using shortcut keys or managing browser functions.

CHART 3. Operational Skills & Location



The findings suggest differences among operational skills when considering the place of residence, being an urban, sub-urban or rural area, thus confirming a digital divide and supporting existing research in the domain.

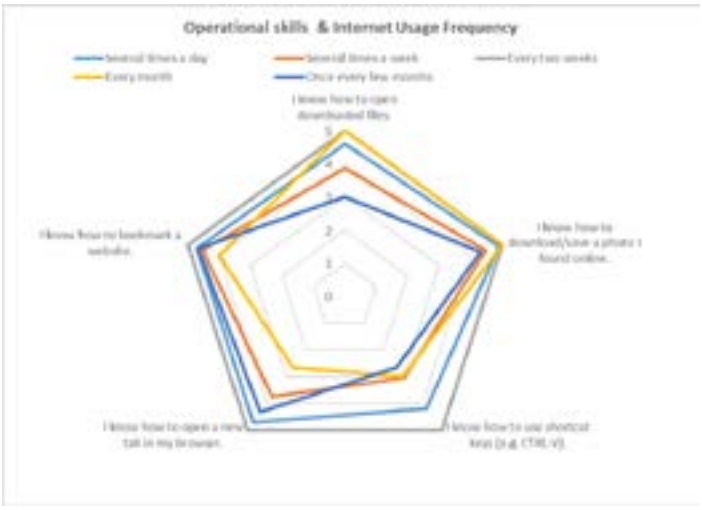
The radar chart titled "Operational skills & Internet Usage Frequency" compares how often individuals use the internet with their self-reported proficiency in basic digital skills.

This radar shows that individuals who use the internet more frequently tend to have stronger operational digital skills. Those who go online several times a day or week report higher proficiency in tasks like opening downloaded files, using shortcut keys, and opening new browser tabs. In contrast, people who use the internet only monthly or every few months show noticeably lower skill levels across most categories. Overall, the chart highlights a clear link between frequent internet use and greater confidence in performing basic digital tasks.

Higher usage frequency contributes to higher operational skills. Those who use the internet several times a day (blue) and several times a week (orange) relatively report stronger operational skills.

Overall, the chart suggests a positive correlation between frequency of internet use and operational digital skills. People who go online more often tend to be more confident and capable in using basic digital tools, while infrequent users tend to struggle more with common tasks.

CHART 4. Operational skills & Internet Usage Frequency

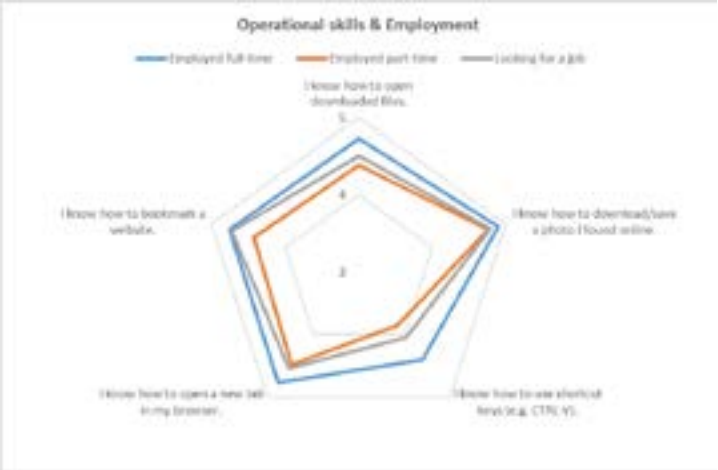


This radar chart titled "Operational Skills & Employment" visually compares basic digital literacy skills among three groups based on employment status.

This chart compares basic digital skills among full-time workers, part-time workers, and job seekers. It shows that full-time employees have the highest proficiency across all five skills, especially in using shortcut keys and browser functions.

Part-time workers show moderate skills, while job seekers lag behind, particularly in shortcut usage and opening new tabs. The data suggests that better digital skills are associated with higher employment status, highlighting the need for digital literacy training to improve the employability of job seekers.

CHART 5. Operational skills & Employment



Employment seems to have an impact on the operational skills reported by students, where full-time employed students report higher operational skills.

This chart suggests a correlation between employment status and operational digital skills. Full-time workers appear more digitally competent, which might reflect or contribute to their employability. Conversely, the digital skill gaps among job seekers highlight a need for targeted digital literacy training to enhance their job readiness and competitiveness in the labor market.

This radar chart titled "Information navigation skills & Education" visually compares how students with different educational backgrounds experience difficulties when navigating and searching for information online.

The chart shows that people with higher education levels (Bachelor's and Master's) have fewer difficulties navigating and searching for information online. Those with only secondary education report the most challenges, such as struggling with keywords, confusing website design, and finding previously visited sites. Overall, the chart highlights a clear link between education and digital navigation skills, suggesting a need for more digital literacy support for those with lower education levels.

CHART 6. Information navigation skills & Education



Information navigation skills seem to get better with the progress in the education system, thus suggesting higher information navigation skills for Bachelor and Master students as compared to lower levels of study completed.

The chart reveals a clear correlation between educational level and digital navigation competence. As education level increases, individuals report fewer struggles with online information tasks, suggesting that digital literacy improves with academic experience. This highlights the importance of digital skills education - especially for individuals with lower formal education - to help them navigate the web more effectively and confidently.

Conclusions and Recommendations

Through bivariate analysis we examined the effects of demographic factors on students reported digital skills, and found that location (place of residence), gender, employment, progress in the education system and frequent exposure to digital tools reinforce the reported digital proficiency.

Several intriguing findings emerged from the analysis of the variables' association. Perceived skills are significantly influenced by gender, with research indicating that female believe they are better at handling online social interactions and privacy. This is in line with extant research that suggest female display higher levels of social skills both in online and offline contexts. The findings suggest also there may be a location - based digital divide, as urban and peri-urban respondents self-report being more competent in fundamental digital operations than rural ones. This adds to the literature on the digital divide, suggesting the need for an improvement of the digital infrastructure, aiming to close the digital divide among urban and rural areas.

Evident are the findings on usage frequency that suggest higher operational skills are associated with higher usage frequency, since high levels of operational skills are reported by those who use the internet frequently throughout the day.

Students' operational skills appear to be influenced by their employment status; full-time employed students report having better operational skills. This may indicate that employment offers a chance to practice and expand these abilities, which is why it is associated with greater proficiency in literature (OECD, 2016).

Lastly, the findings highlight an association between proficiency in Internet navigation and educational attainment to the extent that students report fewer difficulties with online information tasks as their educational attainment rises. This indicates that digital literacy gets better with academic experience.

These findings of this study hold important implications considering theoretical, managerial and policymaker perspective. The findings add to the existing literature on digital skills, and provide evidence from the Albanian perspective.

The findings highlight the need for focused educational interventions to close the digital divide among university students. This study offers insightful information on how demographics shape digital literacy. The findings can guide plans and policies to improve training in digital skills, guaranteeing that all students have equal access to and opportunities in the digital age.

The integration of digital technologies in Higher Education Institutions is fundamental for the development of students' technological skills and for their professional future. How we work and communicate could be altered by digital technology, which could lead to both new opportunities and difficulties (Thomas, 2019). Therefore, policies should ensure a touching point between skills learned at Higher Education Institutions and labor market requirements.

The provision of training, digital skill-centric methodologies of teaching and student-tailored curricula that respond to the need of varying skills' proficiency of students is another important implication.

This study has three main limitations: The first one is related to inferential statistics, limiting the generalizability of the findings of this study to other populations. As literature suggests, rather than offering generalizable conclusions regarding the observed variables, we should treat inferential statistics as local descriptions of the relationships between variables (Amrhein, Trafimow, & Greenland, 2019). Therefore, the study's replication is limited by inferential statistics.

The second limitation is related to voluntary participation in this study which may lead to biased results. Therefore, higher rates of reported digital skills could be attributed to voluntary participation. To add to that, while self-reported questionnaires are useful to measure awareness levels of study participants on the investigated phenomenon, if used alone are insufficient for participants' needs assessment.

Lastly, there may be high conceptual diversity in the domain. There are several accepted definitions of digital skills among academic communities. Moreover, the definitions of digital skills and their dimensions are constantly being redefined with the advancement of technology. This raises the need to continuously revise and integrate new dimensions to the main phenomenon of investigation that better fit the evolutive course of knowledge and technology advancement.

Therefore, the findings of this research should be considered carefully in light of the limitations advanced above. To overcome these limitations, future studies shall consider the usage of diverse methods and analyses in investigating this topic. For instance, studies should address sample size, generalizability and replicability across diverse populations while combining inferential statistics with advanced analyses of relationships among the observed variables. This will support and ensure that the findings of the study are not isolated but are consistent to broader contexts and populations. Next, future studies may benefit from investigating the changes in the usage patterns of technologies that require digital competence across different locations. Investigated altogether with the provision of initiatives that support appropriate infrastructure and equip student populations with desired skills through formal training, may aid the adoption and usage of technologies to their potential.

Finally, it can be useful to ensure proper feedback from student populations is guaranteed, so Higher Education Institutions and policymakers can tailor the provision of technologies and skills that reflect their needs and the labor market requirements within the curricula.

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Knowledge About Fair Trade in the Textile Industry and its Impact on Consumer Behavior of Students in North Macedonia

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Abstract

This study investigates the level of knowledge about Fair Trade principles within the textile industry and their impact on the consumer behavior of university students in North Macedonia. Fair Trade is a global movement that ensures ethical practices in supply chains, emphasizing workers' rights, environmental sustainability, and fair economic practices. Given the role of students as future leaders and agents of societal change, this research seeks to evaluate their awareness of Fair Trade concepts and how this understanding influences their purchasing decisions and ethical considerations, particularly regarding the textile industry.

The study employs a survey methodology, collecting data from students at universities across North Macedonia. The survey explores key dimensions, including students' familiarity with Fair Trade principles, their perception of the textile industry's ethical issues, and the extent to which Fair Trade certification influences their consumption choices. The findings reveal a moderate level of awareness among students, highlighting significant gaps in their understanding of the broader implications of Fair Trade for supply chain fairness, workers' well-being, and environmental protection.

The results indicate a clear positive correlation between increased knowledge of Fair Trade and a greater inclination toward ethical consumer behavior. Students who demonstrate higher awareness are more likely to prioritize Fair Trade-certified clothing in their purchasing decisions and express a willingness to pay a premium for products that ensure fair wages and ethical production standards. Additionally, the study highlights the potential for increased advocacy and educational efforts to bridge the knowledge gap, fostering more responsible consumption patterns among the younger population.

Key Words: *Fair Trade, Textile industry, Consumer behavior, Ethical consumption*

Introduction

We have already made changes in many areas of daily life. Our kitchen shelves are filled with organic cereals and whole grain bread, organic vegetables from certified organic cultivation, and organic meat from suitable animal breeds is available in our refrigerator. In the bathroom, there are natural cosmetic products that are not tested on animals and do not contain chemical additives. However, the topic of fair trade in the textile industry is still somewhat unclear.

Globally, the demand for clothing is growing much faster than the population (Kleinhückelkotten 2019). The reasons for this development are high consumption levels in economically developed countries, driven by frequent fashion changes, as well as rising incomes in emerging economies. This is problematic because the conventional textile chain is highly unstable, from the sourcing of raw materials and the production of clothing through to the use phase and the disposal of garment waste. Dominant processes in clothing production and use, as well as recycling and disposal, not only cause serious environmental problems but are also associated with health risks, poor working conditions, and other negative social effects (Kleinhückelkotten 2019).

The focus of this research paper is on fair trade in textiles and the issue of what consumers/buyers should be aware of when purchasing clothing.

This research aims to determine the current knowledge about fair trade among students in Tetovo and to examine its potential impact on their consumption behavior.

Overall, this research contributes to a deeper understanding of the importance of education and awareness about fair trade and identifies possible starting points for promoting responsible ethical consumer behavior among youth.

The objective of the study is to assess the level of awareness and the importance attributed to Fair Trade among students in this city. Through a survey conducted over a five-day period, the research aims to understand students' comprehension of Fair Trade principles, the factors influencing their perceptions, and the extent to which they prioritize ethical consumption. The study seeks to provide insights into demographic trends, motivations driving ethical consumer behaviors, and potential areas for advocacy and education within the community of North Macedonia. Ultimately, it aims to contribute to promoting a culture of ethical consumption and social responsibility among students.

Hypothesis 1: Students are not sufficiently informed about fair trade.

Hypothesis 2: If students had more knowledge about this topic, their consumer behavior would be different.

Literature Review

The Fair Trade movement shares a vision of a world where justice and sustainable development are at the heart of trade structures and practices, both domestically and internationally, so that everyone can achieve a decent life through their work. Fair Trade is more than just trade: it demonstrates that greater fairness in business is possible. It emphasizes the need for change in the rules and practices of conventional trade and shows how a successful business can put people first (Fair World Project 2021). Thus, it aims for a better world.

"It is not easy, in fact, it is almost impossible, to define Fair Trade," states a research paper titled "Greenwashing and Fair Trade Using the Example of the Textile Industry," which further notes, "It is up to us to keep the world healthy" (Seidel 2021), and this is indeed true.

Fair Trade began in the mid-1940s (Brümmer 2013). There are now many labels representing Fair Trade. The "Global Organic Textile Standard" is a label used since 2008 for textiles that are at least 70% organically produced and only go through fair ecological processes. In addition to these environmental standards, there is also a social standard that regulates working hours (Ibid.).

These standards regulate, among other things, the prohibition of child labor, forced labor, discrimination, sustainable production, and transparent presentation of costs and revenues (Hofmann 2003).

Fair Trade certifiers and member organizations all agree on these fundamental Fair Trade principles:

- Long-term trading relationships
- Payment of fair prices
- No child labor, forced labor, or exploitation
- Non-discrimination in the workplace, gender equality, and freedom of association
- Democratic and transparent organizations
- Safe working conditions and reasonable working hours
- Investment in community development projects
- Environmental sustainability
- Transparency (*Ibid.*)

Large retailers have shifted production to countries with low wages, poor or nonexistent union representation, and weak (or non-existent) environmental protections, where textile workers are accustomed to poverty and child labor, and prison labor goes unreported (House of Commons 2019). Today, these and similar issues are well-known and stigmatized by public opinion worldwide.

In an age where the internet and social media allow information to spread quickly, a growing number of consumers are interested in ethical and sustainable fashion challenges. As a result, when purchasing clothing, consumers have various concerns; one of them is the general working conditions under which their clothes are made. However, when someone is interested in buying ethical clothing, navigating the numerous options on the market can be challenging (Vogel 2010).

According to the paper "The Ethical Consumer and Codes of Ethics in the Fashion Industry," one way an ethical consumer can learn how closely a brand aligns with the issues and/or values they care about is by visiting the company's website. Here, in addition to marketing its products, company websites tend to include information about the company's core values and ethical principles it adheres to (Chercia 2019).

However, many papers also present counter arguments regarding company websites and the reality they represent. Despite whether Corporate Social Responsibility (CSR) programs succeed in addressing issues such as poor working conditions and

low wages in the clothing sector, they can still create a general sense of trust and even influence consumer choices. Codes of ethics can affect how a particular brand image is portrayed to the public: since these codes are easily accessible on the brand's website, consumers may perceive them as a tool for gaining better insight into the company's values and thus rely on them.

Indeed, such codes can be used as marketing tools to attract more ethically-minded fashion consumers, precisely because they address issues that the public considers important, such as workers' rights. They can be used as a commercial statement even if they do not take the form of "classic advertisements." Therefore, it is essential to distinguish between companies that genuinely want to be "ethical" and those that merely aim to appear so—without actually being so—in the eyes of consumers. For example, it is no news that some companies are stigmatized for practicing "greenwashing" (i.e., deceiving consumers about practices affecting the environment) (Bowen 2014). Similar practices can be used in other areas, such as child labor and, more generally, working conditions.

In a study titled "Fair Trade and Ethical Labeling in the Clothing, Textile, and Footwear Sectors: The Case of Blue Jeans," which focuses primarily on the trade of blue jeans, it is emphasized that one of the main obstacles to ethical labeling in the blue jeans industry identified in this paper is formed by the complexity of the product chain. The chain may include retailers, intermediaries, manufacturers, contractors, and subcontractors, which can span from continent to continent, involving hundreds, if not thousands, of individuals and companies in both formal and informal environments. In such circumstances, it is extremely difficult for any company to create a certification system (Onno Kuik 2004).

Even if some people consider the sustainability and fair trade of clothing to be valuable, very few pay attention to it. Based on the research association InNaBe study on "Fashion, Clothing, and Sustainability: Attitudes and Behavior," which was developed in Hanover and Hamburg.

A two-euro blouse, which is reduced by half again, can in no way be considered sustainable and above all humane. The same goes for the tenth pair of identical pants in the wardrobe. More awareness needs to be created in this regard through increased public relations efforts. No moral person would use such products and textiles knowing the conditions in some factories or the figures for environmental pollution. Politicians need to intensify their efforts here (Seidel 2021).

In general, three strategies can contribute to improving sustainability in the production and consumption of any product:

- Efficiency: Minimize the input of resources (land, energy, raw materials) to produce goods and use them intensively.
- Consistency: Replace resources and adapt production processes to align with natural resource flows to produce products in a more environmentally friendly manner.
- Sufficiency: Limit consumption to a level that is sufficient for a healthy and satisfying life, while avoiding excesses (Kleinhückelkotten 2019).

In conclusion, it can be said that legal requirements are becoming increasingly important for providing companies with legally secure guidance. The main goal of any company should be to ensure that in the future, it upholds human rights and labor practices in accordance with environmental standards and, in this regard, improves the current catastrophic situation of human rights along globalized supply chains. This includes significantly reducing modern slavery, child labor, and protecting particularly vulnerable groups within the supply chains (Hass 2022).

Methodology

To conduct this research study on "Knowledge about Fair Trade in the Textile Industry and Its Impact on Consumer Behavior of Students in the North Macedonia," a scientific method was employed using an online survey. The survey was prepared based on a list of 12 questions with multiple-choice answers, as well as one question answered using a Likert scale.." The questions were formulated to cover a broad spectrum of the topic, describing consumer knowledge and behaviors regarding fair trade in the textile industry. In addition to the predefined questions, such as gender, level of study, and knowledge about the origin and conditions of clothing production, additional questions were included to understand the impact of external factors, such as price and availability, on consumer decisions to purchase fair trade products. Questions were also added regarding the perception of barriers to buying fair trade products, as well as the behavior of friends concerning this issue and consumers' intention to make such purchases in the future.

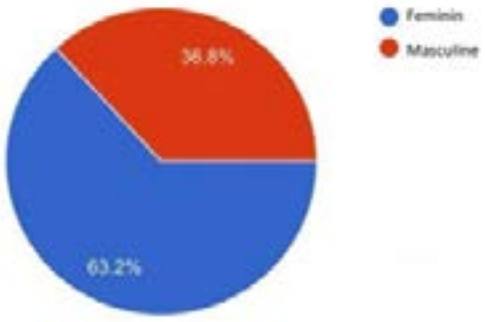
The survey was conducted using Google Forms and was sent electronically to all students at the universities in North Macedonia. The survey included all students, representing a wide range of study levels, including undergraduate, master's, and doctoral programs.

After receiving the responses, they were analyzed carefully and objectively to draw reliable and consistent conclusions. The analysis also included segmenting the responses according to demographic variables such as gender and level of study, as well as using descriptive and inferential statistical techniques to interpret and evaluate the results. The conclusions and results of the survey will be presented in detail and summarized in the final report of the research study.

The use of this methodology aims to provide a comprehensive and accurate analysis of the knowledge and behaviors of students in North Macedonia regarding fair trade in the textile industry and to draw important conclusions about their perceptions and behaviors in this area.

Commentary on the Results

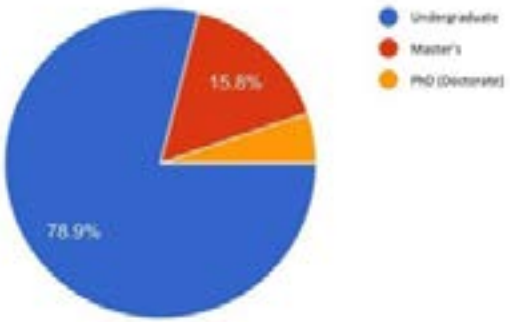
Gender Distribution



Observation: Out of **267** surveyed students, 63.2% are female and 36.8% are male.

Comment: The gender distribution indicates a higher participation of female students in the survey, which might impact the overall results. This bias may reflect a greater interest or concern among women regarding fair trade issues. Understanding the demographic composition is crucial for analyzing the results, as gender perspectives can vary significantly on issues such as ethical consumption.

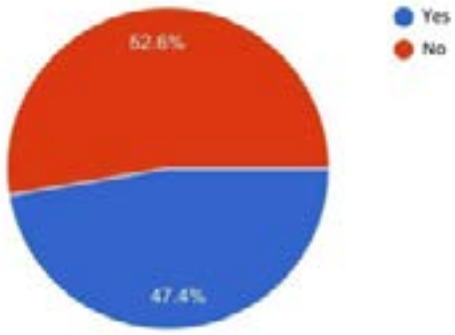
Educational Level



Observation: Among the respondents, 78.9% are undergraduate students, 15.8% are master's students, and a very small percentage are doctoral students.

Comment: The predominance of undergraduate students indicates that most of the respondents are younger and potentially less experienced in advanced academic research, which may impact their awareness and understanding of fair trade issues. The relatively small number of master's and doctoral students might limit the depth of knowledge regarding advanced perspectives on ethical consumption and market dynamics.

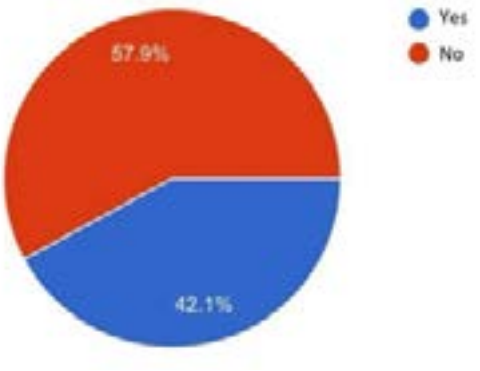
Awareness of Clothing Origins



Observation: 47.4% of respondents know where their clothes come from, while 52.6% do not.

Comment: Nearly half of the students are unaware of the origin of their clothing. This lack of awareness may hinder their ability to make informed decisions about fair trade products. Educational initiatives may be needed to raise awareness and promote transparency in the supply chain to encourage more ethical consumer behavior.

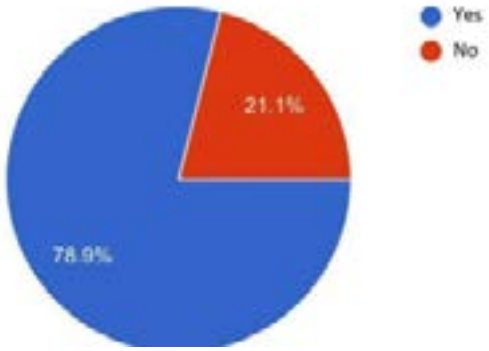
Knowledge of Production Conditions



Observation: 42.1% know the conditions under which their clothes are produced, while 57.9% do not.

Comment: The majority of students are unaware of the working conditions involved in the production of their clothing. This gap in knowledge may affect their ethical purchasing decisions, as awareness of poor working conditions is a significant motivator for buying fair trade products. Increasing transparency and providing information about production conditions could encourage more ethical consumer behavior.

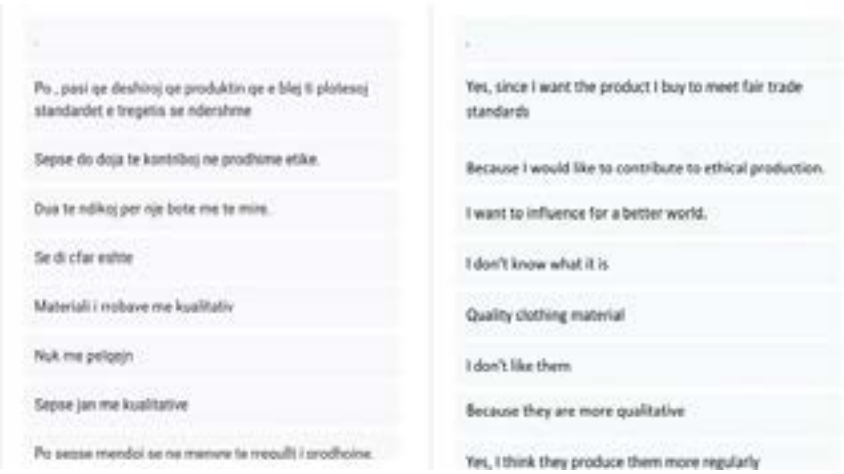
Preference for Fair Trade Clothing



Observation: 78.8% of respondents prefer to buy clothing from fair trade sources, while 21.1% do not.

Comment: There is a strong preference among students for fair trade clothing. This positive attitude suggests a willingness to support ethical practices in the textile industry, highlighting a significant potential market for fair trade products among young consumers. However, translating this preference into actual purchasing behavior remains a challenge, possibly due to other influencing factors such as price and availability.

Open Question: Reasons for (or against) purchasing fair trade products



The open question in our survey asked students to explain their reasons for liking or disliking fair trade products. Responses varied significantly, reflecting a range of motivations and levels of awareness regarding fair trade.

Positive Responses

- **Ethical Contribution of Production:** Many respondents indicated that they prefer to buy fair trade products because they want to contribute to ethical production. This reflects a strong ethical stance and a desire to support fair labor practices and sustainable production methods.
- **Impact on a Better World:** Some students mentioned their desire to make a positive impact on the world, showing a broader social and environmental awareness. These respondents are likely to view their purchasing decisions as a way to make a positive impact on global issues such as poverty, labor exploitation, and environmental degradation.
- **Quality of Materials:** Some respondents noted that the materials used in fair trade clothing are of higher quality. This perception of superior quality may be a significant motivator for choosing fair trade products, suggesting that some students associate fair trade with better craftsmanship and durability.

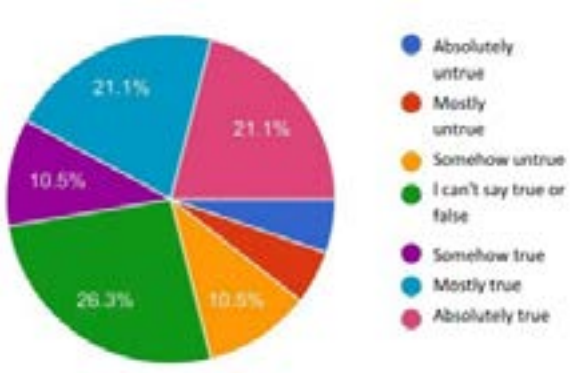
Negative Responses

- **Dislike of Fair Trade Products:** Some respondents simply stated that they do not like fair trade products. While these responses were less detailed, they might reflect a lack of appeal in terms of style, price, or other personal preferences.
- **Lack of Awareness:** A significant number of respondents admitted that they do not know what fair trade is. This indicates a gap in knowledge and understanding, which could be a significant barrier to broader adoption of fair trade products among students.

Lack of Response

- **Unanswered Question:** The majority of respondents did not answer this open-ended question. This lack of engagement might suggest several underlying issues:
- **Indifference or Apathy:** Some students may feel indifferent or apathetic about the topic, leading them to skip the question.
- **Lack of Knowledge:** Students who are unfamiliar with fair trade or do not understand its principles may have chosen to avoid the question due to a lack of knowledge.
- **Survey Fatigue:** Considering the length of the survey and the nature of open-ended questions, some respondents may have opted not to invest time in providing a detailed response.

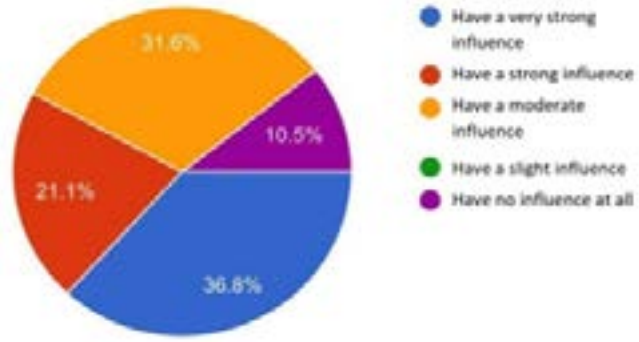
Willingness to Pay More for Fair Trade



Observation: The responses on whether they would pay more for a shirt if the worker received a fair wage were varied: 26.3% were unsure whether it was true or false, 21% said it was absolutely true, and 21% said it was mostly true.

Comment: While a significant portion of students are uncertain about paying more for fair trade products, a considerable number positively support the idea. This indicates a divided but potentially supportive stance toward fair trade. Addressing the uncertainty through education about the benefits of fair trade could convert the ambivalent into supporters.

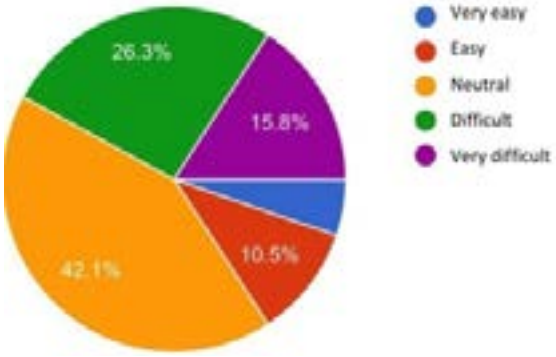
Impact of External Factors



Observation: 36.8% say that external factors like price or availability have a very strong impact, 21.1% say they have a strong impact, 31.6% say they have a moderate impact, and 10.5% say they have no impact at all.

Comment: Price and availability are critical factors that influence students' decisions to buy fair trade products. Despite a general preference for fair trade, these practical considerations can significantly hinder purchases. Strategies to make fair trade products more accessible and competitively priced are essential to translating ethical preferences into actual purchases.

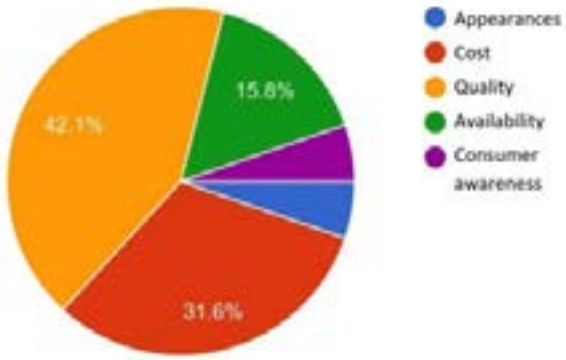
Ease of Finding Fair Trade Products



Observation: 15.8% find it very difficult, 26.3% find it difficult, and 42.1% are neutral about finding fair trade products.

Comment: Many students find it challenging to locate fair trade products, with only a minority remaining neutral. This difficulty in finding fair trade options might hinder students from making ethical purchases despite their willingness. Increasing the availability of fair trade products in more accessible locations or online platforms could help alleviate this issue.

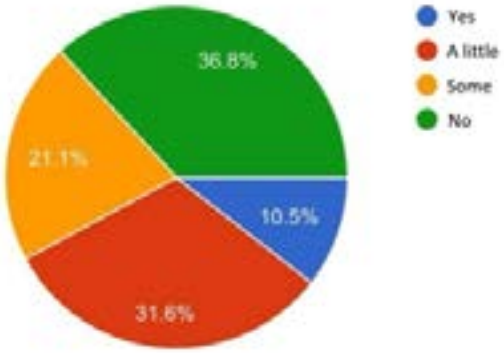
The biggest barrier to purchasing fair trade products



Observation: 42.1% mention quality, 31.6% mention cost, and 15.8% mention availability as the biggest barriers.

Comment: Quality is perceived as the main barrier to purchasing fair trade products, followed by cost and availability. This perception may stem from a lack of familiarity with fair trade brands or misunderstandings about their quality. Improving the perception of quality and offering competitive prices could enhance the acceptance of fair trade products.

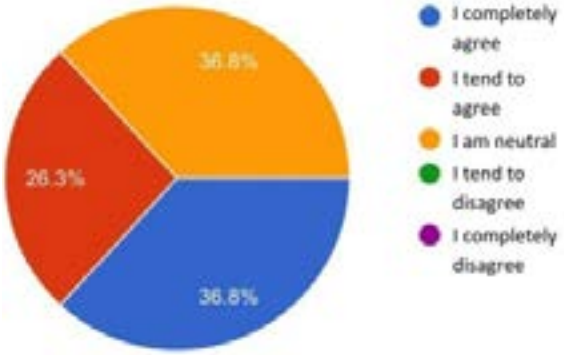
Influence of Peer Behavior



Observation: 36.8% say that their friends do not buy fair trade products, 31.6% say that some do, 21.1% say that some do, and 10.5% say yes.

Comment: The influence of peers appears to be minimal, with a majority indicating that their friends do not purchase fair trade products. Increasing peer influence through social campaigns or testimonials could help normalize fair trade purchasing behaviors among students.

Future Intentions to Buy Fair Trade Products



Observation: 36.8% strongly agree, 26.3% tend to agree, and 36.8% are neutral about planning to buy more fair trade products in the future.

Comment: The overall sentiment towards future fair trade purchases is positive, although a significant portion remains neutral. Encouraging and maintaining this positive intention through continued education and awareness campaigns could help shift the neutral respondents towards a more affirmative stance on fair trade products.

Summary of Variables and Results

The survey analyzed various aspects of students' knowledge and behavior regarding fair trade in the textile industry. The main variables included gender, educational level, awareness of the origin of clothing and production conditions, preferences for fair trade, willingness to pay more, impact of external factors, ease of finding fair trade products, barriers to purchase, peer influence, and future purchasing intentions.

Key Findings

- Gender and Educational Level: Most respondents are female and are in undergraduate studies.
- Awareness: Less than half know where their clothes come from or the conditions under which they are produced.
- Preference for Fair Trade: There is a strong preference, but practical barriers such as price, quality, and availability hinder purchases.
- Willingness to Pay More: Divided opinions, with a noticeable portion willing to pay extra for ethical production.
- External Factors: Price and availability significantly influence purchasing decisions.
- Ease of Finding Fair Trade Products: Many find it difficult to locate fair trade options.
- Barriers: Quality is the most significant barrier, followed by cost and availability.
- Peer Influence: Limited peer influence on fair trade purchasing behavior.
- Future Intentions: Generally positive intentions to buy more fair trade products in the future, although a significant number remain neutral.

These results highlight the need for increased awareness, better perception of quality, competitive pricing, and improved access to fair trade products to convert ethical preferences into consistent purchasing behavior among students in North Macedonia.

Limitations of the Study

Conducting the research through a survey of current students over a five-day period may encounter several limitations. Firstly, the sample size may not be representative of the entire student body, potentially leading to biased results. Limited participation due to time constraints or lack of interest may also affect the validity of the survey. Furthermore, reliance on self-reported data through surveys may introduce response biases, such as social desirability bias. Additionally, the format of the survey and the wording of the questions may influence respondents' answers, potentially affecting the accuracy of the findings. Lastly, external factors, such as ongoing events or academic schedules, may impact students' availability and willingness to participate in the survey, imposing further limitations on data collection.

Conclusions and Hypothesis Evaluation

Based on the survey findings, the first hypothesis "Students are not sufficiently informed about fair trade" is confirmed. Several key pieces of evidence support this conclusion: Only 47.4% of students know where their clothing comes from, indicating a lack of information about the supply chain and production processes. A larger percentage, 57.9%, do not know under what conditions their clothing is produced, further confirming the lack of awareness about fair trade and ethical production practices. Responses to the open-ended question revealed that some students explicitly mentioned not knowing what fair trade is, demonstrating a clear gap in basic knowledge about the concept. The second hypothesis "If students had more knowledge on this topic, their consumer behavior would be different" is also confirmed. The survey results indicate that increased knowledge and awareness of fair trade are likely to influence students' consumer behavior: A significant portion of 78.8% of respondents expressed a preference for purchasing clothing from fair trade sources. This strong tendency suggests that with more knowledge and awareness, their purchasing decisions would lean even more towards fair trade products. A significant number of students showed a willingness to pay more for fair trade products if they knew that the tailor receives a fair wage, with 21% saying it is "absolutely true" and another 21% saying it is "mostly true." This implies that more informed students are more likely to support ethical consumption. A considerable number of students expressed a positive intention to purchase more fair trade products in the future, with 36.8% fully agreeing and another 26.3% tending to agree. This point to the possibility of a shift in consumer behavior with increased knowledge.

Recommendations

To address the confirmed hypotheses and to foster a more informed and ethically conscious student body, the following recommendations are proposed:

- Integrate topics of fair trade and ethical consumption into existing courses. Subjects like economics, business, environmental studies, and social sciences can include modules on global supply chains, labor rights, and sustainability.
- Organize events focused on fair trade, inviting experts from fair trade organizations, labor rights activists, and ethical brands.
- Conduct awareness campaigns using videos, info graphics, and social media to explain what fair trade is and why it matters. These campaigns should highlight human stories, what is really happening in the world, how the environment is being destroyed, CO2 levels.
- Partner with fair trade brands to increase the availability of ethical goods in our country, and why not at more affordable prices.

If we choose to buy from ethical sources, we will contribute to workers having better working conditions and fair wages worldwide, thereby improving their lives and those of their families. Ending the exploitation of child labor will ensure that children can pursue education and enjoy their childhood. We will contribute to protecting our planet and creating a more just and humane society. If we all make more conscious and sustainable choices, we can build a better world for ourselves and future generations, a world where social justice and environmental protection are at the heart of every decision we make.

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Challenges in the Livestock Sector Following the COVID-19 Pandemic: The Case of Albania

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Abstract

The development of the livestock sector improves Albania's economy due to its impact on the increase in agricultural production, job creation, increased exports, reduced emigration, increased farmers' income, development of rural areas, etc. However, the problems faced by this sector are significant. Farmers often express dissatisfaction with the measures the Albanian government has taken to develop this industry. This paper aims to identify the problems faced by the livestock insurance sector in Albania and the measures that the government should take to overcome these problems. In order to determine the problems faced by farmers in carrying out their daily activities, the perception of farmers on government support, and to identify the forms of government support that farmers would prefer in order to develop their business, a questionnaire was developed. It was distributed to 105 livestock farmers and was built based on an in-depth literature review. The questionnaire contains demographic, open-ended, closed-ended questions. The questionnaire results showed that the main problems faced by the livestock sector in Albania are the high cost of food, low selling prices of livestock products, and high costs of keeping animals. The two primary forms of government support that farmers seek are financial support and income for production costs. Albanian farmers are not satisfied with the government's support of this sector.

Key words: *livestock sector, development, problems, government, support.*

Introduction

Increasing livestock production and productivity significantly impacts the economic development of low- and middle-income countries (FAO, 2018). Livestock development is considered an instrument for poverty reduction (FOA, 2009) The livestock sector is one of the most important branches of the Albanian economy. This is due to this sector's contribution to the gross domestic product, employment and farmers' incomes (Blancol & Qorlazja, 2024; Vox News, 2024). Despite its importance, livestock in Albania has declined in recent years (Instat, 2023). Sheep, goats and cows dominate livestock farms in Albania. This is due to the weight this group of livestock occupies in producing livestock products in the country. The number of livestock due to the problems faced by this sector has decreased in recent years. The number of cattle, mainly composed of cows, has decreased more than other types of livestock. According to Instat (2023), the decrease is 46.5% from 2016 to 2023. Over the last eight years, the number of sheep and goats and the number of pigs have decreased by 36.5% and 36.5%, respectively. The number of equidae, mainly composed of horses, has decreased by 28.7%, while the number of poultry has decreased by 15.6%.

The decrease in the number of farmers engaged in livestock farming has come due to the problems faced by this sector. Emigration is one of the main phenomena that has affected livestock farming (Monitor, 2024). As a result of the increase in emigration, people's interest in livestock farming has decreased. This has led to a decrease in the number of heads and farms. Also, due to low incomes, some farmers have preferred to move from rural to urban areas. Subsidies for the livestock sector are not at the right level compared to the subsidies offered by countries in the region (Gjeci et al., 2018; Hoxha, 2018; Monitor, 2024).

The livestock sector is exposed to various risks related to market performance and environmental conditions (QEC, 2023; Waiswa et al., 2021). Over the last two decades, the number of natural disasters has increased in our country, with floods and fires becoming more frequent while the effects of climate change have become more visible (IMF, 2022). The damage that natural disasters have caused to the livestock sector is considerable. The number of livestock lost due to disease has been significant. In the face of such a situation, the need to mitigate the negative effects caused increases (Botzen et al., 2019; FAO, 2023).

Natural disasters affect farmers' incomes, causing them to face financial difficulties. As a result of the reduction in livestock activity, migration increases, and the number of farm workers decreases (Martínez-Zarzoso et al., 2023). As a result, the supply of livestock products decreases, which causes shortages and increases in the prices of essential food products (Botzen et al., 2019; FAO, 2023). The reduction in livestock activity reduces the tax revenues that the state collects from this sector. Other damages caused by natural disasters are reduced export earnings (Cinaj & Ribaj, 2021; Xu & Kouwoaye, 2019) and increased need for government assistance, which increases government spending (Cinaj & Ribaj, 2021). All of these contribute to increased poverty, especially in areas most affected by natural disasters, and to the contraction of financial markets. This paper aims to identify the problems faced by the livestock sector in Albania and the measures that the government should take to develop it. The main objectives of the paper is to identify and analyze the main problems faced by livestock farmers in carrying out their daily activities.

Literature Review

The livestock sector affects the country's financial stability as a generator of income and employment for many Albanian families. The production of livestock products has been a long-standing tradition in our lands. The climatic conditions for developing the country's livestock sector are favorable. However, the challenges faced by this sector are numerous and complex. Livestock products are generally produced by small farmers (SASPAC, 2022). A large part of them were sold in informal markets. Over the years, livestock products became part of formal and international markets. Internationalization increased the need for the modernization of farms. However, due to low incomes, small farmers need help securing financial resources to invest in improving farm conditions (Skreli & Imami, 2019). The livestock housing conditions on many farms are not up to the required standards. Introducing new technologies on farms is necessary to increase productivity and produce products per international standards and market demands. However, the economic inability to invest in new technologies and the lack of knowledge about using these technologies by Albanian farmers is present.

In recent years, one of the biggest problems the livestock sector faces is the significant decrease in the number of heads (Instat, 2023). As a result of the high costs of animal feed and other inputs, farmers have reduced the number of livestock, which has influenced the increase in the selling price of livestock products. The performance of the livestock sector is closely linked to the number of heads, the quantity and the quality of livestock production. Therefore, it is important to pay attention to measures to improve these elements. The departure of people from rural areas has significantly reduced the labor force (Skreli & Imami, 2019) and the number of small farms. A significant portion of people involved in livestock farming are elderly. Public veterinary services are lacking in many rural areas of Albania. The cost of vaccination and other livestock medications is often unaffordable for farmers. In order to improve livestock health, investment in veterinary services is necessary as they affect the prevention and treatment of livestock diseases. Maintaining animal health affects their longevity and increases livestock products' quantity, quality, and safety. Transportation costs have increased significantly after the Covid-19 pandemic and the Ukrainian war. Lack of infrastructure or poor rural infrastructure hinders the transportation of livestock products (Gjeci et al., 2018). Investment in infrastructure is necessary as it provides new marketing opportunities for farmers. Increasing government support for the livestock sector through subsidies or other assistance would help develop the sector and encourage more people to engage in livestock farming. Although the funds and investments made available by the European Union and international donors have been high, they have not been properly managed (Lika, 2021). Improving marketing strategies, efficient use of resources, access to financing and the sale of livestock products are other challenges for the livestock sector (Ilir Tomorri, 2021).

The 2019 fiscal changes in VAT increased the cost of producing livestock products and encouraged the sale of imported products (Angjellari, 2021). Improving trade regulations and aligning domestic legislation for the livestock sector with that of European Union countries would promote the development of international trade by enabling local farmers to sell their products in foreign markets (Shoshi & Dashi, 2021). The increase in farm size is another issue that must be addressed to improve farm productivity (FAO, 2020). The feed base of livestock should be given special attention as it is an important element that affects livestock production performance (NOA, 2022). In order for the livestock sector to develop, the problems it faces must be addressed. Overcoming these problems would increase livestock productivity and farm efficiency, contributing to a better future for the industry.

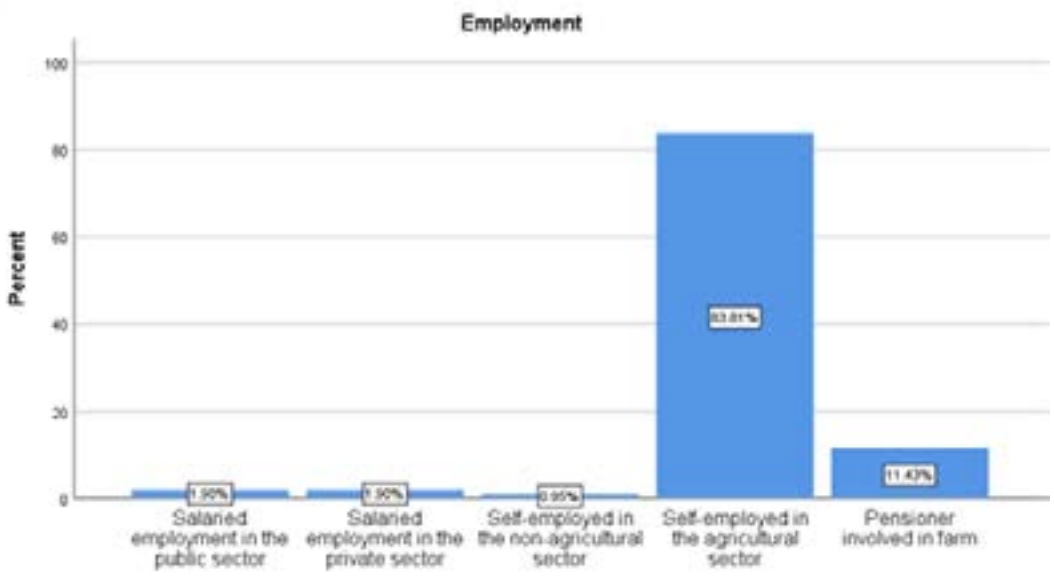
Methodology

Data collection was carried out through face-to-face questionnaires with 105 farmers in the livestock sector in Albania. The questionnaires contain different types of questions, including closed, dichotomous and open-ended questions. The farmers surveyed were distributed throughout Albania. This makes the results of the study comprehensive. The farms studied were large. The random sampling method was used in this study. This method was chosen in order to generate the most accurate results. Farmers were contacted based on a list made available by the Ministry of Agriculture. In addition to the descriptive analysis, a factor analysis was performed in this paper using the SPPS statistical program, which summarizes the main reasons for the decline in the number of livestock on Albanian farms.

Results of questionnaire

Demographic data of the respondents were collected to assist in interpreting and analyzing the study results. These data are intended to present a complete profile of the farmers to understand their behavior and attitude. Regarding employment, the majority of farmers are self-employed in the livestock sector. Pensioners constitute the second largest category of respondents. The table below summarizes the results.

FIGURE 1. Main employment



Source: Author calculation

Regarding education, 86% of respondents have compulsory education and 10% of them have secondary education. From the data collected, it can be concluded that individuals with higher and secondary education do not prefer to engage in livestock farming.

TABLE 1. Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary school	3	2.9	2.9	2.9
	Compulsory education	86	81.9	81.9	84.8
	Agricultural secondary school	2	1.9	1.9	86.7
	General Technical secondary school	10	9.5	9.5	96.2
	Non-agricultural university education	1	1.0	1.0	97.1
	Agricultural university education	3	2.9	2.9	100.0
	Total	105	100.0	100.0	

Source: Author calculation

The largest number of respondents are male. This is also related to the fact that most farm managers in Albania are male. Thus, 89.5% of respondents were male and only 10.5% female.

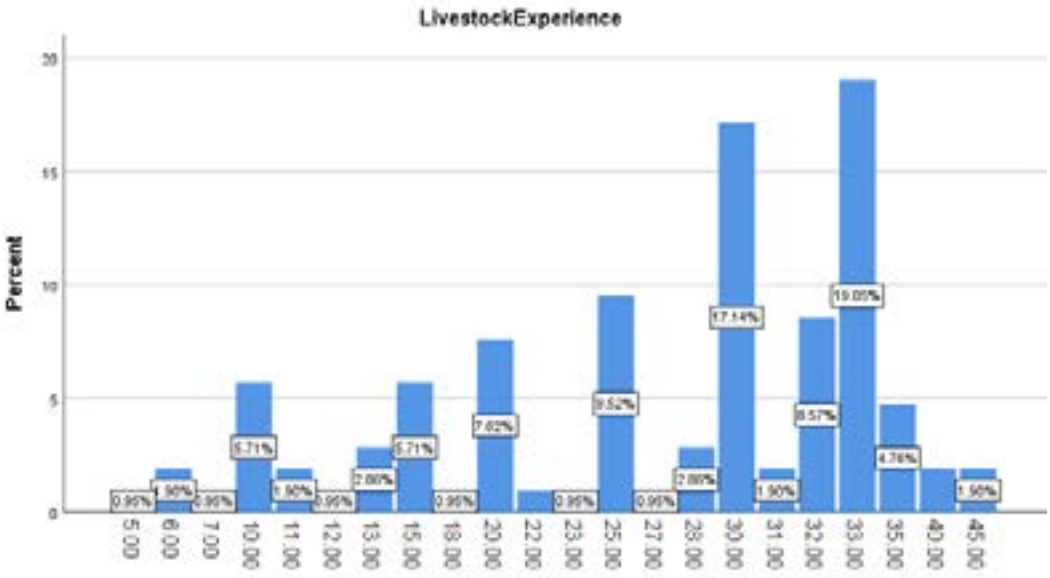
TABLE 2. Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	94	89.5	89.5	89.5
	Female	11	10.5	10.5	100.0
	Total	105	100.0	100.0	

Source: Author calculation

19.05% of the farmers surveyed have 33 years of experience in livestock farming and 17.4% of them have 30 years of experience in livestock farming. Only 9.51% of respondents had up to ten years of experience in livestock farming. The results shows that young people do not prefer to work in the livestock sector.

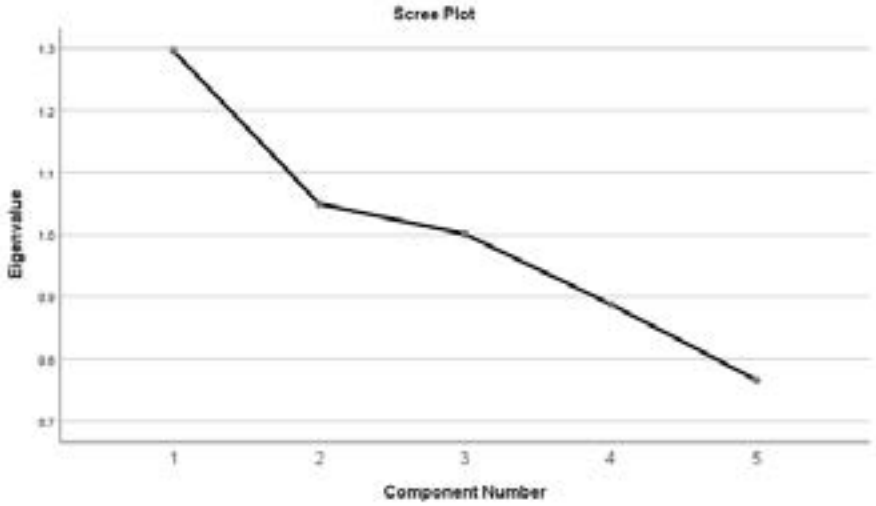
FIGURE 2. Experience in livestock farming



Source: Author calculation

The study conducted an exploratory factor analysis (EFA) on five key variables related to livestock farming trends after COVID: rising food costs, limited government support, livestock fertility rates, lack of labor force, and grazing time. The objective was to identify underlying factors influencing the livestock sector.

	Mean	Std. Deviation	Analysis N
Rising Food Costs	1.7238	1.54730	105
Limited Government Support	1.4571	1.27874	105
Livestock Fertility rates	1.1048	.30772	105
Lack of labor force	1.0952	.29495	105
Grazing time	1.2095	.40892	105



Descriptive statistics revealed variability in responses, with rising food costs having the highest mean (1.72), suggesting its significant concern among farmers. The standard deviations varied widely, indicating substantial differences in perceptions across the respondents.

The correlation matrix showed generally weak associations between the variables, with the strongest correlation being between rising food costs and limited government support ($r = 0.142$), suggesting minimal interdependency among the factors. Notably, high livestock fertility rates had negligible correlations with other variables, indicating its potential independence as a key issue.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.518, which is considered moderate, indicating a potential for factor analysis. However, Bartlett's Test of Sphericity yielded a non-significant result ($p = 0.644$), implying that the correlation matrix did not differ significantly from an identity matrix, thus questioning the suitability of the data for factor analysis.

Despite this, the EFA extracted three components explaining 66.93% of the total variance. **Component 1** was associated with rising food costs and workforce challenges, reflecting resource constraints and labor issues in livestock farming. **Component 2** captured the concerns related to limited government support and short grazing time, pointing to external challenges in managing livestock. **Component 3** was dominated by high livestock fertility rates, signifying its importance in post-COVID livestock trends.

Rotated factor loadings indicated that the factors were meaningfully grouped, with limited government support and short grazing time aligning on one component, and high livestock fertility rates forming a separate factor.

The findings highlight that farmers face a multifaceted set of challenges, with resource constraints, insufficient government support, and labor shortages being significant determinants of the livestock farming trends in the post-COVID era. Despite the moderate KMO score and the non-significant Bartlett's Test, the factor analysis provides useful insights into the key drivers affecting livestock farming trends.

These results suggest a need for targeted interventions, particularly in workforce development, government support, and fertility management, to stabilize the livestock sector in the post-pandemic period.

Conclusions

As a generator of income and employment for many Albanian families, the livestock sector affects the country's financial sustainability. However, the challenges faced by this sector are numerous. Livestock products are generally produced by small farmers who often do not have the financial resources to invest in new technologies. Such a thing negatively affects the increase in productivity and the production of livestock products by international standards and market demands. Also, due to the lack of education and information, Albanian farmers do not have sufficient knowledge of these technologies. The increased costs of animal feed and other inputs have led farmers to reduce the number of livestock on their farms. As a result, the selling price of livestock products has increased. The departure of people from rural areas, especially after the COVID-19 pandemic, has significantly reduced the workforce and the number of small farms. A significant portion of people involved in livestock farming are elderly. Transportation costs have increased significantly. The lack of government support for the livestock sector has discouraged people from engaging in livestock farming. The numerous problems faced by the livestock sector in Albania have led to a significant decrease in the number of livestock. The purpose of this paper is to identify the problems of the livestock sector after the COVID-19 pandemic. Through an open-ended question, 105 farmers surveyed mentioned up to three main problems they encounter in their daily activities. Factor analysis identified the high cost of animal feed and the lack of government support as the two main problems faced by the livestock sector in

Albania. Several measures should be taken to overcome the problems faced by the livestock sector. First, it is necessary to increase government support for the livestock sector. Subsidizing farmers is a form of assistance that would significantly improve the development of this sector. Through its programs, the government can subsidize the cost of inputs, thus facilitating farmers' payments. Offering low-interest loans would increase investment in new technologies, influencing the modernization of farms. Through its programs, the government should take measures to encourage young people to engage in livestock farming. Considering that many rural areas lack public veterinarians, it is important to take measures to provide veterinary services to maintain animal health. The government must support the standardization process, certification and export of domestic livestock products to increase competitiveness in international markets.

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Appendix

Correlation Matrix[a]				
		RisingFoodCosts	LimitedGovtSupport	HighLivestockFertilityrates
Correlation	RisingFoodCosts	1.000	.142	.001
	LimitedGovtSupport	.142	1.000	-.025
	HighLivestockFertilityrates	.001	-.025	1.000
	Lackofworkforce	.100	.087	-.005
	ShortGrazingtime	.123	-.038	-.023

Correlation Matrix[a]			
		Lackofworkforce	ShortGrazingtime
Correlation	RisingFoodCosts	.100	.123
	LimitedGovtSupport	.087	-.038
	HighLivestockFertilityrates	-.005	-.023
	Lackofworkforce	1.000	.152
	ShortGrazingtime	.152	1.000

a. Determinant = .926

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.518
Bartlett's Test of Sphericity	Approx. Chi-Square	7.844
	df	10
	Sig.	.644

Component Matrixa

a. 3 components extracted

Reproduced Correlations				
		RisingFoodCosts	LimitedGovtSupport	HighLivestockFertilityrates
Reproduced Correlation	RisingFoodCosts	.474[a]	.434	.058
	LimitedGovtSupport	.434	.755[a]	-.075
	HighLivestockFertilityrates	.058	-.075	.990[a]
	Lackofworkforce	.371	.127	.006
	ShortGrazingtime	.213	-.243	-.066
Residual[b]	RisingFoodCosts		-.291	-.057
	LimitedGovtSupport	-.291		.049
	HighLivestockFertilityrates	-.057	.049	
	Lackofworkforce	-.271	-.039	-.011
	ShortGrazingtime	-.090	.205	.043

Reproduced Correlations			
		Lackofworkforce	ShortGrazingtime
Reproduced Correlation	RisingFoodCosts	.371	.213
	LimitedGovtSupport	.127	-.243
	HighLivestockFertilityrates	.006	-.066
	Lackofworkforce	.432[a]	.457
	ShortGrazingtime	.457	.696[a]
Residual[b]	RisingFoodCosts	-.271	-.090
	LimitedGovtSupport	-.039	.205
	HighLivestockFertilityrates	-.011	.043
	Lackofworkforce		-.306
	ShortGrazingtime	-.306	

Extraction Method: Principal Component Analysis.
a. Reproduced communalities
b. Residuals are computed between observed and reproduced correlations.
There are 6 (60.0%) nonredundant residuals with absolute values greater than 0.05.

Rotated Component Matrix[a]			
	Component		
	1	2	3
RisingFoodCosts		.565	
LimitedGovtSupport		.858	
HighLivestockFertilityrates			.995
Lackofworkforce	.613		
ShortGrazingtime	.815		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 4 iterations.

Total Variance Explained			
Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	1.203	24.053	24.053
2	1.141	22.827	46.880
3	1.002	20.047	66.928

Extraction Method: Principal Component Analysis.

Component Transformation Matrix			
Component	1	2	3
1	.788	.612	-.065
2	-.615	.786	-.062
3	.013	.089	.996

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Innovation and Responsibility in the EU Market

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Abstract

In recent years, the European Union (EU) has emerged as a key player in shaping the global market, not just through its economic influence, but also in setting high standards for innovation and responsibility. As the EU navigates the complexities of a rapidly evolving marketplace, a critical issue arises: how to balance innovation, which is a catalyst for economic growth and technological advancement, with responsibility, which includes safeguarding consumer interests, ensuring environmental sustainability, and adhering to ethical standards. This balance is crucial not only for maintaining the EU's position in the global economy but also for ensuring that its growth benefits all its citizens and the planet.

Innovation is often seen as the engine driving economic growth, creating jobs, improving living standards, and advancing technological capabilities. In the EU, innovation is often centred on around sectors such as digital transformation, renewable energy, artificial intelligence (AI), and biotechnology. The EU's goal is to foster an environment where research and development thrive, and businesses can introduce cutting-edge solutions that push the boundaries of what's possible.

On the other hand, responsibility in the EU market encompasses several dimensions, including ethical business practices, consumer rights, environmental protection, and social inclusion. While innovation brings numerous opportunities, it also comes with potential risks data privacy concerns, environmental degradation, and the displacement of workers, to name a few. The EU, therefore, has a responsibility to regulate the market in a way that minimizes these risks while still allowing innovation to flourish.

This paper seeks to explore the tension between these two driving forces: innovation and responsibility in the EU market. It will critically examine the role of innovation in the EU's economic growth, alongside the need for regulatory measures that ensure businesses act responsibly. Through a review of policies, case studies, and challenges, this paper aims to highlight strategies for balancing these forces and propose solutions that can guide the future of the EU market.

Keywords: *European Union (EU) Market ; Innovation ; Responsibility ; Economic Growth*

The relationship between innovation and responsibility in the EU market is not a new issue but one that has evolved over several decades. The EU has historically positioned itself as both an economic powerhouse and a regulatory leader, seeking to foster innovation while maintaining strong ethical and legal frameworks that prioritize the well-being of its citizens and the environment. The European Union has long recognized the importance of innovation in driving its economic agenda. In the late 20th century, the EU initiated numerous programs aimed at promoting research and development (R&D), technology adoption, and cross-border collaborations. One of the most significant initiatives in recent decades is Horizon 2020, which was the EU's largest research and innovation program from 2014 to 2020, with nearly 80 Euro billion allocated to support a variety of fields, including clean energy, digital technologies, and medical research. The EU's focus on innovation has extended to fostering competitive industries in the global market. For example, the Digital Single Market strategy was launched to ensure that the EU capitalized on the rapid expansion of digital technologies, such as artificial intelligence (AI), big data, and cybersecurity. The aim was to create a cohesive digital environment across member states to stimulate economic growth, innovation, and technological integration.

However, innovation is not solely about technological advancement. The European Green Deal, proposed in 2019, outlines ambitious goals to make Europe the first climate-neutral continent by 2050. This is a clear example of how the EU links innovation in green technologies to broader sustainability goals. By incentivizing innovation in the renewable energy sector, the EU seeks to reduce its carbon footprint, create new green jobs, and set global standards in sustainability. The EU has long upheld the importance of responsibility in its market regulations, focusing on protecting consumers, promoting ethical business practices, and ensuring environmental sustainability. A landmark achievement in this regard is the General Data Protection Regulation (GDPR), which came into force in 2018. The GDPR is a rigorous set of rules that ensures the protection of personal data, balancing the rise of data-driven innovation with the right to privacy. The regulation has set a global standard for data protection, with many non-EU countries adopting similar policies. Environmental responsibility has also been a key focus. For example, the Circular Economy Action Plan (2020) aims to reduce waste, promote the reuse of resources, and reduce the EU's environmental impact. This plan promotes innovation in industries such as recycling, sustainable manufacturing, and product design, while also ensuring that businesses meet stringent environmental standards. The EU has increasingly integrated social responsibility into its policies, ensuring that the market works for all citizens. The European Pillar of Social Rights, adopted in 2017, outlines principles related to equal opportunities, fair working conditions, and social protection. This approach ensures that innovation doesn't only benefit corporations but also supports broader social goals like poverty reduction and social inclusion.

In recent years, there has been a notable shift toward combining innovation with sustainability and ethics in the EU market. While the early focus was on economic growth and technological advancements, there is now a growing recognition that innovation must align with the EU's core values of social justice, sustainability, and ethics. The introduction of policies like the European Green Deal, alongside the EU's push for sustainable finance, highlights how environmental responsibility is no longer an afterthought but a core component of innovation. Companies that wish to operate within the EU market must now meet rigorous environmental standards, which, in turn, drive the development of green technologies and sustainable business practices.

Moreover, the rise of digital technologies has prompted the EU to integrate ethical concerns, especially related to privacy, security, and fairness. As the digital economy grows, the EU has focused on ensuring that technological innovation does not come at the cost of consumer rights, social equity, or ethical considerations.

Innovation plays a crucial role in shaping the EU's economic landscape and securing its position in the global market. As technological advancements disrupt traditional industries, the EU has adopted strategies to harness innovation for economic growth, job creation, and competitiveness. The following explores how the EU fosters innovation, particularly through digital transformation, green technologies, and strategic sectors like AI and biotech. One of the most significant drivers of innovation in the EU is its commitment to research and development (R&D). By investing in cutting-edge technologies, the EU aims to stimulate economic growth, improve productivity, and increase global competitiveness. The Horizon 2020 program, which ran from 2014 to 2020, allocated substantial funding to research projects in various sectors, including energy, health, ICT (information and communication technologies), and manufacturing. As a result, the EU became home to many successful start-ups and breakthroughs in fields such as nanotechnology, advanced robotics, and biotechnology. For example, the EU has made significant strides in green technologies, with companies leading the way in renewable energy solutions like wind, solar, and hydropower. The Green Deal, which is part of the EU's strategy to become carbon-neutral by 2050, has spurred innovation in clean energy sources, electric vehicles, and sustainable infrastructure. This innovation not only addresses the global climate crisis but also presents economic opportunities, such as job creation in emerging green sectors and the export of green technologies to global markets.

Another key area of innovation in the EU is digital transformation. In the face of global competition, the EU has recognized the need to digitalize its economy and leverage emerging technologies such as artificial intelligence (AI), block-chain, and big data. The Digital Single Market Strategy, launched in 2015, aims to remove barriers to cross-border e-commerce, improve access to digital services, and foster a digital economy that benefits all EU citizens and businesses. Digital transformation has accelerated with the rise of AI technologies. The EU's AI Strategy, announced in 2021, aims to boost investments in AI research and development and position Europe as a global leader in responsible AI. The strategy is designed to ensure that AI innovations are aligned with European values, promoting fairness, transparency, and accountability. Moreover, block-chain technology, which underpins cryptocurrencies, is another area of digital innovation that the EU is exploring. The EU sees potential in block-chain for applications beyond financial services, including secure digital identities, supply chain management, and decentralized governance. The development of block-chain technologies could significantly enhance trust and security in digital transactions, promoting innovation in various industries.

In an increasingly interconnected global economy, maintaining a competitive edge is essential for the EU's future. Innovation helps the EU remain a global leader in various industries, from pharmaceuticals to aerospace. For instance, biotech innovations in gene therapy, vaccine development, and diagnostics have positioned the EU as a key player in the global healthcare market. The success of the Pfizer-Biotech COVID-19 vaccine, developed in partnership with the EU, demonstrated the EU's capacity for innovation in the life sciences, highlighting the region's competitive strengths.

Similarly, the EU's aerospace industry, particularly companies like Airbus, continues to lead in the development of next-generation aircraft, which are more fuel-efficient and environmentally friendly. These innovations align with the EU's broader

goals of reducing carbon emissions and developing sustainable technologies while maintaining a competitive position in global markets. While innovation is critical for economic growth, the EU also recognizes the importance of responsibility in ensuring that its market operates fairly, ethically, and sustainably. As innovation accelerates, so too do the risks and challenges associated with it. The EU's regulatory framework seeks to mitigate these risks by enforcing responsible business practices, protecting consumers, and promoting environmental sustainability. The EU has long been at the forefront of consumer protection, with stringent regulations designed to safeguard citizens from harmful products, services, and practices. The General Data Protection Regulation (GDPR), implemented in 2018, is one of the most prominent examples of consumer protection in the digital age. The GDPR aims to give individuals greater control over their personal data while ensuring that businesses handle data responsibly. By setting clear guidelines for data collection, storage, and processing, the EU has created a regulatory environment that protects consumer privacy while allowing for data-driven innovation. In addition to data protection, the EU has established a robust framework for ensuring product safety, fair competition, and ethical business conduct. The EU Consumer Protection Cooperation (CPC) network, for example, ensures that consumer protection laws are enforced across member states, addressing issues such as misleading advertising, unsafe products, and unfair commercial practices. The EU's Digital Services Act (DSA) and Digital Markets Act (DMA), which focus on regulating digital platforms and addressing anti-competitive behaviour, reflect the EU's commitment to maintaining a fair and transparent digital market.

Environmental responsibility is increasingly intertwined with innovation in the EU. The EU's Green Deal, which aims to make Europe the first climate-neutral continent by 2050, provides a blueprint for fostering sustainable innovation. The Green Deal calls for ambitious measures to reduce carbon emissions, invest in clean energy, and promote circular economies. These policies are designed to push businesses to innovate in ways that reduce environmental harm, such as through the development of renewable energy technologies, energy-efficient buildings, and electric vehicles. For example, the EU Emissions Trading System (EU ETS) places a price on carbon emissions, incentivizing companies to adopt cleaner technologies. By implementing such regulations, the EU not only promotes innovation in environmental sustainability but also ensures that businesses meet their obligations to reduce their ecological footprint. As part of the Green Deal, the EU is also pushing for a circular economy, where resources are reused, recycled, and waste is minimized. This initiative is driving innovation in recycling technologies, sustainable manufacturing processes, and waste management systems. The EU's commitment to social responsibility goes beyond environmental issues. The European Pillar of Social Rights, which was adopted in 2017, outlines key principles related to equal opportunities, fair working conditions, and social protection. These principles ensure that innovation in the EU market benefits all segments of society, not just large corporations or technologically advanced industries. Inclusion is also a key aspect of the EU's approach to responsible innovation. The European Commission's Digital Inclusion Strategy focuses on ensuring that all EU citizens have access to digital technologies and that no one is left behind in the digital transformation. This includes providing support for digital skills development, ensuring affordable access to high-speed internet, and addressing digital divides between regions and socioeconomic groups.

The EU's commitment to ethical business practices also extends to the regulation of emerging technologies. For instance, the AI Ethics Guidelines, published by the EU in 2019, provide a framework for ensuring that AI technologies are developed and deployed in a way that respects human rights, promotes fairness, and avoids discrimination. The EU's regulation of AI reflects its broader commitment to responsible innovation, ensuring that new technologies are aligned with European values and do not compromise citizens' rights or societal well-being. Balancing innovation with responsibility is fraught with challenges, particularly as technological advances continue to reshape industries, economies, and societies. For the EU, these challenges are not just theoretical; they have practical implications that require careful regulation, forward-thinking policies, and global cooperation. One of the most significant challenges in balancing innovation and responsibility is the potential for regulatory overload. On the one hand, regulation is essential to ensure businesses follow ethical practices, protect consumers, and address environmental issues. On the other hand, overly stringent or outdated regulations may hinder innovation by creating barriers to entry for new businesses, stifling creative solutions, and slowing down technological adoption. For instance, some start-ups and small and medium-sized enterprises (SMEs) often struggle with the complexity of EU regulations, which can be resource-intensive to navigate. Too many regulations could discourage entrepreneurship or force companies to divert resources into compliance rather than research and development. Striking the right balance between sufficient regulation to ensure responsibility and flexibility to promote innovation is a difficult but necessary task.

Moreover, as technology advances at an accelerating pace, existing regulations often struggle to keep up. New technologies like AI, block-chain, and genetic engineering introduce novel challenges that existing regulatory frameworks may not adequately address. For example, the AI regulation proposed by the EU seeks to establish a legal framework for ensuring that AI systems are transparent, accountable, and aligned with ethical principles. However, implementing such a framework without stifling innovation remains a challenge. Technological progress frequently leads to ethical dilemmas that need careful consideration. For example, artificial intelligence presents complex issues around data privacy, algorithmic bias, and employment displacement. While AI promises to enhance productivity and solve complex problems, its use raises concerns about the fairness of decision-making processes and the potential for discrimination, especially in areas like hiring or loan approvals. Striking a balance between encouraging the development of AI technology and ensuring that it adheres to ethical standards is a major challenge. Similarly, the development of biotechnologies, such as gene editing and CRISPR, brings up

questions of safety, accessibility, and long-term consequences. The EU must navigate the fine line between fostering scientific progress and addressing the ethical implications of such advancements.

Another challenge is the EU's need to remain competitive globally while adhering to its high standards of responsibility. The EU's commitment to responsible innovation, particularly in environmental and social aspects, sometimes puts it at odds with other markets, especially those with fewer regulatory constraints. For example, some countries in Asia or North America may not have the same strict data protection laws or environmental regulations as the EU, creating an imbalance where EU businesses face higher compliance costs. This global competition often leads to the risk of regulatory arbitrage, where businesses may choose to operate in markets with less stringent regulations, potentially undermining the EU's efforts to uphold responsibility. Furthermore, global companies may struggle to adapt to diverse regulatory environments, creating tensions between global business practices and regional laws. Therefore, harmonizing standards globally while ensuring the EU market remains competitive is a constant balancing act..

The pursuit of short-term economic gains often conflicts with the need for long-term sustainability. While the EU's regulatory frameworks emphasize sustainability and responsibility, many businesses and industries focus on immediate financial returns. For instance, the rapid growth of the tech industry and the pressure to innovate quickly may result in practices that overlook social or environmental costs. Additionally, the costs of adhering to environmental and ethical standards can be significant, leading to resistance from some industries. Balancing the pressure to deliver short-term profits with the need to invest in sustainable practices is a critical challenge. The EU's Green Deal, for example, requires significant investments in green technologies, which could be expensive for businesses in the short term, even though they provide long-term benefits for the environment and society. Encouraging businesses to prioritize long-term sustainability over immediate profit maximization requires both regulatory incentives and market-driven solutions.

Case Study 1: The European Green Deal and Sustainable Innovation

The European Green Deal is an ambitious framework to make the EU the first climate-neutral continent by 2050. A key example of balancing innovation and responsibility, the Green Deal seeks to drive sustainable innovation in sectors such as renewable energy, transportation, and agriculture. One of its most impactful aspects is the Fit for 55 packages, which aims to reduce greenhouse gas emissions by 55% by 2030. Innovation in green technologies has been a significant driver of the Green Deal's success. The EU has supported the development of electric vehicles (EVs), smart grids, and renewable energy sources like wind and solar. However, the Green Deal also introduces strict environmental regulations that ensure businesses adhere to sustainability goals. By combining incentives for green innovation with enforceable emissions reductions, the EU offers a model for balancing progress and responsibility.

Case Study 2: GDPR and Innovation in Data Privacy

The General Data Protection Regulation (GDPR) is a landmark piece of legislation aimed at protecting the privacy and security of personal data within the EU. While some critics argue that GDPR regulations could stifle innovation in the data-driven economy, the regulation has actually provided a framework that encourages businesses to be more transparent and responsible with consumer data. The introduction of GDPR has prompted companies to adopt stronger data protection measures, build trust with consumers, and embrace innovative solutions for privacy management. For example, businesses are increasingly using data encryption, decentralized data storage, and privacy-by-design methodologies to comply with GDPR, which also fosters new business models centred on privacy as a selling point. In this way, GDPR serves as an example of how responsibility can coexist with innovation in the digital age.

Case Study 3: Ethical Challenges in AI Development

The development and deployment of artificial intelligence (AI) in various sectors, from healthcare to finance, has sparked considerable ethical debates. The EU's AI Ethics Guidelines aim to ensure that AI technologies are developed responsibly, respecting fundamental rights, and promoting transparency and fairness. A notable example of this balancing act is the regulation of AI in the healthcare sector. AI has the potential to revolutionize healthcare by providing better diagnostics, personalized treatments, and enhanced decision-making. However, concerns about algorithmic bias and data privacy have led the EU to implement regulations that ensure AI systems are auditable, transparent, and do not discriminate.

Striking the right balance between encouraging AI innovation and protecting ethical principles remains a challenge, especially as the technology continues to evolve. To address the challenges of balancing innovation and responsibility, the EU needs to develop adaptive and proactive regulations. This includes creating flexible regulatory frameworks that can evolve as technology advances. Rather than imposing rigid, one-size-fits-all rules, the EU could develop sector-specific regulations that allow for innovation while addressing unique risks associated with emerging technologies, such as AI, biotech, and

block-chain. Another key solution is fostering greater collaboration between industry stakeholders and policymakers. By involving businesses, researchers, and civil society in the regulatory process, the EU can ensure that policies are well-informed and practical. Public-private partnerships could help develop innovative solutions that meet both economic and ethical objectives. For example, initiatives like the European Institute of Innovation and Technology (EIT) promote collaboration between universities, businesses, and governments to drive innovation that is aligned with European values. To promote social responsibility, the EU could incentivize businesses to adopt responsible practices through tax breaks, subsidies, or recognition programs for companies that meet high ethical, environmental, and social standards. By integrating social responsibility into the core business models of companies, the EU can create an environment where innovation and responsibility are seen as mutually reinforcing, rather than conflicting.

Conclusion

In conclusion, the task of balancing innovation and responsibility in the EU market is an ongoing challenge that requires careful thought, strategic regulation, and international cooperation. Innovation is essential for economic growth, technological advancement, and global competitiveness, yet it must be tempered by the need to protect consumers, preserve the environment, and uphold ethical standards. The EU has made significant strides in fostering innovation while maintaining a commitment to responsibility, as demonstrated through initiatives like the Green Deal, GDPR, and AI Ethics Guidelines. However, the challenges are far from over, particularly as emerging technologies like AI, biotechnology, and block-chain continues to evolve at a rapid pace. By adopting adaptive regulations, fostering collaboration between stakeholders, and encouraging responsible business practices, the EU can ensure that innovation continues to thrive in a responsible and sustainable way. As the world moves forward, the EU has the opportunity to lead by example, proving that economic progress and responsibility can go hand-in-hand.

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The role of Purpose-Driven Green Entrepreneurial Universities in Fostering Sustainable Socio-economic Development in WB

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Abstract

This study explores the crucial role of purpose-driven green entrepreneurial universities in fostering sustainable socio-economic development, with a focus on Albania and Kosovo within the Western Balkans (WB) region. The research highlights the need for higher education institutions (HEIs) to integrate sustainability into their educational frameworks, campus operations, and community partnerships to address environmental and economic challenges. By synthesizing relevant literature, the paper presents a comprehensive review of four interconnected themes: sustainability frameworks, purpose-driven management, entrepreneurial orientation, and academia-industry collaboration.

The proposed strategic framework outlines key drivers, including leadership commitment, resource allocation, and stakeholder engagement, to facilitate the transition towards green entrepreneurial universities. The study identifies significant challenges, such as policy misalignment, limited funding, and a lack of standardized evaluation methods for assessing green initiatives. Best practices from global contexts, such as green campus initiatives and interdisciplinary research centers, provide insights into innovative governance structures and collaborative mechanisms that foster sustainable growth.

A mixed-methods approach is employed, incorporating qualitative and quantitative data to examine institutional practices and stakeholder dynamics. The findings underscore the importance of academia-industry partnerships in driving innovation, enhancing regional economic competitiveness, and fostering green entrepreneurship. Recommendations emphasize the integration of digital tools, curriculum redesign, and community engagement strategies to align HEIs with the Sustainable Development Goals (SDGs).

In conclusion, the research advocates systemic reforms in governance and policy to enable the development of resilient, purpose-driven universities that serve as agents of change in the WB. This study contributes to the broader discourse on sustainable higher education by proposing actionable strategies to overcome institutional barriers and build sustainable, entrepreneurial ecosystems.

Key words: *Green entrepreneurial universities, Sustainable development, Academia-industry collaboration, Innovation ecosystems, Sustainability frameworks, Socio-economic impact*

Introduction

In recent years, the concept of purpose-driven universities has gained significant attention as institutions strive to align their educational missions with sustainable development goals (SDGs). Green entrepreneurial universities, in particular, have emerged as pivotal agents for fostering environmental consciousness, innovation, and socio-economic growth. By embedding sustainability into academic programs, campus management, and community engagement, these universities play a dual role: advancing environmental stewardship while promoting entrepreneurial competencies among students and staff.

Countries like Albania and Kosovo, which are navigating economic transitions and striving for EU integration, present unique contexts for the development of green entrepreneurial universities. Both nations have recognized the critical need

to balance economic growth with environmental protection due to rising ecological challenges such as deforestation, water pollution, and urban expansion. However, there remains a gap in systematically fostering purpose-driven, sustainable practices in higher education institutions. Higher education in the Western Balkans has undergone significant reforms due to post-conflict recovery and European integration. However, sustainability has not been prioritized in these reforms (Tuncer & Korchagina, 2024).

Higher education institutions (HEIs) play a pivotal role in promoting sustainable development through research, education, and community engagement. As global challenges such as climate change and resource depletion intensify, universities have adopted eco-friendly practices and sustainability policies to align with international initiatives such as the United Nations Sustainable Development Goals (UN SDGs; Dagiliutė et al., 2018). Green entrepreneurial universities have emerged as key actors in this shift, combining innovation, sustainability, and community partnerships to address societal needs (Ali & Anufriev, 2020; Apostolopoulos et al., 2018). These institutions not only seek to minimize their environmental impact but also foster green entrepreneurship among students and faculty by embedding sustainability into curricula, research, and campus operations (Papageorgiou et al., 2023).

This systematic literature review explores four interconnected themes essential to understanding the evolution of green entrepreneurial universities: sustainability initiatives, purpose-driven management, entrepreneurial orientation, and the theoretical frameworks underpinning their development. By synthesizing evidence from multiple contexts, this review aims to highlight best practices, identify persistent challenges, and provide a foundation for future research in higher education sustainability (Wu, 2021; Wang et al., 2013).

The research problem centers on the limited integration of sustainable frameworks within universities in the Western Balkans. Challenges include a lack of standardized methods for evaluating sustainability, inadequate tools for assessing green practices, and minimal alignment with global sustainability goals. For instance, gaps in carbon footprint reduction strategies and green entrepreneurship initiatives have been highlighted (da Silva et al., 2021; Wu, 2021). These issues hinder the potential of higher education institutions (HEIs) to foster sustainable socio- economic growth in the region.

This issue is significant because universities play a pivotal role in addressing global challenges such as climate change, resource efficiency, and socio-economic disparities. Particularly in the Western Balkans, where brain drain, low innovation capacity, and environmental degradation persist, sustainable higher education frameworks can serve as catalysts for transformation (Yi, 2020). By bridging these gaps, universities can align with the global sustainable development agenda and strengthen regional economic competitiveness.

Purpose and Scope of the Study

The purpose of this research is to explore how universities in Albania and Kosovo can integrate purpose-driven management strategies to become leaders in green entrepreneurship and sustainability. The study aims to develop a framework that identifies key drivers, challenges, and opportunities for embedding sustainability into the entrepreneurial missions of these institutions. By examining institutional policies, curricula, and community initiatives, the research will provide actionable insights for universities seeking to transition towards purpose-driven green entrepreneurship. The study builds on existing literature on green universities, addressing research gaps such as the need for standardized evaluation systems and the promotion of green entrepreneurial practices (da Silva et al., 2021; Wu, 2021).

Research Objectives

The main objective is to explore and explain how higher education institutions in the Western Balkans can integrate sustainable practices into their operations. This study aims to achieve the following objectives:

1. Evaluate the current state of green entrepreneurship initiatives in universities in Albania and Kosovo by analyzing sustainability-related curricula, campus infrastructure, and partnerships with public and private stakeholders and by examining current practices and challenges
2. Analyze gaps in policy and practice by identifying the institutional factors that enable or hinder the adoption of purpose-driven management strategies, including leadership vision, funding mechanisms, and stakeholder engagement.
3. Develop a strategic framework for embedding sustainability and entrepreneurship in higher education institutions, tailored to the specific socio-political and economic contexts of Albania and Kosovo.
4. Contribute to the broader discourse on sustainable development in the Balkans by demonstrating the role of universities as catalysts for ecological resilience and economic empowerment.

Methodology

Research Design

This study employs a systematic literature review (SLR) methodology to comprehensively explore the integration of sustainable practices within higher education institutions (HEIs) which can be adopted also in the Western Balkans. The research design involves a qualitative approach to ensure a holistic understanding of current practices, challenges, and opportunities.

Data Collection Methods

Research Approach
This study employs a **desk research** approach, focusing on secondary data sources to examine the role of universities in driving sustainability through strategic frameworks in higher education. The research centers on the Western Balkans (WB), emphasizing their unique socio-economic and environmental challenges. A structured three-stage process was used to locate, evaluate, and synthesize relevant literature. This ensures a comprehensive and focused understanding of the integration of sustainable practices in higher education institutions (HEIs).

Locating Articles and Journals
The first stage involved systematically searching for academic articles in peer-reviewed journals. Major academic databases, including Scopus, Web of Science, and Google Scholar, were used to identify relevant studies. The search was limited to articles published in the last ten years to capture recent developments in the field. Keywords included:

- "sustainable universities"
- "higher education sustainability"
- "Western Balkans HEIs"
- "green campus initiatives"
- "university governance models"
- "academia-industry collaboration for sustainability"

Inclusion Criteria:

- Articles published in peer-reviewed journals.
- Studies focusing on sustainability practices in HEIs.
- Contributions discussing frameworks, challenges, and opportunities in higher education for sustainability.

Evaluating the Research Question and Results
In the second stage, the relevance of each identified study was evaluated against the research question: How can universities in the Western Balkans develop and implement strategic frameworks to enhance their sustainable impact?

Only articles addressing aspects of sustainable governance, green campus initiatives, academia- industry collaboration, and innovation in HEIs were included. The evaluation ensured that selected studies aligned with the study's objectives and contributed to insights on sustainability in higher education.

The final stage involved systematically extracting data from the selected articles and organizing it into a literature review matrix. The matrix included critical details such as:

1. Research purpose.
2. Context of the study.
3. Key research questions.
4. Identified research gaps.
5. Future research directions.

Synthesis and Analysis - The data were synthesized to identify common themes, recurring challenges, and innovative solutions. The focus was on frameworks and best practices that can guide HEIs in the Western Balkans toward achieving sustainable socio-economic and environmental outcomes.

Literature Review

In the face of pressing global challenges, sustainability has emerged as a central focus for higher education institutions (HEIs), which are uniquely positioned to drive socio-economic and environmental transformation (Velazquez et al., 2006; Fissi et al., 2020). Universities are increasingly recognized as catalysts for sustainable development through their ability to integrate green practices into teaching, research, operations, and community engagement (Apostolopoulos et al., 2018; Papageorgiou et al., 2023). The concept of a sustainable university extends beyond environmental initiatives, encompassing a holistic approach that aligns institutional objectives with the Sustainable Development Goals (SDGs) (Moon et al., 2018; Wu, 2021). This literature review examines the current landscape of sustainability in higher education, focusing on frameworks for green universities, the role of academia-industry collaborations, green entrepreneurship, and the implementation of green campus initiatives. By synthesizing recent studies, this review highlights the challenges, opportunities, and strategies for embedding sustainability into HEIs, offering a foundation for further research and action.

Frameworks for Sustainable Universities

Sustainability has emerged as a critical agenda in higher education, with universities playing a pivotal role in fostering socio-economic and environmental transformation (Velazquez et al., 2006; Fissi et al., 2020). The concept of sustainable universities integrates green practices across education, research, operations, and community engagement (Apostolopoulos et al., 2018; Papageorgiou et al., 2023). A "green university" encompasses sustainable practices across its operations, teaching, research, and community outreach (Velazquez et al., 2006). Literature emphasizes that sustainability must be embedded holistically into institutional frameworks.

For instance, the University of Florence has adopted sustainability across operations, curriculum, and community engagement, illustrating the effectiveness of integrating green principles into all institutional activities (Fissi et al., 2020). This comprehensive approach ensures that sustainability is not siloed but rather informs every facet of university life. Key initiatives at the University of Florence include green campus projects, sustainability-oriented curricula, and partnerships with local communities to advance regional sustainability goals.

Frameworks such as the Triple and Quadruple Helix models have been instrumental in guiding universities toward sustainability. The Triple Helix model emphasizes collaboration among academia, industry, and government, enabling the co-creation of knowledge and innovative solutions that address socio-economic and environmental challenges (Etzkowitz & Klofsten, 2005). Building on this, the Quadruple Helix model incorporates civil society as a fourth stakeholder, highlighting the importance of engaging communities in sustainable development efforts (Apostolopoulos et al., 2018).

These models align with the Sustainable Development Goals (SDGs) by fostering interdisciplinary collaboration and bridging gaps between theoretical knowledge and practical application. For example, universities can drive innovation through joint research projects with industries, develop policies in collaboration with governments, and address societal needs through community engagement initiatives. The SDGs serve as a unifying framework, ensuring that diverse stakeholders work toward shared objectives such as climate action, quality education, and sustainable cities.

Despite these advancements, significant challenges remain. Many universities struggle to develop cohesive strategies that account for regional and institutional specificities. Resource constraints, policy misalignments, and varying levels of stakeholder engagement often hinder the effective implementation of sustainable practices (Wu, 2021). For instance, while some universities excel in green campus initiatives, others lag in integrating sustainability into their curricula or research agendas.

Additionally, there is a growing need for standardized metrics to evaluate the impact of sustainability efforts. Current assessment tools, such as the UI GreenMetric World University Ranking, provide valuable benchmarks but often lack the granularity to capture the unique contributions of individual institutions (Tiyarattanachai & Hollmann, 2016). Developing more robust evaluation frameworks can help universities identify areas for improvement and share best practices.

Emerging technologies and digital tools offer promising avenues for advancing sustainability in higher education. Smart campus technologies, such as energy monitoring systems and digital learning platforms, can enhance operational efficiency and reduce environmental footprints. Furthermore, data-driven approaches enable universities to track progress toward sustainability goals, fostering accountability and continuous improvement (Papageorgiou et al., 2023).

To achieve a truly sustainable impact, universities must adopt a systemic approach that integrates sustainability into their mission, vision, and governance structures. This involves fostering a culture of sustainability among students, faculty, and staff, as well as building strong partnerships with external stakeholders. By doing so, higher education institutions can serve as exemplary sustainable development, inspiring broader societal change and addressing the complex challenges of the 21st century.

Benefits of the frameworks

The frameworks for sustainable universities, such as the Triple Helix and Quadruple Helix models, provide several significant benefits for higher education institutions (HEIs) and their stakeholders:

1. Holistic Integration of Sustainability - These frameworks ensure that sustainability is embedded across all facets of university operations, including teaching, research, administration, and community engagement. This holistic approach fosters systemic change rather than isolated efforts, making sustainability a core part of the university's identity and operations.
2. Enhanced Collaboration - Multi-Stakeholder Engagement: The Triple and Quadruple Helix models promote collaboration among academia, industry, government, and civil society. This creates a platform for interdisciplinary problem-solving and the co-creation of innovative solutions. Knowledge Exchange: Universities can act as hubs for knowledge transfer, ensuring that research findings are effectively translated into practical applications that address societal and environmental challenges.
3. Alignment with Sustainable Development Goals (SDGs) - These frameworks provide a structured pathway for universities to contribute directly to the SDGs. For example:
   - Climate action (SDG 13) through green campus initiative.
   - Quality education (SDG 4) via sustainability -focused curricula.
   - Industry innovation and infrastructure (SDG 9) through research partnerships with industry.
4. Improved Institutional Performance - Operational Efficiency: Adoption of green campus initiatives often leads to cost savings through energy efficiency, waste reduction, and resource optimization. Reputation and Competitiveness: Universities demonstrating leadership in sustainability can enhance their global reputation, attracting students, faculty, and funding.
5. Community Impact - Local Development: By engaging with communities, universities can address local socio-economic and environmental issues, creating shared value for both the institution and its surroundings. Capacity Building: These collaborations empower communities with knowledge and resources, fostering resilience and sustainability at the local level.
6. Enhanced Educational Outcomes - Interdisciplinary Learning: Frameworks encourage the integration of sustainability across disciplines, providing students with a comprehensive understanding of global challenges. Skill Development: Students gain practical skills, such as critical thinking, collaboration, and problem-solving, preparing them for green careers and leadership roles.
7. Innovation and Research Opportunities - Catalyst for Innovation: Collaboration with industry and government often results in the development of new technologies, processes, and policies that drive sustainable development. Funding Opportunities: Interdisciplinary research initiatives aligned with sustainability goals often attract external funding and grants.

These frameworks help universities adapt to future challenges, such as climate change and resource scarcity, by embedding sustainability into strategic planning and decision-making processes. By leveraging these frameworks, universities not only fulfill their educational mission but also become pivotal agents of change in creating a more sustainable and equitable future. Let me know if you'd like a deeper dive into any specific benefit

Green Entrepreneurship in Higher Education

Green entrepreneurship integrates sustainable practices into business models, promoting ecological and economic benefits. Universities play a crucial role in cultivating green entrepreneurial skills, especially in developing economies. For instance, in Indonesia, the ASEAN Network for Green Entrepreneurship and Leadership (ANGEL) has empowered students and local businesses with sustainability-oriented entrepreneurial education (Papageorgiou et al., 2023). This initiative has not only enhanced environmental awareness but also equipped participants with practical skills to launch green businesses, addressing both ecological challenges and economic opportunities.

Entrepreneurial support systems such as science parks, business incubators, and accelerators play a pivotal role in transforming entrepreneurial intentions into actionable green entrepreneurial behaviors. In China, universities have leveraged these support systems to foster innovation and sustainability. Yi (2021) highlights the importance of integrating green entrepreneurship into higher education frameworks to bridge the gap between theoretical learning and practical application. These initiatives enable students to develop innovative solutions that align with environmental and socio-economic goals.

Despite these advancements, challenges remain. Limited funding often hampers the expansion of green entrepreneurship programs, particularly in developing countries (Shenmiao & Kamruddin, 2024). Moreover, the integration of green principles into university curricula is often inconsistent, with many institutions failing to provide comprehensive training in sustainability-driven entrepreneurship. This lack of integration reduces the effectiveness of green entrepreneurship education and limits its broader adoption.

Green entrepreneurship in higher education also faces cultural and institutional barriers. For instance, traditional academic structures and disciplinary silos can hinder the interdisciplinary collaboration necessary for sustainability-focused initiatives. Additionally, the lack of awareness and incentives for faculty to incorporate green entrepreneurship into their teaching and research further exacerbates these challenges (Yi, 2021).

Despite these barriers, green entrepreneurship offers significant benefits for universities and their stakeholders. It fosters innovation, equips students with market-relevant skills, and contributes to regional economic development. By embedding sustainability into entrepreneurial education, universities can prepare students to become leaders in the green economy, driving positive change across industries.

Emerging technologies and digital platforms offer promising avenues for advancing green entrepreneurship in higher education. Online learning platforms, virtual incubators, and digital marketplaces enable students and entrepreneurs to access resources, collaborate, and scale their ventures efficiently. For example, digital platforms can facilitate access to funding opportunities, mentorship networks, and market insights, enhancing the impact of green entrepreneurship initiatives (Papageorgiou et al., 2023).

Universities must adopt a systemic approach to integrate green entrepreneurship into their core activities. This involves revising curricula to include sustainability-focused courses, fostering interdisciplinary collaboration, and building partnerships with industry and government. By creating an enabling environment for green entrepreneurship, universities can not only advance their sustainability goals but also contribute to broader societal and economic transformation.

In conclusion, green entrepreneurship in higher education represents a powerful tool for addressing global sustainability challenges. By integrating sustainable practices into business models and fostering innovation, universities can empower students and communities to drive ecological and economic progress. However, overcoming barriers such as funding constraints, curriculum gaps, and cultural resistance is essential to unlocking the full potential of green entrepreneurship in higher education.

Role of Green Universities in Sustainable Development

Green universities serve as catalysts for sustainability by incorporating ecological values into education, research, and campus operations. They emphasize integrating sustainability into all aspects of university life, from curricula to waste management (Wang et al., 2013; Baba Ali & Anufriev, 2020). Universities in developing regions face challenges such as funding gaps and limited stakeholder engagement, which hinder sustainability initiatives (Dagiliutė et al., 2018). Effective sustainability efforts require strong leadership, clear strategies, and stakeholder collaboration (Wang et al., 2013; Baba Ali & Anufriev, 2020).

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In conclusion, green entrepreneurship in higher education represents a powerful tool for addressing global sustainability challenges. By integrating sustainable practices into business models and fostering innovation, universities can empower students and communities to drive ecological and economic progress. However, overcoming barriers such as funding constraints, curriculum gaps, and cultural resistance is essential to unlocking the full potential of green entrepreneurship in higher education.

Green Campus Initiatives

Green campus initiatives (GCIs) aim to reduce universities' carbon footprints while fostering sustainability education. These initiatives often focus on energy efficiency, waste management, sustainable transportation, and green infrastructure. The UI GreenMetric World University Ranking provides a framework for evaluating universities' sustainability efforts across six dimensions, including energy and climate change, waste management, and water conservation (Tiyarattanachai & Hollmann, 2016).

Studies highlight the impact of GCIs on stakeholder satisfaction. For instance, universities with robust green campus practices report higher satisfaction levels among students and staff, as observed in Thailand's Mahidol University (Tiyarattanachai & Hollmann, 2016). Despite these benefits, challenges persist in standardizing green practices across institutions, as seen in the variability of carbon footprint assessments (da Silva et al., 2023).

Entrepreneurial Universities as Agents of Change

Entrepreneurial universities are redefining their roles in society by becoming key agents of innovation and transformation. By aligning their missions with the Sustainable Development Goals (SDGs), these institutions are not only fostering economic growth but also addressing social and environmental challenges. Through interdisciplinary research, strategic partnerships, and innovative education models, entrepreneurial universities act as hubs of creativity and collaboration, bridging the gap between academia and real-world applications (Apostolopoulos et al., 2018; Moon et al., 2018). This section delves into the transformative potential of entrepreneurial universities, exploring their contributions to sustainable development, the challenges they face, and the opportunities they create for driving positive change.

Promoting Economic Transformation - Entrepreneurial universities contribute significantly to economic transformation by fostering innovation and enterprise. Through partnerships with industries, these universities serve as incubators for start-ups and spin-offs that develop innovative products and services aligned with sustainability principles. They also act as knowledge hubs, transferring research outcomes to industry to enhance productivity and competitiveness (Etzkowitz, 2003; Apostolopoulos et al., 2018). This symbiotic relationship supports regional economic development and job creation while addressing environmental concerns.

Advancing Social Innovation - Beyond economic contributions, entrepreneurial universities are increasingly involved in addressing social challenges. They adopt a mission-oriented approach, which emphasizes the co-creation of solutions for societal well-being. Social innovation initiatives include community-based projects, such as developing accessible education programs, promoting inclusive technologies, and addressing public health issues (Menter, 2024). These efforts highlight the shift from purely technological innovation to a broader focus on societal impact.

Driving Environmental Sustainability - Entrepreneurial universities embed environmental sustainability into their operations and academic programs. They promote research and projects that address issues such as renewable energy, waste management, and climate adaptation. By fostering collaborations between academia, industry, and government, these universities contribute to the development of green technologies and sustainable policies (Etzkowitz & Leydesdorff, 2000; Apostolopoulos et al., 2018).

Challenges and Opportunities - Despite their potential, entrepreneurial universities face challenges in aligning with the SDGs. Governance issues, resource constraints, and the traditional focus on technological innovation often limit their capacity to address broader sustainability goals (Ratten, 2017). However, the Higher Education Sustainability Initiative (HESI) provides a useful framework for overcoming these barriers by integrating SDGs into governance and operations (Moon et al., 2018). By fostering a culture of interdisciplinary collaboration and stakeholder engagement, entrepreneurial universities can enhance their impact on sustainable development.

A Holistic Vision for the Future - To maximize their transformative potential, entrepreneurial universities must adopt a holistic vision that bridges education, research, and practice. This involves fostering partnerships across disciplines and sectors, embedding sustainability in all academic programs, and actively participating in regional and global sustainability

initiatives (Apostolopoulos et al., 2018). Through these efforts, entrepreneurial universities can not only drive innovation but also lead the way in achieving a sustainable and equitable future.

Academia-Industry Collaboration

University-Industry Collaborations (UICs) have become pivotal across various sectors, enabling academic institutions and industrial organizations to leverage their unique strengths for mutual benefit. These partnerships allow universities to provide cutting-edge research, access to highly trained personnel, and novel insights into emerging fields, while industries contribute funding, practical application opportunities, and expertise in commercialization processes (Awasthy, Flint, Sankarnarayana, & Jones, 2020). The complementary nature of these resources and capabilities has established UICs as essential drivers of innovation and economic development worldwide, helping both sectors achieve objectives they might not realize independently.

The global recognition of UICs as engines for R&D and technology transfer is built upon their ability to address complex, cross-disciplinary challenges more effectively than isolated efforts. By pooling academic knowledge with industrial experience, UICs can accelerate technological advancements, fostering rapid development of marketable products and services, thus benefiting the broader economy (Globocnik, Perl-Vorbach, & Baumgartner, 2018). For instance, industries gain access to a steady stream of innovative ideas and technical expertise, while universities have the chance to apply theoretical research to real-world problems, making their work more impactful and relevant to societal needs. According to Hou, Hong, Wang, and Zhou (2019), this partnership model has proven especially beneficial for addressing issues that require long-term investment and cross-sectoral collaboration, such as clean energy and sustainable manufacturing.

While UICs have seen widespread adoption in developed nations, their role in developing countries is distinct, largely due to differing socio-economic contexts, levels of infrastructure, and regulatory frameworks. In developing regions, UICs provide crucial access to resources that may otherwise be unavailable, such as advanced laboratory equipment, funding for R&D, and experienced personnel (Rossoni, Gondim de Vasconcellos, & Rossoni, 2024). These collaborations often fill gaps where government or institutional support may be insufficient, fostering local innovations that align with specific socio-economic and environmental conditions. In many cases, the primary objective of UICs in developing nations extends beyond commercialization; they aim to build local capacity for sustained technological progress and economic resilience, a priority reflected in studies of UICs within lower-income settings (Ahmed, Fattani, Ali, & Enam, 2022).

The challenges and needs in these countries further influence the types of partnerships formed. In developing nations, UICs frequently focus on practical outcomes that can support regional economic growth, such as enhancing agricultural productivity, expanding renewable energy access, or improving health care technology (Sarpong, Boakye, Ofosu, & Botchie, 2023). For instance, partnerships in these regions may prioritize projects that support food security or clean energy, as these issues directly affect economic stability and quality of life. Developing countries often have more limited access to international markets and funding, making the role of UICs in facilitating knowledge transfer and technology adoption particularly valuable. In these contexts, UICs are often structured to address these specific needs, with universities providing localized research that industries can apply directly within the region.

Effective governance models and institutional support play a crucial role in the success of UICs, especially in developing countries. According to Cohen, Fernandes, and Godinho (2024), the structure and policies governing UICs significantly impact how collaborations are managed, the equitable sharing of intellectual property (IP), and the flow of resources. The alignment of industrial and academic goals within a well-defined governance framework ensures that both parties benefit and that outcomes support broader socio-economic objectives. This is particularly pertinent in developing countries, where clear policies on IP, funding allocation, and accountability can help mitigate risks and foster trust between partners. Pinto and Fernandes (2021) highlight that government incentives and well-established regulatory support are essential for reducing barriers to collaboration, especially in regions where institutional frameworks are less developed.

In summary, UICs provide a crucial link between academic innovation and practical application, and they are instrumental in driving economic growth and sustainability. In developing countries, these collaborations are tailored to address the region's unique challenges, focusing on areas like food security, clean energy, and health care, where the impact on local communities can be profound. Effective governance and supportive policy frameworks are essential for the sustained success of UICs, as they guide the collaborations toward outcomes that align with the socio- economic priorities of the region. Through targeted UICs, developing nations can bridge resource gaps, enhance local capabilities, and foster innovation ecosystems that support long-term development.

Academia-industry collaborations are indispensable for driving innovation and sustainability. By bridging the gap between theoretical research and practical application, these partnerships generate economic, social, and environmental benefits. However, their success depends on overcoming challenges through strategic governance, stakeholder alignment, and sustained policy support. Strengthening these collaborations will enable universities and industries to jointly address global challenges and contribute to sustainable development on a broader scale

Collaboration between academia and industry is fundamental for fostering innovation, sustainability, and socio-economic development. These partnerships allow universities to leverage their research capabilities to address real-world challenges

while enabling industries to stay competitive in a rapidly changing global environment. Such collaborations not only enhance regional development but also contribute to broader national and global sustainability goals by creating synergies between knowledge generation and application (Cohen et al., 2024; Ankrah & AL-Tabbaa, 2015).

Key Benefits of Academia-Industry Collaboration

Academia-industry collaborations serve as a bridge for knowledge and technology transfer, significantly enhancing the innovation capacity of both sectors. Universities contribute through cutting-edge research, technical expertise, and skilled graduates, while industries provide real- world challenges, funding, and commercialization opportunities (De Silva et al., 2018; Ankrah & AL-Tabbaa, 2015).

1. Innovation and R&D Advancements - These collaborations often lead to the development of new technologies and products. Research-oriented partnerships focus on advancing R&D efficiency and generating intellectual property, such as patents and spin-offs. For instance, Norwegian firms engaging in research collaborations reported significant innovation outputs compared to those relying on informal engagements (Alpaydın & Fitjar, 2024; Ankrah & AL-Tabbaa, 2015).
2. Addressing Regional Needs - In developing economies, academia-industry collaborations often prioritize addressing pressing regional issues, such as poverty alleviation, environmental sustainability, and healthcare. These initiatives are more impactful in regions with high absorptive capacities and strong institutional support (Cohen et al., 2024; Ankrah & AL-Tabbaa, 2015).
3. Capacity Building - Collaboration also fosters capacity building through education, training, and the mobility of students and researchers. Initiatives such as internships and joint programs enhance human capital development while exposing students to real-world challenges and cutting-edge industrial practices (Ankrah & AL-Tabbaa, 2015; Alpaydın & Fitjar, 2024).

Frameworks and Models

Frameworks such as the Triple Helix (academia-industry-government) and Quadruple Helix (incorporating civil society) provide structured approaches for collaborations. These frameworks emphasize the co-creation of knowledge and the alignment of stakeholder goals with broader sustainable development objectives. Collaborative R&D centers, consortia, and technology parks are examples of institutional mechanisms that facilitate such partnerships (De Silva et al., 2018; Ankrah & AL-Tabbaa, 2015).

Challenges in Implementation
Despite their benefits, academia-industry collaborations face several challenges:

1. Cultural Difference - Divergent goals, timelines, and organizational cultures between academia and industry often lead to misaligned expectations and priorities (Cohen et al., 2024; Ankrah & AL-Tabbaa, 2015).
2. Intellectual Property Management - Negotiations around IP rights can become contentious, particularly when commercial and academic goals clash (Alpaydın & Fitjar, 2024).
3. Resource Constraints - Many institutions, especially in developing regions, face funding and infrastructural limitations that hinder effective collaboration (De Silva et al., 2018; Ankrah & AL-Tabbaa, 2015).
4. Policy and Governance Issues - Lack of supportive policies and governance frameworks can inhibit the formation and sustainability of partnerships. Regional disparities in policy effectiveness, as seen in China and other emerging economies, highlight the need for context-specific approaches (Cohen et al., 2024; Ankrah & AL-Tabbaa, 2015).

Recommended Strategies for Enhancing Collaboration

To maximize the impact of academia-industry partnerships, the following strategies are recommended:

- Strengthening Institutional Mechanisms: Establishing dedicated liaison offices and innovation intermediaries can facilitate smoother communication and partnership management (Ankrah & AL-Tabbaa, 2015; De Silva et al., 2018).
- Fostering Trust and Alignment: Building trust through regular interactions, shared goals, and transparent governance structures is critical. Proximity-based collaborations, such as regional innovation systems, have shown to improve mutual understanding and efficiency (Cohen et al., 2024; Alpaydın & Fitjar, 2024).
- Policy Interventions and Incentives: Governments play a vital role by offering tax incentives, grants, and other support mechanisms to encourage collaborations. Policies should also address IP management, funding disparities, and alignment with national development goals (De Silva et al., 2018; Ankrah & AL-Tabbaa, 2015).

- Promoting Multidisciplinary and Intersectoral Research: Encouraging interdisciplinary teams and engaging civil society in collaborative projects can enhance the societal relevance and impact of such initiatives (Cohen et al., 2024; Ankrah & AL-Tabbaa, 2015).

Research Gaps and Future Research Directions

The advancement of sustainable development in higher education institutions (HEIs) has gained significant momentum over the past decade. However, despite notable progress, there remain critical areas where further research and practical improvements are needed to fully realize the potential of green entrepreneurial universities. These gaps hinder the seamless integration of sustainability into institutional frameworks, curricula, and community engagement. By identifying and addressing these challenges, researchers and policymakers can develop targeted solutions that enhance the role of HEIs as catalysts for socio-economic and environmental transformation. This section outlines the key research gaps and presents future research directions to guide efforts aimed at strengthening sustainability initiatives in higher education, particularly in the context of the Western Balkans.

Research Gaps

1. Lack of Standardized Evaluation Systems:
   - There is no universally accepted framework for evaluating the effectiveness of sustainability initiatives in higher education institutions (HEIs), particularly in developing regions like the Western Balkans.
   - Current assessment tools, such as the UI GreenMetric, lack the granularity needed to capture region-specific challenges and successes.
2. Insufficient Integration of Sustainability in Curricula and Operations:
   - Many universities face challenges in embedding sustainability holistically into their academic programs, research activities, and campus operations.
   - Existing frameworks often address sustainability in silos rather than adopting an integrated, interdisciplinary approach.
3. Funding Constraints and Resource Gaps:
   - Limited financial and human resources hinder the implementation of green initiatives in universities, particularly in developing economies like Albania and Kosovo.
4. Policy Fragmentation:
   - Policies guiding sustainability in higher education are often fragmented or misaligned with institutional goals and global frameworks like the Sustainable Development Goals (SDGs).
5. Stakeholder Engagement:
   - A lack of comprehensive engagement of key stakeholders, such as students, faculty, industry, and local communities, weakens the impact and sustainability of green university initiatives.
6. Academia-Industry Collaboration Deficiencies:
   - Despite the potential of university-industry collaborations to foster innovation and green entrepreneurship, there is insufficient collaboration in practice due to differing priorities and institutional structures.

Future Research Directions

1. Developing Robust and Region-Specific Frameworks:
   - Research should focus on creating tailored frameworks that address the socio- economic and environmental contexts of the Western Balkans. These frameworks should emphasize comprehensive sustainability assessments.
2. Digital Tools and Smart Technologies:
   - Future studies should explore the use of digital tools (e.g., smart energy systems and online platforms) to improve the monitoring, implementation, and reporting of sustainability initiatives.
3. Curriculum Integration and Interdisciplinary Education:
   - Research should examine how sustainability can be embedded across various disciplines to foster holistic education and prepare students for green careers.
4. Funding Mechanisms and Sustainability Incentives:
   - Studies can focus on identifying effective funding models and incentives to support sustainable entrepreneurship in higher education.
5. Longitudinal Impact Studies:
   - Future research could include long-term studies to assess the sustained impacts of green initiatives on institutional performance and community outcomes.

6. Strengthening Academia-Industry Partnerships:
   - Research can explore innovative models for academia-industry collaboration, emphasizing co-creation of knowledge and aligning university research with industry needs for sustainability-driven innovation.
7. Community Engagement and Social Impact:
   - Studies should investigate best practices for involving communities in sustainability initiatives, highlighting successful examples of participatory governance and local partnerships.
8. Governance and Policy Frameworks:
   - Research should analyse governance models and policy frameworks that enable HEIs to align institutional practices with national and international sustainability goals.

Future research directions

Future Research Directions	Description
Developing Robust and Region-Specific Frameworks	Research should focus on creating tailored frameworks that address the socio-economic and environmental contexts of the Western Balkans. These frameworks should emphasize comprehensive sustainability assessments.
Digital Tools and Smart Technologies	Future studies should explore the use of digital tools (e.g., smart energy systems and online platforms) to improve the monitoring, implementation, and reporting of sustainability initiatives.
Curriculum Integration and Interdisciplinary Education	Research should examine how sustainability can be embedded across various disciplines to foster holistic education and prepare students for green careers.
Funding Mechanisms and Sustainability Incentives	Studies can focus on identifying effective funding models and incentives to support sustainable entrepreneurship in higher education.

Conclusions and limitations

This literature review underscores the critical role of universities in advancing sustainability through innovative frameworks, green entrepreneurship, and campus initiatives. While significant progress has been made, challenges such as resource constraints, policy gaps, and stakeholder engagement remain barriers to fully realizing the potential of sustainable universities. Future research should focus on addressing these challenges by leveraging digital tools, enhancing curriculum integration, and fostering academia-industry collaborations tailored to regional needs. By doing so, higher education institutions can strengthen their role as catalysts for sustainable development. The analysis of sustainability practices in higher education institutions (HEIs) highlights key areas crucial to fostering purpose-driven, green entrepreneurial universities. The findings span frameworks and mechanisms, barriers and facilitators, innovation outcomes, knowledge transfer, and the role of governance and policy. The reviewed studies emphasize the importance of holistic and regionally adaptive strategies that align with socio-economic realities, particularly in emerging regions like the Western Balkans. Additionally, innovation and entrepreneurship ecosystems are identified as vital components for sustainable institutional growth and regional impact

Summary of Key Findings

The table below outlines the essential insights from the analysis, emphasizing the need for tailored frameworks, robust governance, and partnerships to overcome institutional barriers. Effective knowledge transfer, sustainability initiatives, and entrepreneurial activities are shown to enhance research applications, improve employment rates, and drive socio-economic development. However, resource limitations and fragmented policies remain significant challenges, necessitating cohesive policy frameworks, capacity building, and institutional reforms.

Category	Analysis	Key Findings
Frameworks & Mechanisms	Frameworks provide structured approaches for universities to integrate sustainability into operations, curricula, and collaborations. Common frameworks include Triple and Quadruple Helix models involving academia, industry, government, and civil society.	Regionally tailored frameworks are needed for the Western Balkans. Successful examples from other regions (e.g., science and technology parks) show potential for building sustainable innovative ecosystems.
Barriers & Facilitators	Barriers include limited financial resources, lack of expertise, and fragmented policies. Facilitators include strong leadership, industry partnerships, and supportive policies.	Addressing barriers requires institutional reforms, policy alignment, and capacity building. Sustainability offices in universities have shown promising integration results.
Innovation Outcomes	Innovation drives sustainable practices in universities, from green technologies to curriculum redesign. Partnerships with industry are crucial for translating research into practical applications.	Universities with strong R&D collaborations report higher innovation outputs. Translation of innovation into outcomes depends on governance and funding mechanisms.

Knowledge Transfer	Knowledge transfer involves sharing research findings and innovations with industry and society. Universities act as intermediaries in regional innovation ecosystems.	Universities with dedicated technology transfer offices perform better in bridging academia and practical applications. Collaborations with local industries enhance impact.
Sustainability	Sustainability covers environmental, social, and economic dimensions. Key initiatives include green campuses, carbon footprint reduction, and sustainable curricula.	Universities in emerging economies struggle with resource constraints but can achieve progress through small, scalable projects (e.g., renewable energy installations).
Government & Policy Role	Effective policy frameworks enable sustainable university practices. Policies that incentivize academia-industry partnerships are particularly impactful.	The Western Balkans need cohesive policy frameworks for higher education sustainability. National innovation systems play a key role in fostering sustainability.
University Role in Entrepreneurship	Entrepreneurial universities support innovation and address socio-economic challenges through entrepreneurial education, start-up incubators, and funding opportunities.	Universities with entrepreneurship initiatives see higher graduate employment and regional impact. However, supportive ecosystems for university-driven entrepreneurship are lacking in the Western Balkans.

Challenges and Barriers

Despite the growing emphasis on sustainability in higher education, several barriers hinder its full realization:

1. **Resource Constraints:** Financial and human resources for sustainability initiatives remain limited, particularly in developing economies (Papageorgiou et al., 2023).
2. **Policy Gaps:** Fragmented or inadequate policies often fail to provide clear guidance for implementing sustainable practices (Wu, 2021).
3. **Stakeholder Engagement:** Limited involvement of students, faculty, and industry stakeholders weakens the impact of sustainability initiatives (Dagiliute et al., 2018).
4. **Standardization Issues:** Lack of standardized metrics for evaluating and implementing green practices poses challenges for benchmarking and accountability (da Silva et al., 2023).

Critical Analysis of Landmark Studies on Fostering Purpose-Driven Green Entrepreneurial Universities in WB: A Strategic Framework for Sustainable Impact in Higher Education

The following table provides a concise critical analysis of key studies that have shaped the discourse on fostering purpose-driven green entrepreneurial universities. By examining their contributions, strengths, limitations, and relevance to the Western Balkans (WB), this analysis highlights the progress made and the areas that require further research and contextual adaptation

Study	Key Contributions	Strengths	Limitations	Relevance to WB
Velazquez et al. (2006): Sustainable Universities Framework	Proposed a comprehensive framework for embedding sustainability across teaching, research, operations, and community engagement.	Holistic approach integrating governance, policy, and operations; emphasizes institutional responsibility for sustainability.	Limited applicability to post-conflict and economically transitioning regions; assumes access to ample resources.	Offers a strong foundation for understanding sustainability but needs adaptation to WB socio-economic contexts.
Etzkowitz & Klofsten (2005): The Triple Helix Model	Introduced the Triple Helix model that emphasizes collaboration among academia, industry, and government to drive innovation.	Encourages public-private partnerships and knowledge co- creation; supports regional innovation ecosystems.	Focuses heavily on innovation and less on integrating social and environmental considerations.	Relevant for fostering academia-industry partnerships but must account for governance and funding challenges.

Apostolopoulos et al. (2018): Entrepreneurial Universities and Sustainable Development	Explored the role of entrepreneurial universities in achieving SDGs through interdisciplinary research and sustainable business incubation.	Demonstrates how HEIs can foster green entrepreneurship and social innovation; relevant to economically constrained regions.	Underexplores inclusive governance and curriculum reform in green entrepreneurship initiatives.	Critical for enhancing job creation and addressing brain drain through entrepreneurial ecosystems.
DagiliutÄ— et al. (2018): Evaluating University Sustainability Initiatives	Proposed metrics for assessing university sustainability initiatives, focusing on environmental, social, and economic dimensions.	Provides a comprehensive framework for evaluating HEI sustainability; emphasizes stakeholder engagement.	Metrics may be difficult to implement in resource- constrained institutions; lacks strategies for addressing financial and policy barriers.	Valuable for self-assessment but must include context-specific indicators like post-conflict recovery measures.
Papageorgiou et al. (2023): Green Entrepreneurship in Higher Education	Highlighted case studies where green entrepreneurship initiatives were implemented through partnerships and sustainability- focused curricula.	Demonstrates the potential of digital platforms and virtual incubators; focuses on practical applications for green startups.	Overemphasizes technological solutions; underestimates cultural and institutional barriers.	Highly applicable where digital solutions can support green entrepreneurial ventures.
Wu (2021): Institutional Gaps in Achieving Sustainable Universities	Explored institutional barriers to sustainability and proposed governance reforms to enhance institutional accountability and stakeholder engagement.	Provides actionable governance reform recommendations; highlights the role of leadership and funding in driving sustainability.	Primarily focuses on national-level policies; assumes robust policy enforcement mechanisms.	Addresses critical barriers in WB HEIs but requires region- specific governance strategies.

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PANEL II

INNOVATING LEGAL, POLITICAL, AND INTERNATIONAL STRATEGIES WITHIN THE NEW EU COMPETITIVE AGENDA

EU – US in competition: a possible scenario

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Abstract

The dynamics of the transatlantic relationship between the European Union and the United States have undergone significant changes during the Trump administration, influenced by a geopolitical recession and shifting priorities in global leadership. This paper examines the impact of Trump's transactional foreign policy approach on the EU-US partnership and explores its implications for Europe's pursuit of strategic autonomy. Under Trump, the US demonstrated a departure from traditional multilateralism and post-World War II values, emphasizing bilateral agreements and a pragmatic, interest-driven approach. This shift destabilized established alliances, including NATO, and fueled tensions with the EU, as exemplified by Trump's dismissive rhetoric and policies such as the proposed acquisition of Greenland and selective engagement with European leaders. The EU's response to these changes has been shaped by the diverging positions of its key member states. While French President Emmanuel Macron has championed the idea of a "true European army" and greater independence from US influence, Germany remains cautious, balancing its reliance on NATO with increased defense spending to strengthen European capacities. Meanwhile, the United Kingdom, post-Brexit, continues to prioritize its "special relationship" with the US but faces increasing challenges in aligning its strategic priorities with either the US or the EU. The paper highlights how this geopolitical recession, characterized by declining US leadership and the rise of alternative powers like China, has accelerated the EU's efforts to redefine its role on the global stage. By assessing patterns of behavior from both sides of the Atlantic, this study argues that the EU's quest for strategic autonomy will depend on its ability to reconcile internal divisions and foster cooperation among France, Germany, and the UK. Ultimately, this evolving relationship may reshape the balance between competition and collaboration in a fragmented international order.

***Key words**: geopolitical recession, strategic autonomy, transatlantic tensions, multilateralism, global leadership, fragmented international order*

Introduction: "America First" turns into "America Alone"

For decades, the partnership between the United States and the European Union stood as a pillar of the liberal international order, grounded in mutual trust, shared democratic values, and close economic and security cooperation. However, during the first Trump administration (2017–2021) and markedly during the current administration, this transatlantic relationship has deteriorated, raising the prospect of the EU and US shifting from partners to competitors. Scholars have described the Trump era as an unprecedented challenge to the transatlantic alliance, marked by a "significant breakdown of trust" toward the U.S. as the traditionally reliable leader (Smith, 2020). Trump's confrontational "America First" diplomacy - often unilateral and dismissive of allies - undermined the notion of common values and predictability in U.S. behavior (Jones, 2019). European officials openly questioned Washington's commitment: for example, EU Council President Donald Tusk lamented in 2018 that with friends like the Trump administration, "who needs enemies," after the U.S. quit the Iran nuclear deal and launched trade disputes against Europe (Tusk, 2018). Such remarks crystallized the

erosion of trust at the highest levels, as long-standing allies felt "rid of all illusions" about U.S. reliability (Merkel, 2018). And this situation is worsened during the second Trump administration.

A major source of transatlantic friction came from open economic conflict. In 2018, Washington imposed sweeping tariffs on EU steel and aluminum, justifying them on national security grounds and bypassing World Trade Organization norms. Brussels viewed these tariffs as a grave breach of trust and rules-based trade. European Commission President Jean-Claude Juncker stated at that time that the U.S. decision "goes against all logic and history" and the spirit of partnership (Juncker, 2018). The EU swiftly retaliated with counter-tariffs on American products (from bourbon to motorcycles), targeting roughly $3 billion worth of U.S. goods (European Commission, 2018). EU Trade Commissioner Cecilia Malmström emphasized that Europe's response was measured and lawful, meant to defend the international trade rules the U.S. itself had helped create (Malmström, 2018). This tit-for-tat trade conflict strained relations further, fueled mutual grievances, and signaled a departure from the traditionally cooperative approach to resolving disputes. What had been friendly negotiation turned into a trade war atmosphere, reflecting how "America First" economics clashed with EU multilateralism (Brown, 2019). Transatlantic trust, already shaken, was further eroded by these economic battles.

Beyond trade, the U.S. under Trump withdrew from or undermined key multilateral frameworks that the EU cherishes, widening the rift in values and policies. Washington's exit from the Paris Climate Accord and the 2015 Iran nuclear agreement, its pull-out from UNESCO and the UN Human Rights Council, and its skepticism toward NATO all signaled a retreat from the collaborative institutions of global governance (White House, 2017). In contrast, EU leaders doubled down on their commitment to multilateralism, openly diverging from Washington's course. European officials warned that U.S. abandonment of international agreements threatened Europe's own foreign policy objectives which had long been aligned with Washington's (European External Action Service, 2018). The Trump administration's go-it-alone stance left the U.S. increasingly isolated. By 2020, even close allies refused to back U.S. positions (for instance, when the U.S. sought to extend UN sanctions on Iran after having quit the Iran deal, it found itself virtually alone at the UN Security Council, a moment when "'America First' had, effectively, become America alone") (Klein, 2020). In short, Trump's unilateralist approach - withdrawing from global accords and disparaging alliances - alienated allies and eroded U.S. leadership, prompting observers to quip that "America First" was turning into "America Alone" (Johnson, 2019).

Tensions peaked at high-profile summits, producing symbolic scenes of transatlantic discord. The NATO Summit in Brussels in July 2018, for example, became one of the most divisive in the alliance's history (NATO, 2018). President Trump openly harangued European leaders over defense spending, even reportedly warning that the U.S. would "go its own way" if allies did not drastically increase their military budgets (Smith, 2018). While Trump proclaimed victory - claiming he had pressured the allies into new commitments - European leaders like president Emmanuel Macron flatly denied any change beyond pre-existing pledges (Macron, 2018). The spectacle of an American president threatening alliance unity was unprecedented in NATO's history and deeply rattled Europe's sense of security. Similarly, the June 2018 G7 summit saw Trump exit early and refuse to sign the joint communiqué, prompting outrage from allies. Such summits, once cordial opportunities to reaffirm transatlantic unity, became instead stages for confrontation and mistrust during the Trump years. Allies were left "stunned" as they struggled to manage a U.S. leader whose capricious ultimatums put decades-old partnerships to the test (Johnson, 2018). The result was a palpable sense of transatlantic drift and the weakening of Western unity.

Faced with this estrangement, European leaders began articulating visions of greater strategic autonomy for Europe. No longer confident in the U.S. security umbrella or diplomatic alignment, the EU started contemplating a more independent role. French President Emmanuel Macron, for instance, argued that Europe needs a "real European army" to reduce reliance on the U.S. for defense (Macron, 2018). He warned that Europe must be able to protect itself even from friends like the United States (Macron, 2018). German Chancellor Angela Merkel voiced similar sentiments as early as 2017, declaring that "the era in which we could fully rely on others is over," and that Europeans "truly have to take our fate into our own hands" while maintaining friendship with the U.S. (Merkel, 2017). Donald Tusk likewise urged Europe to unite and prepare to "act on our own" given Washington's "capricious assertiveness" (Tusk, 2018). These calls signaled a new resolve in Europe to bolster its defense capabilities, economy and diplomatic clout . . . independent of the United States. Initiatives such as the Permanent Structured Cooperation (PESCO) on defense, debates over creating a European Security Council, and discussions of a euro-centric foreign policy gained momentum in EU circles. Even the United Kingdom, traditionally America's closest European ally, found itself in a post-Brexit dilemma of how to balance a desire for a U.S. trade deal and security cooperation with the need to coordinate with its European neighbors. In sum, the tumult of the Trump era ignited an EU drive for "strategic autonomy," as Europe sought to ensure it would not be left vulnerable to the whims of an unpredictable Washington.

Underlying these specific disputes is a broader context of global power shifts often described as a "geopolitical recession." Analysts note that we are "between world orders" - the familiar U.S.-led order is receding, and a new order has yet to fully emerge (Kagan, 2019). During Trump's presidency, U.S. global leadership noticeably declined, creating a vacuum that rising powers like China eagerly began to fill (Wang, 2020). China positioned itself as a defender of multilateralism and expanded its influence, from international trade to technology and development finance, while the U.S. turned inward. European policymakers grew alarmed that the weakening of transatlantic ties and the abdication of U.S. leadership would further empower rival powers at the expense of the West. Indeed, by retreating from international engagement, the Trump administration diminished America's standing and allowed adversaries to "change the rules of the road" in global governance (Johnson, 2020). This global power realignment forms the backdrop for the transatlantic estrangement: the EU and US now

not only face bilateral tensions but also the challenge of a shifting multipolar world where their long-held predominance is no longer assured.

The deterioration of EU-US relations during the first Trump administration poses critical questions for international relations and European studies. The erosion of trust, open trade conflicts, U.S. withdrawal from multilateral leadership, and the rise of calls for European autonomy together suggest that the once-committed alliance has entered a phase of deep uncertainty - perhaps even a scenario of competition between Washington and Brussels.

Literature review

Geopolitical Recession

Ian Bremmer (2019) characterizes the current era as a "geopolitical recession," marked by the retreat of U.S. global leadership and a consequent breakdown of the post-war international order. He argues that the old U.S.-led system is "coming apart," leaving a power vacuum that breeds uncertainty and instability in global politics. Bremmer links this disorder to domestic malaise within Western democracies (populism, mistrust in elites) and America's waning willingness to lead. As U.S. international influence and commitment to multilateralism wane, no other country or coalition has fully replaced its stabilizing role. This leaderless world -what Bremmer calls a "G-Zero" order - is fraught with volatility. Alliances and institutions falter: even the transatlantic alliance and organizations like NATO and the EU are under strain (Bremmer, 2019). Bremmer observes that other powers are "vying to fill the void" left by Washington's retreat. China, for instance, has aggressively expanded its global influence through initiatives like the Belt and Road Initiative. However, this often comes on China's terms, underscoring that the absence of U.S. leadership leads not to a neat multipolar balance but to competitive disorder. In sum, Bremmer's framework suggests that the decline of American hegemony has ushered in a period of fragmented authority and unpredictable geopolitics, to which allies like Europe must adapt.

Strategic Autonomy

Sven Biscop (2021) responds to this changing environment by advocating for European "strategic autonomy." This concept entails the EU acquiring the capacity to independently make and implement security policy decisions - militarily and politically - when needed, while still cooperating with allies. Biscop emphasizes that autonomy is as much about mindset and political will as it is about capabilities. He argues that Europeans must start thinking like a great power to act like one: EU member states should view the Union "as a great power, in the same league as the US, Russia, and China," and be prepared to "take the lead in stabilizing [their] own periphery" (Biscop, 2021, p. 44). On the military side, Biscop calls for Europe to develop the ability to deploy forces abroad and to integrate national militaries for collective strength. Politically, strategic autonomy means Europe being able to set its own priorities and make decisions without always deferring to Washington. He contends that pursuing autonomy is not about rejecting the U.S. or NATO, but about balancing the transatlantic partnership. NATO would remain the cornerstone for collective defense, but EU autonomy would enable Europe to act when the U.S. cannot or will not. Thus, Biscop envisions the EU as a more capable and self-reliant global actor, complementing NATO and the U.S. but also prepared to pursue its own interests when geopolitics demand it.

Multipolarity and China's Rise

Parag Khanna (2016) contends that the post-Cold War Western-led order is giving way to a truly multipolar world, driven largely by the rise of China and other powers. He argues that globalization's momentum no longer depends on U.S. leadership; instead, multiple centers of power now shape international outcomes. For instance, China has become the top trading partner for over 120 countries, and the EU wields enormous economic clout through trade and investment. Khanna notes that America's once-dominant position has been "steadily declining" as Europe's integration, China's ascent, and the emergence of India, Russia, and others create new "centers of gravity" (Khanna, 2016, pp. 102-103). In this context, nations increasingly pursue "multi-alignment" strategies - seeking benefits from America, Europe, and China all at once. Notably, Khanna observes that EU states have started to chart their own course: despite U.S. opposition, European countries joined China's Asian Infrastructure Investment Bank, and pushed forward trade agreements from which the U.S. had withdrawn. According to Khanna, this behavior reflects a broader trend of "Europe First" thinking - as global deference to U.S. leadership wanes, the EU is seeking to engage with multiple powers and defend its interests in a multipolar system.

EU as a Global Actor

Charlotte Bretherton and John Vogler (2006) offer a conceptual lens to evaluate the EU's capacity as a global actor through their notion of "actorness." This concept consists of three interrelated components: opportunity, presence, and capability.

Opportunity refers to external conditions that enable or constrain EU action; presence captures the EU's influence by virtue of its market size, regulatory power, and diplomatic engagement; and capability refers to the EU's internal coherence and instruments of action. Using this framework, the EU's role in a post-American, contested order can be critically assessed. The erosion of U.S. hegemony and the rise of multipolarity arguably increase the EU's opportunity to act globally. Its presence is already significant - as a regulatory superpower and global economic hub - but its capability remains limited by internal divisions and the lack of a unified military force (Bretherton & Vogler, 2006). Bretherton and Vogler emphasize that actorness depends on whether the EU can convert presence and opportunity into effective external behavior. This insight is highly relevant in today's multipolar world: as the international system becomes more contested, the EU's ability to influence global politics will center on its capacity to act decisively and cohesively.

Methodology

This paper adopts a qualitative research design to explore how the ongoing geopolitical recession - marked by the erosion of U.S. global leadership and the ascent of alternative powers such as China - has accelerated the European Union's efforts to redefine its global role. The research is framed around the question: How has the ongoing geopolitical recession, characterized by declining U.S. leadership and rising alternative powers, accelerated the EU's efforts to redefine its role on the global stage?

The study's design is rooted in conceptual analysis and informed by expert insight, allowing for an interpretive exploration of evolving EU–US dynamics. It draws upon established theoretical frameworks from leading scholars to examine the EU's strategic recalibration. These include Ian Bremmer's (2019) concept of geopolitical recession, which explains the fragmentation of the U.S.-led international order; Sven Biscop's (2021) theory of strategic autonomy, which reflects Europe's quest for greater independence in security and foreign policy; Parag Khanna's (2016) understanding of multipolarity and China's global ascent; and Bretherton and Vogler's (2006) framework of EU actorness, which evaluates the Union's external influence based on presence, opportunity, and capability.

The analytical aim is to understand how structural shifts in global power influence both the EU's external strategies and its internal self-perception as an international actor. To this end, the research investigates how the decline of U.S. reliability and the rise of competing global players have impacted the EU's discourse and decision-making processes regarding its global role.

To support this conceptual and theoretical grounding, the study employs two complementary data sources:

Primary Data – The empirical foundation of the research consists of 15 semi-structured interviews conducted with international relations scholars, EU foreign policy experts, and analysts from leading think tanks. The interviews were designed to elicit expert assessments of current EU–US dynamics, strategic responses to U.S. retrenchment, and perceptions of EU ambitions for global actorness. Respondents were selected through purposive sampling to ensure geographic and disciplinary diversity. Interviews were conducted virtually and recorded with consent, then transcribed for thematic coding.

Secondary Data – To contextualize expert perspectives, the study also draws on a corpus of official EU policy documents, European Council conclusions, European External Action Service communications, and international institutional reports (e.g., from NATO, the UN, and the OECD). These texts were analyzed using documentary analysis techniques to identify shifts in tone, priorities, and vocabulary regarding the EU's global aspirations. Particular attention was paid to moments of transatlantic tension during the Trump administration and the EU's evolving discourse on autonomy and multilateralism.

The findings from the are synthesized with documentary insights to develop a comprehensive interpretive narrative of the EU's repositioning. The combination of expert insight and document analysis allows for an understanding of how geopolitical uncertainty has compelled the EU to reconsider its traditional role as a partner and instead move toward greater strategic self-definition in world affairs.

Operationalizing the EU's Redefined Global Role

The European Union's redefinition of its global role reflects its efforts to transition from a largely normative actor into a more strategically autonomous and politically assertive power on the global stage. This concept is operationalized through five core indicators: (1) strategic autonomy initiatives, (2) independent partnerships, (3) distancing from U.S. policies, (4) regional leadership, and (5) institutional empowerment. These dimensions are grounded in the evolving geopolitical landscape outlined by Bremmer's (2012) theory of geopolitical recession, Biscop's (2021) argument for strategic autonomy, Khanna's (2016) assessment of multipolarity, and Bretherton and Vogler's (2006) framework of EU actorness.

Strategic Autonomy Initiatives

Strategic autonomy refers to the EU's pursuit of military and political self-reliance in the face of uncertain U.S. leadership. This involves building institutional capabilities such as the Permanent Structured Cooperation (PESCO), the European Defense Fund, and a coordinated annual review on defense (CARD) (Biscop, 2021). Biscop (2018) notes that the EU must

be capable of acting without depending on the U.S., especially in its near abroad. This vision aligns with Bremmer's (2012) concept of a "G-Zero world" where power is diffused and allies must adapt to U.S. disengagement. The EU Global Strategy (EEAS, 2016) also explicitly calls for a greater degree of strategic autonomy to deal with threats independently. These initiatives are evidence of the EU redefining itself as a security actor, aiming to close the gap between normative aspirations and actual operational capacity.

Independent Partnerships

The EU's global strategy includes building strategic partnerships outside of U.S.-led frameworks. As Khanna (2016) argues, the international system is now multipolar, and actors like the EU must engage in diversified diplomatic and economic alignments. The EU-China Comprehensive Agreement on Investment (European Commission, 2020) and trade agreements with Japan, Vietnam, and MERCOSUR demonstrate Brussels' ability to pursue autonomous economic relationships, even when these diverge from U.S. preferences. This independent approach shows that the EU is not simply responding to U.S. leadership but actively shaping its global engagements in line with its strategic interests (Khanna, 2016).

Distancing from U.S. Policies

This indicator focuses on cases where the EU diverged from U.S. policy, particularly during the Trump administration. A clear example is the EU's continued commitment to the Paris Climate Agreement and its enhanced climate ambitions following the U.S. withdrawal (Barichella, 2017). Similarly, after the U.S. exited the Joint Comprehensive Plan of Action (Iran nuclear deal), the EU maintained its support and established the INSTEX mechanism to facilitate trade with Iran (Herszenhorn, 2019). Bretherton and Vogler (2006) frame this as the EU acting on its own normative agenda, showing "presence" and "capability" despite external divergence. Such deliberate policy separations illustrate the EU's willingness to maintain a distinct global role, reinforcing its status as a normative and strategic actor.

Regional Leadership

The EU's influence in its neighborhood serves as a practical manifestation of its redefined global role. Enlargement processes in the Western Balkans, the European Neighborhood Policy, and the Eastern Partnership show the EU actively exporting its model of governance and integration (European Commission, 2018). Bretherton and Vogler (2006) refer to this as the EU leveraging its "presence" and external incentives to shape regional outcomes. Khanna (2009) also describes this regional assertiveness as a hallmark of Europe's soft power, where conditional aid, market access, and legal harmonization act as tools of influence. These efforts signal a move beyond dependence on transatlantic leadership and toward regional stewardship.

Institutional Empowerment

Finally, the EU's redefinition of its global role is underpinned by the strengthening of its institutional apparatus. The European External Action Service (EEAS), the High Representative for Foreign Affairs and Security Policy, and strategic documents such as the EU Global Strategy (2016) and Strategic Compass (2022) represent steps toward coherent foreign policy coordination (EEAS, 2016). According to Bretherton and Vogler (2006), institutional "capability" is essential for translating presence and opportunity into effective action. Biscop (2021) concurs, emphasizing that only a unified institutional framework can enable the EU to project real power internationally. These institutional advances support all the other indicators, enabling the EU to operate more like a traditional strategic actor rather than a purely normative power.

Findings

Centrality of strategic autonomy in EU Discourse

A consistent theme across expert interviews and EU policy analysis is the ascent of "strategic autonomy" as a central concept in EU foreign policy. Strategic autonomy is no longer merely aspirational but is increasingly positioned as a structural necessity. Interviewees noted that, particularly since the Trump administration, European leaders across the political spectrum have begun prioritizing efforts to reduce dependence on U.S. leadership in defense and broader global governance. This aligns with Biscop's (2021) argument that the EU must think and act like a global power if it is to maintain relevance in a multipolar world. This recalibration also reflects Bremmer's (2012) theory of a "geopolitical recession," in which U.S. withdrawal from its traditional leadership role generates instability and forces allies like the EU to adapt. This adaptation is evident in EU documents such as the EU Global Strategy (European External Action Service [EEAS], 2016), which explicitly endorses strategic autonomy. Scholars like Bretherton and Vogler (2006) contextualize this in terms of the EU's "capability" -the institutional and political means to act internationally.

Pursuit of independent diplomacy and trade agreements

Interviews and document analysis revealed numerous examples of the EU conducting trade and diplomacy on independent terms. The 2020 Comprehensive Agreement on Investment (CAI) with China was widely mentioned as a prime instance of the EU acting without alignment with U.S. policy (European Commission, 2020). The EU moved forward on the CAI even amidst transatlantic tensions, signaling an intention to engage strategically with Beijing.

This behavior aligns with Khanna's (2016) idea of a networked, multipolar world order. The EU increasingly views itself as a global actor capable of forging alliances beyond the Western orbit. This is reinforced by the EU's broader trade strategy, which includes agreements with Japan, Vietnam, and Mercosur. These moves strengthen the EU's global economic "presence," another core element in Bretherton and Vogler's (2006) framework.

Moreover, EU policy has increasingly embraced the concept of "open strategic autonomy," combining free trade with defensive instruments like investment screening (European Commission, 2021). According to Biscop (2021), this blend reflects the maturation of EU foreign policy—one that values independence without isolation.

Increasing divergence from U.S. foreign policy

Another key finding is the EU's willingness to diverge from U.S. foreign policy, especially under the Trump administration. Interviewees consistently mentioned the EU's firm stance on climate policy and the Iran nuclear deal. After the U.S. withdrew from the Paris Climate Accord, the EU not only reaffirmed its commitment but actively sought partnerships with subnational U.S. actors (Barichella, 2017). Likewise, when the U.S. pulled out of the JCPOA, the EU attempted to keep the deal alive through mechanisms like INSTEX (Herszenhorn, 2019).

These cases illustrate what Bretherton and Vogler (2006) describe as the EU's independent "presence" in multilateral governance. They also support Bremmer's (2012) thesis: as U.S. leadership retreats, the EU feels compelled to fill the vacuum, particularly in norm-setting areas like climate, trade, and non-proliferation.

The Trump era as a strategic wake-up call

Interviewees agreed that Trump's presidency acted as a catalyst for European strategic recalibration. His antagonism toward NATO, withdrawal from multilateral deals and preference for bilateralism shook European confidence in the transatlantic alliance. According to Alemanno (2018), this shock forced the EU to confront structural dependencies that had long been deferred. This shift is captured in internal EU documents, which started referencing "unpredictability of allies" as a rationale for autonomy (European Council, 2019). According to Biscop (2021), this was the moment when strategic autonomy transitioned from rhetoric to planning. The Trump presidency also reframed Bretherton and Vogler's (2006) concept of "opportunity" - it wasn't just about seizing external openings, but reacting to internal vulnerabilities.

Intensified EU leadership in the neighborhood

The EU has deepened its engagement with the Western Balkans and Eastern Partnership countries. The 2020 Economic and Investment Plan for the Western Balkans and fast-tracked candidacy for Ukraine and Moldova after the Russian invasion illustrate the Union's increased regional leadership (European Commission, 2018).

These developments reflect the EU's attempt to be a stabilizing regional power, aligning with Khanna's (2009) claim that global influence often stems from effective regional anchoring. They also align with Bretherton and Vogler's (2006) emphasis on "presence" and "opportunity". Interviewees framed these moves as essential not only for EU influence but also for buffering against Russian and Chinese inroads into the EU's periphery.

Growing institutional capacity amidst national divergence

The Lisbon Treaty and subsequent reforms have expanded the EU's institutional tools, notably through the European External Action Service and the role of the High Representative. Interviewees noted that the EU now has more tools to coordinate and speak with one voice - what Bretherton and Vogler (2006) identify as "capability".

However, these capabilities are undermined by member-state divergence. Cases like Hungary blocking joint EU statements or sanction regimes illustrate how unanimity requirements hinder coherence (Kelemen & Pech, 2019). This tension reflects Biscop's (2021) concern that strategic autonomy is impossible without internal political cohesion.

From normative power to principled pragmatism

Interviews and documents reveal a shift from the EU's traditional "normative power" model to a more interest-driven stance. The EU Global Strategy (EEAS, 2016) introduced the concept of "principled pragmatism," balancing values with

geostrategic interests. Experts noted that newer policies - like those on migration deals with North African countries or energy cooperation with the Gulf - prioritize stability and reciprocity over normative export.

Khanna (2016) argues that in a competitive, multipolar system, actors like the EU must adapt or risk marginalization. Bremmer (2012) similarly warns that values unsupported by capabilities offer little protection in a G-Zero world. This transition marks a shift in Bretherton and Vogler's (2006) framework from "normative presence" to "strategic capability".

Franco-German leadership as a critical enabler

Interviewees uniformly emphasized the centrality of Franco-German cooperation in driving EU foreign policy. France's push for strategic autonomy, especially under Macron, and Germany's recent shift post-Zeitenwende show a tentative convergence. According to Biscop (2021), this bilateral axis is essential for generating EU-wide consensus.

This finding supports Bretherton and Vogler's (2006) emphasis on internal cohesion as a precondition for actorness. Policy documents like the 2019 Franco-German joint statement on European sovereignty demonstrate how bilateral alignment translates into EU-level initiatives (European Council, 2019).

China's rise and EU regulatory assertiveness

China's global ascent has become a stress test for EU foreign policy. The EU's characterization of China as a "partner, competitor and rival" signals an effort to balance engagement with resistance (European Commission, 2021). Experts pointed to regulatory tools - such as the Digital Markets Act or Carbon Border Adjustment Mechanism - as examples of the EU leveraging the "Brussels Effect" to shape global standards (Bradford, 2020).

Khanna (2016) contends that in a world of overlapping empires, the ability to set norms and rules becomes a form of power. The EU's assertive regulatory stance is a manifestation of this logic. It also aligns with Bretherton and Vogler's (2006) theory of "capability" - where power lies in the ability to act and shape behavior.

Discussion

The findings of this study present a complex but coherent picture of a European Union that is in the midst of redefining its global role. While it is not yet a fully autonomous geopolitical actor, the EU is clearly moving away from its traditional alignment with the United States and experimenting with more independent approaches to foreign policy, security, and global governance. This discussion section explores the implications of four key findings: deliberate EU divergence from the U.S., increasing regional assertiveness, efforts at institutional consolidation, and persistent challenges to member-state unity. Each of these is interpreted in light of the broader theoretical frameworks underpinning the study.

Deliberate divergence from the United States

One of the clearest indications of the EU's changing strategic posture is its growing willingness to diverge from U.S. foreign policy, particularly when core values or long-term interests are at stake. The EU's decision to remain committed to the Paris Climate Accord despite the Trump administration's withdrawal is emblematic of this shift (Barichella, 2017). This action reflects not only a normative attachment to multilateralism but also a strategic calculation that European leadership in global climate governance enhances the EU's international standing.

This deliberate divergence can be understood through the lens of Bremmer's (2012) "geopolitical recession" thesis. As U.S. leadership becomes more transactional and unpredictable, particularly during the Trump years, the EU has felt compelled to assert its own policy direction. The EU's defense of the JCPOA (Iran nuclear deal) following U.S. withdrawal in 2018 offers a similar example (Herszenhorn, 2019). While the EU still relies heavily on the U.S. for NATO-based security guarantees, these policy moves suggest that Brussels is increasingly willing to decouple from Washington in areas where values or strategic objectives diverge. Bretherton and Vogler's (2006) notion of "actorness" is relevant here, particularly their emphasis on coherence and presence. The EU's ability to maintain a unified position on these global issues demonstrates a growing maturity as a strategic actor.

Regional assertiveness as a strategic imperative

A second important theme is the EU's renewed emphasis on leadership within its immediate neighborhood. The findings highlight substantial efforts to reinvigorate the EU's Western Balkans strategy, provide support for Eastern Partnership states, and deepen integration mechanisms with regional partners (European Commission, 2018). Such regional assertiveness is a critical part of the EU's broader effort to define itself as a global actor.

This neighborhood-first approach aligns closely with Khanna's (2016) argument that effective global powers often begin by stabilizing and integrating their own regions. Europe's support for Ukraine in the face of Russian aggression, its role in

mediating Balkan disputes and its economic and institutional outreach to Moldova and Georgia all reflect this logic. These actions are not simply extensions of normative foreign policy - they are strategic attempts to secure influence and deter rival powers. From a theoretical standpoint, this corresponds to Bretherton and Vogler's (2006) idea of "opportunity," wherein external conditions and internal capacities align to expand EU engagement.

However, while these regional actions demonstrate presence and intent, they do not yet amount to hegemony. The EU's regional strategy is still constrained by internal divisions and the cautious pragmatism that characterizes its enlargement policy. Even so, regional assertiveness remains a cornerstone of the EU's evolving global strategy.

Institution-building and foreign policy coordination

The findings also point to steady progress in enhancing the EU's foreign policy machinery. The strengthening of the European External Action Service (EEAS), the elevation of the High Representative's role as well as the publication of strategic documents such as the EU Global Strategy (EEAS, 2016) and the Strategic Compass all suggest a long-term institutional investment in coherent external action.

This trend supports Bretherton and Vogler's (2006) concept of "capability" - the institutional infrastructure necessary for actorness. Interview data showed growing confidence in the EU's ability to coordinate collective foreign policy responses, particularly in non-military domains such as diplomacy, sanctions and development aid. This evolution also aligns with Biscop's (2021) contention that strategic autonomy is not achievable without a strong central apparatus capable of aligning member-state behavior.

However, capability is not synonymous with coherence. The institutional advances made in Brussels must be matched by political will at the national level. Without this, the EU risks developing sophisticated foreign policy tools that remain underutilized or inconsistently applied.

Persistent unity challenges among member states

Despite institutional progress and strategic vision, the EU's ability to act cohesively in the international arena remains hampered by internal divisions. The findings underscore that not all member states share the same enthusiasm for strategic autonomy, nor do they perceive external threats in the same way. Some, particularly in Eastern Europe, remain deeply committed to the U.S. alliance, while others like Hungary have used the unanimity rule to block joint actions on issues such as China and Russia (Kelemen & Pech, 2019).

This fragmentation poses a significant challenge to EU actorness. According to Bretherton and Vogler (2006), coherence - both in policy and institutional coordination - is a precondition for effective external action. The inability to reach consensus on key foreign policy initiatives undermines the EU's credibility and limits its strategic leverage.

Nonetheless, the trend is not wholly negative. As the findings show, even in the face of disunity, the EU has managed to advance collective positions on sanctions, investment screening and regulatory standards. The challenge, therefore, is one of consolidation. Greater use of qualified majority voting in foreign policy, deeper integration of defense planning and more robust crisis response mechanisms could mitigate the centrifugal forces pulling EU member states apart.

Implications for smaller states like Albania

The EU's evolving global role has important implications not only for major European actors but also for smaller aspirant states such as Albania. As the findings and discussion have shown, the EU is recalibrating its external identity and foreign policy instruments in response to geopolitical shifts. This transformation generates both opportunities and challenges for countries on the periphery of the Union, particularly those in the Western Balkans. Albania, as an EU candidate country and a loyal NATO member, finds itself in a delicate but potentially advantageous position within this emerging landscape.

Opportunity: a more autonomous EU brings greater regional engagement

One of the most significant opportunities for smaller states like Albania lies in the EU's renewed focus on its neighborhood. As the Union embraces greater strategic autonomy and aims to stabilize and integrate its regional periphery, Western Balkan states stand to benefit from heightened engagement. The EU's revitalized enlargement policy, the Economic and Investment Plan for the Western Balkans, and accelerated accession dialogues with Ukraine and Moldova all signal that Brussels is taking its regional leadership responsibilities more seriously (European Commission, 2018).

For Albania, this geopolitical moment could translate into faster progress on accession criteria, increased access to EU development funds, and more structured inclusion in regional stability initiatives. If the EU continues to assert itself as a global actor by first securing its neighborhood, countries like Albania may see their strategic value rise - both as political partners and as buffers against rival influences such as Russia or China (Khanna, 2016).

Alignment pressures: balancing between the EU and U.S. agendas

However, the EU's divergence from U.S. foreign policy introduces potential friction for states with close ties to both powers. Albania has historically maintained a strong pro-American stance, exemplified by its consistent alignment with NATO missions, its support for U.S. policy positions in international forums, and its welcoming of American military and economic influence. Simultaneously, Albania remains committed to EU accession and adheres to European standards across legal, economic, and governance sectors.

If the transatlantic relationship continues to fragment on key issues - such as policy toward China, climate change, or regional security - Albania may experience increasing pressure to take sides. This geopolitical balancing act requires skillful diplomacy and strategic clarity. As Bremmer (2012) notes, in a G-Zero world characterized by power diffusion and fragmented alliances, smaller states must carefully hedge their positions to avoid alienating one partner while aligning with another. For Albania, this could mean emphasizing its value as a bridge between EU and NATO priorities, while avoiding entanglement in great power rivalry.

Adaptation: strategic engagement and diversification

Finally, the changing EU landscape demands proactive adaptation from smaller candidate countries. For Albania, this entails both deeper engagement in EU decision-making structures and broader diversification of partnerships. As the EU builds a more cohesive and capable foreign policy apparatus through mechanisms like the Strategic Compass and the EEAS (EEAS, 2016), Albania must ensure that its voice is represented in regional dialogues, pre-accession platforms, and security cooperation forums.

Moreover, diversification will be crucial to resilience. This includes strengthening bilateral ties with other EU member states, maintaining robust U.S. engagement, and seeking partnerships with like-minded regional actors. As Biscop (2021) argues, autonomy and strategic flexibility are increasingly necessary for navigating multipolarity. For Albania, this may mean building institutional readiness for both EU accession and regional contingency scenarios.

In summary, the EU's redefinition of its global role presents Albania with both strategic openings and dilemmas. Capitalizing on the former while mitigating the latter will require adaptive diplomacy, institutional preparedness and a clear vision for its long-term role within Europe's evolving order.

Conclusion

The European Union stands at a pivotal juncture in its foreign policy evolution. Confronted with a geopolitical environment marked by U.S. retrenchment, Chinese assertiveness and a resurgence of global multipolarity, the EU has taken substantial steps to redefine itself as a more autonomous and capable global actor. While the process remains uneven, the trajectory is clear: the EU is no longer content to play a secondary role in international affairs but aspires to shape global governance as a normative and strategic power.

One of the clearest takeaways is the EU's aspiration toward more assertive global leadership. This ambition is evident in its defense of multilateralism, commitment to the Paris Climate Accord and renewed engagement with global partners beyond the traditional transatlantic axis. Faced with repeated clashes with the United States - over trade, climate, and diplomatic norms - Europe has begun to cultivate an independent voice within international institutions. As Khanna (2016) suggests, the EU's ability to project influence increasingly lies in forging diverse partnerships, including with China and states in the Global South. By doing so, the Union may position itself as a champion of multilateral cooperation in an era of fragmented global leadership.

Yet, this strategic ambition is constrained by internal realities. One of the most important insights from this study is that while external pressures may prompt rhetorical unity, they do not necessarily result in coordinated action. The Trump administration's confrontational style indeed encouraged European leaders to express shared values and goals with renewed vigor. However, rhetorical solidarity often masks underlying divergences. As Bretherton and Vogler (2006) argue, true actorness requires both capability and coherence - elements that cannot be taken for granted in a Union of 27 diverse member states.

The limits of EU cohesion present a serious challenge to its global ambitions. As highlighted in the findings and interviews, not all member states are equally enthusiastic about reducing dependence on the U.S. or pursuing an autonomous strategic posture. Countries in Eastern Europe, for instance, often maintain deep security ties with Washington and are wary of moves that might weaken NATO or upset transatlantic unity. Meanwhile, others, such as Hungary, have at times actively obstructed joint EU foreign policy initiatives, revealing the fragility of consensus-driven diplomacy (Kelemen & Pech, 2019).

These internal strains could become increasingly pronounced as the EU steps into a more assertive role on the world stage. As it pursues greater influence and responsibility in global governance, the Union faces a dilemma: striving for more while still lacking full unity. If the EU is to succeed in building a coherent and credible foreign policy, it must bridge its internal divisions,

empower its institutions, and foster a shared vision for its global role. Only then can it fulfill its potential as a stabilizing force and strategic leader in an uncertain international order.

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Mapping Capacities for Cohesion Policy Programmes in Albania

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Abstract

The overall objective of the study and the research problem analysed is to identify the capacities needed by Albania to prepare for the management of EU Cohesion Funds after its accession to the European Union. The results of the analysis can support the organisational and budgetary decisions that the Government of Albania needs to take, to ensure that the EU Cohesion funds allocated to Albania are fully absorbed and achieve the intended development impacts. The mapping of existing capacities is used to carry out a personnel gap analysis that shows the lack of competences that employees of the administration should possess.

The first stage of the study presented in this research paper presents the methodology designed for providing an understanding of current administrative capacity at central and local level in Albania - in terms of quantity and quality - in relation to specific Cohesion Policy objectives based on a categorisation of tasks and experiences. The EU Competency Framework for the management and implementation of the European Regional Development Fund and the Cohesion Fund is used for the preparation of the analytical framework in a forward-looking perspective. The second stage of the study will combine quantitative and qualitative analysis for the capacity assessment, including an online survey, interviews and focus groups. The key findings of the analysis will relate to the types of tasks and areas of experience in which specialised resources are not available to the administration, and their quantification on the basis of the current assumptions. The study will identify the experience categories where additional capacities are needed, based on the Commission's proposals for the new regulatory framework for Cohesion 2028-2034.

***Keywords**: EU Cohesion Funds, Public Administration Reform, Capacity Gap Analysis, Competency Framework, Cohesion Policy*

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Introduction

Albania is preparing for EU membership. Although the date of European Union membership cannot be formally assumed, it is surmised that Albania will not join the European Union before the 2028-2034 financial perspective. The mapping of the capacities required for the management of the future Cohesion Policy programmes and funds after accession should be based on the defined Cohesion Policy objectives for the period 2028-2034 and the implementing rules, which would make it possible to identify the necessary competences within the administration. However, as the new Regulations for Cohesion funding under the EU's next seven-year financial perspective have not yet been proposed by the European Commission, the study presents assumptions about the direction of future Cohesion Policy and new implementing rules.

A fundamental discussion on the future direction of Cohesion Policy is underway, including unlocking investment to ensure economic development across Europe, and reforms to remove obstacles to regional development, e.g. investment barriers, regulatory obstacles and weaknesses in the labour market and the business environment. A simplification of Cohesion Policy implementation is also expected. One of the cornerstones of simplification could be the increasing use of Financing Not Linked to Costs with more emphasis being placed on the performance and results of projects financed from the budget, with EU financing being based on the fulfilment of certain conditions *ex ante* or on the achievement of results measured against pre-defined milestones or performance indicators. The use of this funding option requires legal clarity, new procedures and new competencies of the staff managing and/or controlling Cohesion funds.

The size of the transfers is a crucial variable for estimating the number of staffs necessary to manage Cohesion funds, although the estimate of number of needed staff requires on turn the formulation of several assumptions e.g. – but not limited to - on the number and scope of programmes to be managed, and the number, type and size of contracts to be implemented under these programmes. Since 2020, the size of the potential Cohesion grant allocations to new Member States has been the subject of several studies. The most recent study (January 2025) by the European Parliament examined the implications of future enlargements for the next Multiannual Financial Framework (MFF) by factoring dynamic elements into three alternative scenarios: 'gradual integration', 'small bang', 'big bang'. These scenarios distinguish between the number of enlargement countries and the timing of enlargement. According to the EU Parliament estimates, under all the three scenarios, Albania would receive the second lowest Cohesion annual allocation/ capita (in EUR/ capita) within the Western Balkans region (the lowest being Kosovo): EUR 217/capita before deduction of the annual contribution to the EU budget. This allocation is still significantly higher than the current pre-accession allocations. This data will be an input for quantitative estimates of human resources necessary to implement Cohesion funds after accession.

A robust methodology has been designed to map current capacities for managing Cohesion Policy programmes and funding in Albania through a screening of available human resources (civil and public servants) at central and local level currently working in relevant fields for the implementation of Cohesion Policy, to be followed by a capacity mapping exercise based on a competency framework approach. The methodology takes into account the EU Competency Framework for the management and implementation of the European Regional Development Fund and the Cohesion Fund, that is equally relevant for the management of the European Social Fund Plus and Just Transition Fund. Design and validation of the methodology concludes stage 1 of the study. The database designed to map current capacities for managing Cohesion Policy programmes and funding in Albania will be completed in Quarter 3/2025, with updated in Quarter 4/2025 on the premise that the new government (given the elections foreseen in May 2025) will be instituted and policy functions duly assigned by that date and the Commission's proposals for the new regulatory framework 2028-2034 are published, allowing for appropriate updates to the database categories. The main outcome of this stage of the study is the identification of the experience categories to be used for mapping the current capacities for managing Cohesion Policy programmes and funding in Albania. However, appropriate updates will be needed once the Commission's proposals for the new regulatory framework 2028-2034 will be published. Stage 2, starting with the online survey, will identify the additional capacities required and provide estimates of resource gaps across fields of intervention, including cross-cutting issues such as gender, age, equality, disability, and sustainability, as well as elements specific to the Cohesion funding context, including internal control, public procurement, and State aid. A further outcome of the compilation of the database should be confirmation that all intervention fields are legally covered by at least one institution and, in case more than one institution covers the same field, there is clarity on the respective responsibilities (e.g. waste, water) in policy and operational terms.

Assumptions on the Future Cohesion Policy and New Implementing Rules

The new European Commission, which took office on 1st December 2024, started updating the Cohesion policy for the next decade, on the basis of the recommendations presented in February 2024 by the High-Level Reflection Group on the future of Cohesion policy after 2027 (European Commission, 2024a), the analysis presented in the 9th Cohesion Report published by the Commission in March 2024 (European Commission, 2024b), and the Letta and Draghi reports (Letta, 2024; Draghi, 2024).

The Commission Communication 'The Road to the next Multiannual Financial Framework', published on 12 February

2025 (European Commission, 2025a), states that "Unlocking investment is necessary to ensure economic development across Europe, but reforms are also needed to remove obstacles to regional development, e.g. investment barriers, regulatory obstacles and weaknesses in the labour market and the business environment. We must reunite our society through education and investing in people. These challenges need to be addressed through a strengthened, modernised cohesion and growth policy, working in partnership with national, regional and local authorities". The Communication presents a new approach for a modern EU budget that includes at its core a plan for each country with key reforms and investments, and focusing on our joint priorities, including promoting economic, social and territorial cohesion. A strengthened cohesion and growth policy with regions at its centre must be designed and implemented in partnership with national, regional and local authorities". According to the above-mentioned Communication, National Plans and a Competitiveness Coordination Tool are expected to shape the policies supported under the next Multi-Annual Financial Framework in line with the Competitiveness Compass (European Commission, 2025b) to regain EU competitiveness and secure sustainable prosperity.

The set of Cohesion Policy Regulations for the period 2021-2027 are currently being redesigned for the next financial perspective. A fundamental discussion on the future direction of Cohesion Policy is underway, including a simplification of its implementation. One of the expected cornerstones of simplification is the increasingly use of Financing Not Linked to Costs with more emphasis being placed on the performance and results of projects financed from the budget, with EU financing being based on the fulfilment of certain conditions *ex ante* or on the achievement of results measured against pre-defined milestones or performance indicators. It is clear that the use of this funding option requires legal clarity, new procedures and adequate training of controllers and auditors. The use of Financing Not Linked to Costs, set out under the EU Regulation 2024/2509 (the EU Financial Regulation) (Regulation (EU, Euratom) 2024/2509), has been widely tested by the EU Member States under the Recovery and Resilience Facility Regulation (Regulation (EU) 2021/241), and is currently applied to the Reform and Growth Facility for the Western Balkans (Regulation (EU) 2024/1449), including the Reform Agenda. that is being implemented in Albania in the 2024-2027 period.

Another important development is the simplification Omnibus package on sustainable finance reporting and sustainability due diligence (European Commission, 2025c), proposed by the Commission on 26 February 2025, consisting of amendments to the Corporate Sustainability Reporting Directive 2022/246417 (CSRD) (Directive (EU) 2022/2464), the Corporate Sustainability Due Diligence Directive 2024/176018 (CSDDD), the Taxonomy Disclosures Delegated Act, Taxonomy Climate Delegated Act and the Taxonomy Environmental Delegated Act (Regulation (EU) 2020/852). Furthermore, the Commission will adopt a proposal to amend the Carbon Border Adjustment Mechanism (CBAM) (Regulation (EU) 2023/956) as part of the same omnibus simplification package. The declared aim is to square the EU's ambition towards a sustainable transition with what companies can feasibly achieve to strengthen competitiveness and economic growth by enhancing the proportionality and cost effectiveness of such frameworks. The Communication "A simpler and faster Europe" sets out the vision for the implementation and simplification agenda. The ultimate goal is reducing gold-plating and administrative burden for all the institutions and persons involved. Significant changes can be expected in the new EU Regulations for Cohesion Policy to boost competitiveness of the European Union and increase results orientation of Cohesion Policy. Experience of the Albanian administration is particularly weak as regards management of significant economic convergence investments. EU pre-accession assistance has addressed only marginally support to the business sector, innovation, research. Consequently, public administration structures have limited experience of programming in these areas, limited knowledge of design and management of grant schemes for national programmes, scarce awareness of the associated State aid issues. Limited or no experience was gained on EU financial instruments as well as with outsourcing preparation of documentation for infrastructure investment and assess the documentation when received. As regards financial management, annual funding and long financial cycles are not preparing for managing Cohesion funding, where disbursement needs to be fast to avoid cancellation of EU budgetary commitments.

Finally, the increasing interoperability of computerised information systems integrating communication with applicants and beneficiaries in the context of e-Cohesion Policy and complying with the rules and protocols for the electronic data exchange system with the Commission, the related cyber security requirements and the importance of Artificial Intelligence to improve data management in the context of Cohesion Policy will change the design of the management and information system for Cohesion Policy and could have a significant impact on both the required competencies of officials responsible for Cohesion Policy and their overall number.

Estimates on Cohesion Policy Transfers to Albania Under the EU Multiannual Financial Framework 2028-2030

The EU's Cohesion Policy is currently financed by four funds: the European Regional Development Fund (ERDF), the Cohesion Fund (Regulation (EU) 2021/1058), the Just Transition Fund (JTF) (Regulation (EU) 2021/1056) and the European Social Fund Plus (ESF+) (Regulation (EU) 2021/1057). While it cannot be assumed that all four of these funds will continue to exist beyond 2027, Cohesion Policy transfers for the new Member States can be estimated as total Cohesion Policy resources. The volume of transfers is a crucial variable for estimating the number of staff needed to manage the Cohesion Funds, although estimating the number of staff needed in turn requires the formulation of several assumptions, such as, but not limited to the number and scope of programmes to be implemented, and, the number, type and size of contracts to be

managed under these programmes. Various studies have estimated the budgetary costs of future enlargements – see for instance Rant et al. (2020) (Rant, Mrak, & Marinc, 2020), (Emerson, 2022), (Lindner, Nguyen, & Hansum, 2023) and (Darvas et al., 2024). Significant differences exist among these estimates due to different methodological choices and assumptions, but one point in common is that all these estimates do not factor in dynamic elements, like developments in income per capita in both enlargement countries and Member States, which will affect eligibility for and hence the distribution of EU Cohesion Policy funds (Emerson, 2023), (Nuñez Ferrer, Schreiber, & Moreno, 2024).

In a recent study (January 2025) (European Parliament, 2025), the European Parliament examined the implications of future enlargements for the next Multiannual Financial Framework by factoring dynamic elements. It also reviewed adjustments made to the EU budget during past enlargements and estimated the budgetary costs of the accession of all current candidate and potential candidate countries (excluding Türkiye) under three alternative scenarios: 'gradual integration', 'small bang', 'big bang'. These scenario distinguish between the number of enlargement countries and the timing of enlargement. The three alternative scenarios provide for financial allocation estimates for both Cohesion and Common Agricultural Policy (CAP) – this latter being outside the scope of this study. As far as Cohesion Policy is concerned, the estimates are expressed in annual allocations in EUR at current prices and net of allocations to the EU budget. It should be noted that "allocations" in all studies mentioned "refer to the allocation of grant funds.

The cross-country distribution for EU Cohesion Policy funds (ERDF, ESF+ and Cohesion Fund) is based on a numerical formula set in Annex XXVI of Regulation (EU) 2021/1060 (Regulation (EU) 2021/1060). ERDF and ESF+ funds are distributed across NUTS-2 regions. All EU regions are entitled to these funds but they receive different amounts depending on whether they are a less developed, transition regions, or more developed regions (Commission Implementing Decision (EU) 2021/1130). The classification of regions is determined by their GDP per capita in relation to the EU average. The formula to allocate ERDF and ESF+ funds across regions is mostly based on GDP per capita and population parameters but also include some 'premiums' related to the labour market, education, demographics, climate or migration. The application of these 'premiums' accounts for 19% of total allocations. Cohesion Fund allocations are distributed at the national level. Only countries whose national GNI per capita is below 90% of EU GNI receive CF funds. Funds are mostly allocated according to population.

The European Parliament study assumes that the current formula (defined in annex XXVI of Regulation (EU) 2021/1060) will remain unchanged in the next MFF, and that all caps and safety nets that impact the national allocations are applied, while within-country transfers between funds and regions are not considered. Due to data availability concerns, GDP is used instead of GNI. The capping mechanism is presented in Box 1 below. The low GDP levels of the nine candidate countries significantly constrain the Cohesion Policy allocations they can receive under the 2.3% GDP cap. Because of this GDP cap rule and their much lower level of nominal GDP, all the potential new members would receive per capita payments for Cohesion Policy well below those of the 13 Member States that joined the Union between 2004 and 2013. The impact of caps on potential transfers to Albania is very significant: according to the EU Parliament estimates, under all the three scenarios, Albania would receive the second lowest Cohesion annual allocation/ capita (in EUR/ capita) within the Western Balkans region (the lowest being Kosovo): EUR 217/capita before deduction of the annual contribution to the EU budget (see Table 1 below). This allocation is still significantly higher than the current pre-accession allocations, but much lower (around 1/3) than the uncapped allocation.

Assuming the 'small bang' scenario as plausible - although this is an unrealistic scenario given the different levels of EU commitment and technical preparation among the six Western Balkan countries - the six Western Balkan countries would join the EU in 2030. Under this scenario, the overall size of the MFF would be EUR 1754 billion, an annual average of EUR 250.6 billion. This represents only EUR 15 billion more than in a scenario with no accessions. The six new Member States would receive EUR 24 billion in Cohesion Policy transfers between 2030-2034 and current Member States would receive EUR 9 billion less in Cohesion Policy transfers than in the 'gradual integration' scenario, due to the so-called 'statistical effect'. Specifically, the accession of the six Western Balkan countries would lower the EU's GDP per capita by 2.75%, causing some regions in EU Member States to be reclassified into higher categories and, consequently, to receive reduced Cohesion funding.

TABLE 1: 'Small bang' scenario: Allocations to new Member States (annual allocations, current prices)

Albania	0.3	298	0.6	217	0.6	0.3
Bosnia and Herzegovina	0.7	306	0.8	238	1.2	0.5
Montenegro	0.02	306	0.2	346	-0.04	-0.1
North Macedonia	0.4	299	0.5	278	0.7	0.3
Kosovo	0.1	323	0.3	179	0	0.1
Serbia	1	304	2.4	372	2.6	1.6
TOTAL	2.5		4.8		5.1	2.8
Average EU27		373		109		
Average new Member States		307		288		

Source: EU Parliament elaboration (2025), op. cit. Total CAP and cohesion allocations minus annual contribution to the EU budget.
Note: EU13 includes: all Member States having joined the Union after 2004.

The above-mentioned study by Nuñez Ferrer et al. (2024) reaches similar conclusions than the EU Parliament study, by observing that "Albania, the least prosperous of the new Member States (in PPS), would for example only receive 28% of its uncapped allocation. Montenegro (which is the outlier amongst the new Member States), on the other hand, was already more prosperous to begin with than the other new Member States, and would receive 64% of its initial allocation, resulting also in a higher per capita allocation. We can therefore assume that there is a sweet spot in Cohesion Policy allocations where a new Member State is rich enough to be mostly unaffected by the GDP cap, but still less prosperous to an extent where it will receive a high amount of per capita funding".

BOX 1. European Commission. The Cohesion allocation capping mechanism (European Court of Auditors, 2019) defined in annex XXVI.10 of Regulation (EU) 2021/1060

In order to contribute to achieving adequate concentration of cohesion funding on the least developed regions and Member States and to the reduction of disparities in average *per capita* aid intensities, the maximum level of transfer (capping) from the Funds to each individual Member State shall be determined as a percentage of the GDP of the Member State, whereby these percentages will be as follows:
(a) for Member States whose average GNI *per capita* (in PPS) for the 2015-2017 period is under 55 % of the EU-27 average *per capita*: 2,3 % of their GDP;
(b) for Member States whose average GNI *per capita* (in PPS) for the 2015-2017 period is equal to or above 68 % of the EU-27 average *per capita*: 1,5 % of their GDP;
(c) for Member States whose average GNI *per capita* (in PPS) for the 2015-2017 period is equal to or above 55 % and below 68 % of the EU-27 average *per capita*: the percentage is obtained through a linear interpolation between 2,3 % and 1,5 % of their GDP leading to a proportional reduction of the capping percentage in line with the increase in prosperity.
The capping shall be applied on an annual basis to the GDP projections of the Commission, and shall - if applicable - proportionally reduce all transfers (except for the more developed regions and European territorial cooperation goal (Interreg)) to the Member State concerned in order to obtain the maximum level of transfer.
Source: Regulation (EU) 2021/1060.

Quality of Government and Competency Framework Approach to Map Capacities for Cohesion Policy Management in Albania

In the EU Member States, the quality of government, and of institutions more generally, significantly affects the return on investment financed by EU Cohesion Policy and also appears to affect the governance of policies, which in turn affects their impact. In particular, the capacity to design and implement policy interventions according to intended time schedules and budget allocations and to achieve the expected results cannot be taken for granted. Governance affects the way that policy is implemented and, therefore, the link between means and ends, or the channels by which investment gives rise to outcomes (European Commission, 2024). Albania is completing a comprehensive Public Administration Reform. As regards preparations for Cohesion Policy, there is full understanding that these are to be supported by strengthening Administrative Capacity of the entire ecosystem, including the administration, all relevant partners and potential and actual beneficiaries.

The competency framework approach is widely used in EU public administration systems and is the methodology for capacity mapping under the European Commission toolkit for preparing Roadmaps for Administrative Capacity Building (European Commission, 2020). The use of competency-based frameworks is nowadays widespread in human resource practices and widely used in EU public administration systems, albeit with significant differences in methodological approaches and the definition and use of competencies. Broadly speaking, competency can be generally defined as a combination of knowledge, skills, abilities and behaviours that enable an individual to perform successfully the tasks assigned to them in a job position. The competency approach shows the way people apply their knowledge, skills, and management practices (operational, management and professional competencies) in performing their duties. These specific competencies can be assessed, and are used in developing employment responsibilities, managing recruitment processes, retaining staff and designing professional development and capacity building programmes.

In the context of Cohesion Policy, the EU Competency Framework is designed to address the competencies of employees involved in the management of the European Regional Development Fund and Cohesion Fund; however, it is equally relevant for the management of the European Social Fund Plus and Just Transition Fund. It includes three practical tools that support human resources development:

- The Competency Framework covering all institutions involved in the management of the funds.
- The competency Self-Assessment Tool based on the Competency Framework.
- A recommended training Blueprint.

The Competency Framework and Self-Assessment Tool are flexible and customizable job-aids to help institutions managing the funds to strengthen their human resources capacity. The Self-Assessment Tool allows for a competency assessment on individual and institutional level. The outcomes of the assessment provide an important base for individual development plans, overarching human resources strategies and training plans. The recommended Blueprint for a European Regional Development Fund and Cohesion Fund training provides guidance on the structure of a learning offer, which is functional to strengthening the competencies defined in the Competency Framework (European Commission, 2016).

The Competency Framework covers 3 groups of job roles i.e. decision makers, supervisors and operational level employees with different seniority and 3 groups of competencies, i.e. management, professional and operational competencies linked to the tasks and subtasks that are carried out by individual employees based on their job position. A 0-4 proficiency scale is associated with each competency which represent the medium-term competency development goal for employees and institutions. The self-assessment tool is web-based and aims to assess the competencies of individual employees and institutions, to identify those that are lacking or need upgrading and to provide evidence for designing and implementing Learning and Development Plans for the institution and individual employees.

The web-based Self-Assessment Tool allows employees to rate their proficiency level for each competency and compare it with their supervisors' assessment and a medium-term development goal set in the EU Competency Framework. The employee and supervisor then meet to discuss the results calculated by the system which include for each assessed competency, the employee's self-assessment, the supervisor's assessment and the proficiency level of the EU Competency Framework. During the meeting employee and supervisor discuss any discrepancies, make adjustments to the supervisor's assessment if necessary and define follow-up actions. The web-based tool offers two options for data analysis, respectively built-in functions for analysing individual competencies and semi-automated excel templates for an overview of all the competencies of the institution.

The EU Competency Framework provides a tested web-based instrument for Cohesion Policy administrations managing Cohesion Policy that can be customised to individual needs. It allows for the assessment of needs on the basis of different types of competencies (operational competencies, professional competencies and managerial competencies) at the level of individual employees and institutions, to identify those that are lacking or need upgrading and to provide evidence for designing and implementing Learning and Development Plans both for the institution and individual employees. The key benefits of these instruments are:

- Capacity building instruments tailored to the specificities of the ERDF and Cohesion Fund;
- Flexibility and opportunity for customisation;
- Opportunity for administrations to reflect on the level of competencies both at employee and institution-level;
- Providing evidence for developing strategies to address competency development needs;
- Facilitating discussion between employees and supervisors regarding the know-how, capacity of the employees and their strengths and weaknesses;
- No requirements concerning technical skills or costs for administrations.

All the above would indicate that due to its flexibility and ease of use, **the Competency Framework provides an extremely useful and cost-effective web-based instrument for institutions involved in implementing Cohesion Policy.** The fact that it can be customised by each institution to meet their own needs – allowing the addition of new tasks/sub-tasks and competencies and changes in required proficiency level – makes it the most practical and cost-effective tool for institutional and administrative capacity-building.

Methodology for Mapping Capacities for Cohesion Policy Management in Albania

The Methodology prepared aims to identify how to best provide an understanding of the current capacities at central and local level (in terms of quality and quality) as regards specific Cohesion policy objectives, based on categorisation of experience categories expressing competencies such as:

- Experience in preparation of strategic and planning documents (strategies and action plans) and programming documents.
- Experience in implementation of measures and interventions defined in strategic, planning and programming documents.
- Experience in monitoring and evaluation of the implementation, control and evaluation of strategic, planning and programming documents.

- Experience in public procurement.
- Experience with the preparation of documents to obtain the approval of State Aid in schemes or investments.
- Experience in the respect of horizontal principles and the Do No Significant Harm (Regulation (EU) 2020/852) principle.

The full categorisation of all relevant experience categories and the number of individuals displaying the relevant competencies within the Albanian institutions is the core of the capacity mapping. As a first step, a database was designed to allow for the identification of relevant Albanian institutions/structures to whom the survey should be administered. The database is based on the five policy objectives established in article 5 of the Common Provisions Regulation (Regulation (EU) 2021/1060), further refined by Intervention Fields established in Annex 1 of the same Regulation. The database design, which is being validated by the relevant Albanian authorities *(Inter-Institutional Working Group, n.d.)*, assumes that the policy objectives and intervention fields of the current Regulations will be confirmed (although most likely with a different wording and intensity of the aid by policy objective) under the new MFF. The second step was the identification of the Albanian institutions/structures relevant for the management of Cohesion Policy programmes, based on an analysis of the relevant articles of the Cohesion 2021-2027 regulatory framework including an analysis of the intervention fields and cross cutting issues.

The identified institutions/structures will receive the online questionnaire designed in the context of the study, which also aims to identify competencies (experience categories) of the respondents as regards Cohesion horizontal (cross-cutting) issues. The responses will allow for the calculation of the number of organisational units responsible for each intervention field and cross-cutting issues and also provide an overview as to whether the intervention field/ cross-cutting issue is a primary or secondary responsibility of each organisational unit. Moreover, the responses will also allow for the calculation of the overall number of resources available (and planned) overall and in each institution, in total and for each intervention field/cross-cutting issue.

The database will be completed in Quarter 3/2025 or Quarter 4/2025 on the premise that the new government (given the elections foreseen in May 2025) will be instituted and policy functions duly assigned by that date and the Commission's proposals for the new regulatory framework 2028-2034 are adopted, allowing for appropriate updates to the database categories. The major outcome will be an accurate mapping of the number of resources available for Cohesion policy related activities in total and by intervention field/ cross-cutting issue. A further outcome of the compilation of the database should be confirmation that all intervention fields are legally covered by at least one institution and, in case more than one institution covers the same field, there is clarity on the respective responsibilities (e.g. waste, water) in policy and operational terms.

As a second step, two specific surveys will be carried out: a specific survey to be administered to the Albanian central level entities that, according to their current competencies and mandate, including the implementation and monitoring of the Reform Agenda, may be involved in the preparation and management of Cohesion Policy programmes, or in the development and implementation of territorial investments; a short survey designed for local governments to gain an initial understanding of their capacities as regards territorial investments and as future applicants/beneficiaries of Cohesion Policy. This survey will be administered following the Commission's proposals for the regulatory framework 2028-2034, in order to take into account any relevant updates.

A Report on the consolidated database of central and local level institutions relevant for preparing/managing Cohesion Policy programmes/interventions will be prepared which will provides at a minimum the following information:

- Total number of human resources currently available for Cohesion policy related activities (filters will prevent double counting).
- Total number of human resources approved in organisational charts for Cohesion policy related activities (filters will prevent double counting).
- Number of organisational units in Ministries/Public Agency with human resources assigned to objectives and fields of intervention that are currently covered by the EU Regulation 2021/1060 (subdivided by primary and secondary responsibilities).
- Coded list of organisational units in Ministries/Public Agency with human resources assigned to objectives and fields of intervention that are currently covered by the EU Regulation 2021/1060.
- Number of persons foreseen (according to the relative organisational Charts) and employed in each of the coded organisational units.
- Total number of persons available for preparing/managing Cohesion Policy programmes/interventions (employed and foreseen) (filters will prevent double counting).
- Number of persons currently employed for each field of intervention and cross-cutting issue (subdivided by primary and secondary responsibilities) (filters will prevent double counting).
- List of fields of intervention selected by Minister of State for Local Government/Agency for Local Government Support.
- List of fields of intervention not selected by any respondents.

Conclusions

The study has identified the main factors to map the capacity to manage Cohesion Policy funds in Albania after accession and to estimate the qualitative and quantitative gaps in resources. These include: i) the defined objectives of Cohesion Policy for the period 2028-2024, ii) the rules and requirements for the implementation of Cohesion Policy, iii) the volume of cohesion transfers to Albania, iv) the opportunities offered by information technologies and Artificial Intelligence for effective and efficient fund management.

A robust methodology has been developed to map the current capacity to manage Cohesion Policy programmes and funding in Albania by examining the available human resources (civil servants and public employees) at central and local level currently working in the areas relevant for the implementation of Cohesion Policy. The methodology takes into account the EU Competency Framework for the management and implementation of the European Regional Development Fund and the Cohesion Fund, which is also relevant for the management of the European Social Fund Plus and the Just Transition Fund. The development and validation of the methodology concludes phase 1 of the study. The database, which will be used to map the current capacities for the management of Cohesion Policy programmes and funding in Albania, will be finalised in quarter 3/2025 and quarter 4/2025. It is assumed that the new government will be in place by this time (given the elections scheduled for May 2025), the political functions will be properly assigned and the Commission's proposals for the new 2028-2034 legal framework will be published so that the database categories can be updated accordingly.

The main outcome of this phase of the study is the identification of the experience categories to be used for mapping the current capacity for managing Cohesion Policy programmes and funding in Albania. However, appropriate updates will be needed once the Commission's proposals for the new 2028-2034 legal framework are adopted.

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Innovation and Artificial Intelligence as Key Tools for Streamlining the Technical Path Towards European Integration

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Abstract

The First Intergovernmental Conference between the EU and Albania, held on July 19, 2022, marked the beginning of a new and dynamic phase in Albania's negotiations for European Union membership. Within less than a year, Albania established the opening benchmarks for the fundamental cluster, adopting three critical strategic documents through decisions of the Council of Ministers: The Roadmap for the Rule of Law, The Roadmap for Public Administration Reform, The Roadmap for the Functioning of Democratic Institutions. The initiation of the negotiation process has highlighted significant challenges ahead. These include implementing legal and institutional reforms to ensure the rule of law, protecting human rights, meeting preconditions for a single market, achieving European standards in competition, and coordinating foreign policy effectively. However, the process has also revealed structural and operational limitations. The human resources alone are insufficient, given the tight timeline. Over 250,000 pages of acquis need to be translated into Albanian, analyzed, matched with compliance tables, and harmonized with Albania's legislation by 2030. Furthermore, current administrative communication systems fall short of addressing the demands of the integration process. They lack reliable evidence tracking, document history, and consistency in reporting. In this context, innovation through digital systems and artificial intelligence emerges as an indispensable and highly effective tool. The rapid implementation and use of these technologies in public administration and beyond are crucial for accelerating Albania's journey toward integration into the European family.

***Keywords**: Legal harmonization, opening benchmarks, innovation, European integration*

Introduction

Albania's journey toward European Union (EU) integration is a multifaceted process that requires profound reforms across various sectors. While the political and legal frameworks are pivotal to this process, the role of **innovation** and **artificial intelligence (AI)** is becoming increasingly significant in streamlining the technical path to EU membership. These tools hold the potential to drive efficiency, enhance governance, and promote sustainable economic development.

This paper argues that **AI** and **innovation** are crucial for Albania in meeting the EU's technical, economic, and institutional requirements. By embracing modern technologies, Albania can modernize its public administration, improve service delivery, strengthen its economic base, and enhance social welfare—thus aligning more closely with EU policies and expectations.

An Ecosystem of Trust: Regulatory Framework for AI

As with any new technology, the use of AI brings both opportunities and risks. Citizens fear being left powerless in defending their rights and safety when facing the information asymmetries of algorithmic decision-making, and companies are concerned by legal uncertainty. While AI can help protect citizens' security and enable them to enjoy their fundamental

rights, citizens also worry that AI can have unintended effects or even be used for malicious purposes. These concerns need to be addressed. Moreover, in addition to a lack of investment and skills, lack of trust is a main factor holding back a broader uptake of AI.

That is why the Commission set out an AI strategy[1] on 25 April 2018 addressing the socioeconomic aspects in parallel with an increase in investment in research, innovation and AI-capacity across the EU. It agreed a Coordinated Plan[2] with the Member States to align strategies. The Commission also established a High-Level Expert Group that published Guidelines on trustworthy AI in April 2019[3] .

The Commission published a Communication[4] welcoming the seven key requirements identified in the Guidelines of the High-Level Expert Group:

- Human agency and oversight,
- Technical robustness and safety,
- Privacy and data governance,
- Transparency,
- Diversity, non-discrimination and fairness,
- Societal and environmental wellbeing, and
- Accountability.

In addition, the Guidelines contain an assessment list for practical use by companies. During the second half of 2019, over 350 organizations have tested this assessment list and sent feedback. The High-Level Group is in the process of revising its guidelines in light of this feedback and will finalize this work by June 2020. A key result of the feedback process is that while a number of the requirements are already reflected in existing legal or regulatory regimes, those regarding transparency, traceability and human oversight are not specifically covered under current legislation in many economic sectors

Albania's European Integration Path: Challenges and Opportunities

Albania's EU integration process has been characterized by several challenges. These include the need to align with EU regulations, improve transparency and efficiency in governance, tackle corruption, and foster economic development. However, Albania's integration process also presents a unique opportunity to transform its societal structures and governmental systems, particularly by adopting innovative technologies. One of the main challenges is the *legal and regulatory Alignment* which includes the adoption of AI in order to assist in the alignment of Albania's legal system with EU regulations by automating compliance checks, ensuring quicker and more accurate policy adaptation. Another important issue is also related to *economic modernization* and finding the best use of innovation and AI in sectors such as agriculture, industry, and energy that can lead to improved productivity, competitiveness, and sustainability.

Governance and Public Administration is also an area in which innovation and AI can be used**.** Innovations in e-government services can enhance transparency and reduce bureaucratic inefficiency, aligning Albania with EU standards of good governance.

National and EU Initiatives for Supporting Innovation

Albania has taken significant steps to encourage innovation and support startups. A historic moment was the approval of the National Strategy for Science, Technology, and Innovation (2023–2030), which aims to develop research and development in the country, with the goal of reaching 1% of GDP by 2030.

In recent years, the Albanian government has also focused on developing the innovation and startup ecosystem. The Strategy for Innovative Entrepreneurship has been approved and its implementation has already begun. As part of these efforts, the Agency for Startups was created to provide direct support to startups. Furthermore, approximately 300 million lek (3 million euros) have been allocated as competitive grants from the state budget to encourage the growth of startups.

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[1] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Artificial Intelligence for Europe link: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52018DC0237

[2] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Coordinated Plan on Artificial Intelligence, link: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52018DC0795

[3] https://ec.europa.eu/futurium/en/ai-alliance-consultation/guidelines/#Top

[4] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Building Trust in Human-Centric Artificial Intelligence, link: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52019DC0168

Development in the field of digitization and connectivity is crucial for Albania, as it moves through its transition towards a more modern and competitive economy. As the backbone of today's global economy, a robust digital infrastructure and interconnected systems not only increase operational efficiency but also open new avenues for economic growth, innovation, and access to international markets. By investing wisely in this sector, Albania can accelerate its integration with European digital networks, foster an innovation culture, and significantly improve public and private sector services. This development is essential for creating a sustainable digital ecosystem that supports Albania's long-term goals for economic resilience, social inclusion, and enhanced government transparency.

Albania's Smart Specialization Strategy (S3) represents a strategic commitment to fostering socio-economic growth driven by innovation and enhancing competitiveness at the European level. This section outlines a meticulously crafted action plan that transforms strategic visions into actionable outcomes, demonstrating a comprehensive and structured approach that is both aspirational and achievable.

At the heart of this action plan is a commitment to implementable and measurable steps that align with S3 objectives. The plan not only details practical initiatives but also assigns clear responsibilities and establishes a robust framework for implementation. It effectively links various sectors, harmonizes efforts at different levels of government, and involves key stakeholders from academia, industry, government, and civil society, forming a cohesive plan for national development.

Designed to be flexible and responsive, the action plan can adapt to changing circumstances, embrace new innovations, and address emerging challenges. It ensures alignment with broader national and regional policies of Albania, incorporating the S3 strategy into the country's overall development agenda as a dynamic and synergistic component.

The detailed Action Plan document (Appendix 5) outlines objectives, measures, activities, roles, responsibilities, resource allocation, timelines, and monitoring and evaluation mechanisms. This section summarizes the key objectives and initiatives for each priority area identified in S3. Color-coded boxes provide examples of comprehensive interventions within priority areas, explaining the concept, rationale, and benefits. These examples illustrate key aspects but do not cover the entire action plan, which includes many more measures and activities for each area.

The previous phases of the S3 process emphasized the need for:

- **Infrastructure Development**: Significant emphasis has been placed on improving digital infrastructure to support economic sectors across Albania. This includes expanding broadband internet access and modernizing technological tools in business and government services.
- **Integration with European Networks**: There is a focus on harmonizing digital networks in Albania with broader European digital and data infrastructures to foster better connectivity and collaboration, which is essential for economic and social integration with the EU.
- **Enhancing Public Services**: Efforts toward digitization also aim to improve the delivery of public services through e-governance services, which can make the government more efficient, transparent, and accessible to citizens.
- **Support for Innovation and Startups**: Encouraging the growth of digital startups and innovative enterprises through funding, mentoring, and incubators is identified as a key to advancing Albania's digital economy.
- **Cybersecurity Measures**: With the increase in digitization, there is a growing need to strengthen cybersecurity measures to protect data and infrastructures, ensuring security and trust in digital transactions and communications.
- **Digital Skills and Competencies**: Increasing digital skills at all levels of education and the workforce is crucial to fully benefit from digital transformation opportunities, thereby reducing the digital divide and fostering a more inclusive digital society.

Albania's smart specialization (S3) places significant emphasis on increasing research and innovation, recognizing them as key elements in driving sustainable economic growth and enhancing national competitiveness. Acknowledging the transformative impact of these sectors, the strategy adopts an inclusive approach designed to cultivate an ecosystem that nurtures innovation and scientific research. By advancing research and innovation, Albania aims to align more closely with European research standards, attract global talent, and promote economic sectors that can lead to high-value-added outcomes. This strategic focus is essential not only for achieving technological progress but also for ensuring that the country remains competitive in an increasingly knowledge-driven global economy.

The previous phases of the S3 process emphasized the need for:

- **Strengthening Education and Training**: The need for fundamental improvements in curricula focused on STEM disciplines and curricula related to S3 priorities. Emphasis is placed on lifelong learning through retraining and skill-enhancing programs to address challenges posed by emerging economic trends such as the circular economy and artificial intelligence.
- **Cultivating an Innovation Culture**: Building a culture of innovation in educational environments and among youth to prevent brain drain. This includes creating information portals and open innovation spaces, such as real/living labs and factory labs, to stimulate local innovation.
- **Engaging the Diaspora**: Encouraging the return of Albanian talent from abroad by offering financial incentives for companies to employ highly qualified workers from the diaspora, thereby enabling the transfer of knowledge and skills to the domestic market.

- **Innovation Policy Framework**: Creating a strong industrial and innovation policy framework to foster a favorable business climate. This includes simplifying business investment procedures, increasing access to public funding for R&D, and incorporating sustainable and digital solutions across all sectors.
- **Collaboration Between Academia, Business, and Government**: Strengthening links between universities and businesses through joint practices and ventures to increase practical training and employment opportunities in research and development sectors.

Following the SWOT analysis and formulation of proposals for policy interlinking, Chapter 9 on the Action Plan details how insights from EDP (Entrepreneurial Discovery Process) have shaped objectives and measures for pursuing developments in the priority area. To achieve the vision, the action plan focuses on developing specific innovation trajectories within these sectors.

Remaining Challenges

Albania faces several challenges as it moves forward within the regional economic landscape, focusing on improving data quality, supporting stakeholder engagement, and ensuring strategic alignment. Improving statistical indicators is essential to accurately understand the potential of innovation and to carry out effective monitoring of S3 priority areas. The commitment to improving these indicators supports the effective monitoring and evaluation of S3 areas, ensuring that data analysis is accurate and of high quality.

Maintaining strong collaboration with stakeholders through the ongoing discovery/identification process via entrepreneurship (EDP) is crucial. EDP has been innovative, involving multiple actors from the quadruple helix through a bottom-up approach. The challenge now is to create a sustainable consultation system that adopts a continuous approach in EDP for S3, serving as a model for other important public strategies within the existing regulatory framework.

Ensuring that sectoral strategies are aligned with S3's core objectives is another fundamental task. This alignment is key to creating a cohesive and effective strategy as an umbrella framework guiding specific sector initiatives.

Specific measures to address these challenges are outlined in the action plan, focusing on improving data collection methodologies and enhancing analytical capabilities. There are plans to create a system for continuous EDP, involving ongoing consultations with stakeholders, ensuring that the quadruple helix dialogue remains dynamic and influential in shaping public policies. The specifics of this ongoing EDP framework, including its operational structure and responsible entities for organizing it, will be detailed in the governance section of the strategy.

A full assessment has been conducted to ensure alignment with sectoral strategies and will be periodically reviewed to align with the S3 framework. This will include establishing coordinating mechanisms to integrate specific sector initiatives under the umbrella of S3 objectives.

By addressing these challenges with the intended measures, the goal is to build a robust and sustainable innovative ecosystem that advances strategic objectives. This action plan reflects Albania's commitment to embracing change, fostering innovation, and securing a prosperous future. It outlines a strategic pathway toward achieving these objectives—collectively and inclusively, laying the foundations for a transformative experience. With clear goals and strong strategies, Albania is ready to tackle its challenges and secure a thriving and innovative future for generations to come.

The new law on science and scientific research in the Republic of Albania has provided for the establishment of "Centers of Excellence," aimed at strengthening collaboration between research institutions and the business community, thereby promoting the commercialization of scientific research.

In addition to these national initiatives, the funds from other EU donor programs offer continuous support, with a special emphasis on strengthening academia-business links, supporting startups, and SMEs for innovation initiatives, which are vital for creating a dynamic innovation ecosystem.

Artificial Intelligence (AI) presents a transformative opportunity for Albania's European integration process by addressing key challenges across governance, industry, and social sectors. In governance, AI-powered tools can enhance decision-making by enabling data-driven policies, improving responsiveness to public needs, and bringing public administration closer to EU standards. Moreover, AI technologies designed to detect and monitor corruption can significantly strengthen transparency and accountability—critical criteria in the EU accession process. In terms of economic development, AI can revolutionize key sectors such as manufacturing, agriculture, and healthcare. Smart manufacturing can increase productivity and innovation, making Albanian industries more competitive in the global market.

In agriculture, AI-driven technologies improve efficiency, sustainability, and compliance with EU agricultural norms. Similarly, in healthcare, AI can improve diagnostic accuracy and patient care, advancing Albania's alignment with European healthcare standards.

On the social front, AI offers tools to optimize social welfare delivery, ensuring fairer distribution of resources, while in education, it can personalize learning and equip students with the digital competencies necessary for a future in the European knowledge economy. Through these multifaceted applications, AI becomes not just a tool for modernization, but a strategic catalyst for Albania's integration into the European Union.

The use of innovation and digitalization in the judiciary

Albania has taken positive steps in the progress of electronic justice. While the Republic of Albania is working toward building a more unified strategy related to Electronic Justice, it has currently incorporated several strategically important national legislative acts and is developing components of technology, information, and communication, which are considered as standards, part of the Electronic Justice strategy. Some of these legislative acts include:

1. The Intersectoral Justice Strategy 2024-2030[5], coincides with the third phase needed by the justice system to meet international standards and best practices.
2. Albania's Digital Agenda 2022-2026 and other legislative and sub-legal acts that serve electronic justice.
3. Decision No. 479, dated 24.7.2024, "On the approval of the methodology document and technical standards for the use of Artificial Intelligence in the Republic of Albania, in support of Law No. 43/2023 'On electronic governance.' The methodology has been conceived and developed based on best practices and standards, including those of the European Union."
4. Decision No. 216, dated 17.4.2025 "On The Approval of the National Interoperability Framework for the Republic Of Albania"[6]

To better address the needs for innovation strategy in Public Administration, in November 2023, the Albanian government established the Innovation and Excellence Agency, which began its activity in January 2024. This agency is responsible for innovation in Albania, as well as for the innovation strategy in public administration. The agency fulfills its mission through the engagement of the best local and international experts in implementing the latest technologies. In this context, the agency has already formed the Innovation and Excellence Hub for the Ministry of Justice. This hub collaborates closely and centrally with the Innovation and Excellence Hubs of other ministries, enabling interconnected and strategic execution, and is working towards important objectives such as:

- Building the Ministry of Justice's Innovation Strategy, which includes strengthening the Ministry of Justice to formulate an e-justice Strategy;
- Building the capacities of the Innovation and Excellence Hub for the Ministry of Justice;
- Executing initial projects related to innovation.

Additionally, Albania has a national strategy that includes the component of electronic justice, which is the Intersectoral Justice Strategy 2024-2030. The vision of the strategy foresees an independent, responsible, accessible, transparent, and efficient justice system that protects human rights and freedoms and serves society in accordance with European standards.

Electronic justice is also part of the Digital Agenda of Albania 2022-2026[7], which is linked to other national strategic documents. Electronic justice is an innovative concept that envisions the creation of new opportunities to improve the justice system by overcoming conservative obstacles and methods that minimize citizens' access to justice. This strategy is part of the overall goal of increasing living standards, innovation, economic expansion, and well-being. Electronic justice, within the framework of digital innovation, aims to improve the efficiency and quality of services provided by the justice administration system.

The goals of this strategy within the framework of the European Integration Plan for 2023-2025 include:

- The full, professional functioning of justice system governance institutions in compliance with the constitution, the law, and European standards to guarantee independence, efficiency, and accountability.
- Strengthening the level of transparency, efficiency of the judicial system, and access to justice in compliance with the constitution, the law, and European standards.
- Criminal Justice with a system based on modern legal principles aimed at ensuring social reintegration, rehabilitation, and respect for human rights and fundamental freedoms, gender equality, and an integrated approach, alongside solid crime prevention practices.
- Coordinating and managing the justice system efficiently and effectively in all sector institutions.

According to the Monitoring Report from January – December 2023 published by the Ministry of Justice, the full development of the integrated electronic justice system has not yet been created. The risk level is projected to be high, and

[5] DCM No. 787, date 18.12.2024 "For the approval of the Intersectorial Justice Strategy 2024-2030, its Action Plan and Indicators Passport", link: https://www.drejtesia.gov.al/wp-content/uploads/2025/01/Vendim-nr.787-date-18.12.2024-Per-miratimin-e-Strategjise-Ndersektoriale-te-Drejtesise-2024-2030-1.pdf

[6] Official gazette, https://qbz.gov.al/eli/fz/2025/71/280b267a-7442-4a95-9dfd-c463bf39bd75

[7] Decision of Councils of Ministers No. 370 date 01.06.2022 "For the approval of the Crosscuting Strategy "Digital Agenda of Albania" and Action Plan 2022-2026", link: https://www.akshi.gov.al/wp-content/uploads/2022/06/vendim-2022-06-01-370-Agjenda-Digjitale-e-Shqiperise-22-26-dhe-plani-i-veprimit.pdf

this is indicated on pages 96-97 of the monitoring report[8], the risk factors are related to human and financial resources, and international support. Some of the achievements related to how digital technologies are being applied to improve access to justice for individuals and companies in Albania include:

- Judicial case management through a digital system, the Information Technology Center "QTI" or the Information Technology Center, established in 2022, for effective information and data processing.
- Tracking judicial cases via the electronic service from the government portal E-Albania. This digital application allows for the electronic tracking of judicial cases and provides information on the progress of the case in real-time and free of charge for individuals and corporations.
- Offering online formats and electronic communication for visits to the IEVP systems, which regulates the right to communication and visitation.
- Developing electronic components in the notary system that allow the retrieval of necessary information for drafting notarial acts and deeds.
- Implementing electronic signatures to facilitate the validation of any document or notarial act.
- Creating, managing, and making the Electronic Register of Experts available to the public via the e-Albania government portal.
- Managing corruption-related complaints through an electronic system that allows for tracking the case throughout the entire procedural cycle.
- The electronic system for managing visits and entries/exits in IEVP (Institutions for the Execution of Penal Decisions), for managing and tracking visitors, administration, and prisoners' entries and exits, specifying all the necessary details of the visit or movement.
- Developing and implementing online shops in IEVP, replacing physical shops.
- Implementing Artificial Intelligence in Public Procurement, facilitating all procurement processes using AI.
- Implementing Artificial Intelligence in preparing the legislative package required for the EU accession process. Currently, Albania is implementing several initiatives to incorporate Artificial Intelligence (AI) into its legislative processes, particularly in relation to the country's efforts to join the European Union (EU). AI is being used to expedite the process of transposing EU legislation (Acquis Communautaire) into national law, helping to reduce the administrative burden of preparing and harmonizing legal frameworks.

Key areas of AI implementation in this context include:

- Grouping and categorizing EU legal acts: AI helps in organizing EU directives and regulations by priority, enabling a more efficient process.
- Translation and adaptation: AI tools are used to automate the translation of EU legal texts into Albanian, ensuring consistency and accuracy.
- Gap analysis: AI is also used to compare Albania's existing laws with EU standards, identifying gaps and discrepancies that need to be addressed.
- Drafting legal proposals: AI helps in creating drafts for new legislation, speeding up the process of legal alignment.

These initiatives are part of Albania's broader efforts to accelerate EU integration, with AI playing a crucial role in managing the large volume of work required to meet EU legislative standards.

Challenges encountered in these implementations include the *finding of local human resources* with the necessary capacity, mindset, and knowledge to design, plan, and develop these strategies and technologies and also r*esistance to change* because many judicial system employees and stakeholders may resist adopting new technologies due to a lack of technical knowledge or concerns about complicating existing procedures.

Artificial Intelligence has a passport that predicts major developments in the field of technology. As a result, it brings essential effects in the field of law, primarily in cyber law, civil law, criminal law, and procedural law. The potential that artificial intelligence presents can be utilized in the justice system. Some of the ways this type of technology can be used in the aforementioned system are:

- An end-to-end platform that guides the lawyer through judicial processes, powered by AI, and adapts in real-time to procedural steps of the process, as well as to changes in laws. This system also helps in the automatic generation of necessary formats and documentation. It also automatically tracks and alerts users about legal deadlines.
- A universal AI-powered translator – Due to the high number of visiting tourists in the Republic of Albania, crimes and offenses may be committed by foreign nationals. Full understanding and effective communication, respecting the principle of communication in a language comprehensible to both the perpetrator(s) of the criminal act and the victims, can be supported by an AI platform for high-quality translations, assisting investigations and trials, potentially improving the regular legal process.

[8] https://www.drejtesia.gov.al/wp-content/uploads/2024/05/Raporti-i-Monitorimit-te-zbatimit-te-SND-per-vitin-2023.pdf

- Voice stress analyzer – This helps the Judicial Police Officer during the questioning process, either as a suspect or as a person who knows circumstances relevant to the investigation, to assess the level of stress and evaluate the accuracy of the information provided. In both of the above cases, implementing such a platform should respect cybersecurity principles and information protection.
- Identity verification through – The speed of analyzing facial features, detecting, and signaling in the system can assist in tracking and arresting suspects or perpetrators of criminal acts. Additionally, facial recognition can be used to analyze facial muscle movement to understand the emotional state of a person during illegal actions or when giving testimony at justice institutions.
- Anti-Drone Systems – National security, the institutions enforcing criminal decisions, public order, and also the life and health of personnel in these institutions, as well as convicts serving sentences in various categories prescribed by law, could be subjects of criminal acts targeting the violation of legal relationships that protect security and public order. Through AI, drones operating around the institution's perimeter or attempting to enter can be detected.
- Virtual Courtrooms – The Covid-19 pandemic was a global example that brought about changes in the methodology of court sessions and judicial processes. As a result, the option of a virtual courtroom for cases of force majeure (earthquakes, fires, etc.), situations where the life or health of a convicted individual is at risk, or cases of pandemics/epidemics that directly impact physical contact, may be recommended.
- Border protection through Computer Vision, a form of AI that analyzes images. This system increases the accuracy of monitoring while reducing the number of human resources required at the border.
- Improved prison surveillance through Computer Vision to identify dangerous or violent situations in real-time.
- A citizen service system for guiding citizens in courts and judicial processes. This system would assist citizens in receiving answers and services quickly and efficiently. AI can help answer frequently asked questions and personalize responses according to the unique needs of citizens.

Benefits and Main Risks Identified in Relation to the Use of AI in Justice

Main advantages of AI use in Justice are related to increased efficiency which can help shorten the time needed for case trials, resulting in faster and more effective judgments due to time-saving effects; and enabling an Information Organization – Searching for a specific file or several files, or large volume files with massive amounts of data, can require summaries for certain materials by specifically requesting information. This method is faster than manually searching through files. Also, other benefits are related to: *faster decision-making* by analyzing large amounts of data quickly, reducing delays in courts; *workload reduction* by automating routine tasks, boosting the productivity of legal staff; *improvement of access to justice* by creating platforms that provide legal advice to citizens, increasing access to justice; *prevention of errors* by increasing accuracy by reducing human errors in decision-making; *transparency* through the traceability of actions in processes increases public trust; *legal predictions* helping in knowing in advance outcomes of similar cases or politics; *automated dispute resolution* when AI can handle minor disputes, reducing the burden on courts; *document management* by organizing automatically files and documents, improving efficiency and all of these benefits direct to an accessible and cost reduced justice for all the citizens.

Artificial intelligence, while powerful, presents a range of disadvantages that must be carefully managed. One major concern is ***machine bias***, where AI systems may make one-sided decisions based on incomplete or prejudiced data, potentially compromising fairness—especially in areas influenced by trust, culture, and education. ***Errors in decision-making*** can arise when models rely on inaccurate or outdated data, leading to unjust outcomes. Additionally, ***inequality and discrimination*** can be perpetuated, as algorithms often replicate existing societal biases. Another critical issue is the ***lack of transparency***, with AI systems often functioning as "black boxes" whose decision-making processes are difficult to interpret or explain. This obscurity raises ***privacy concerns***, as the extensive use of personal data poses risks to individual rights and data security. Moreover, there is a growing ***dependence on technology***, which can lead to severe consequences if systems fail. ***Cyber manipulation*** further amplifies this risk, with AI being vulnerable to attacks that can distort or undermine decision integrity. The ***lack of human oversight*** in automated processes may result in decisions lacking contextual sensitivity, while ***legal and ethical complexities*** remain unresolved, particularly regarding responsibility for AI-driven errors. There is also the looming threat of ***human replacement***, where AI may fully take over decision-making roles, potentially marginalizing human judgment. Finally, the absence of universal ***quality control standards*** for AI systems risks inconsistent outcomes and the possibility of injustice

Conclusions and Strategic Recommendations for Leveraging AI and Innovation

To effectively harness innovation and artificial intelligence (AI) in Albania's European integration process, the country must undertake a comprehensive and strategic approach across key areas. First and foremost, Albania should establish a national AI strategy aligned with EU standards and foster public-private partnerships that include academia to stimulate AI innovation. Equally important is the investment in AI education at all levels to build a competitive and skilled workforce,

coupled with the implementation of talent retention policies that support research, development, and entrepreneurship. Strengthening digital infrastructure and ensuring robust cybersecurity measures are also fundamental to supporting the deployment of AI technologies across sectors. Active engagement in EU-funded projects and knowledge-sharing initiatives with member states would not only provide access to expertise and resources but also facilitate the adoption of best practices. These strategic investments will play a critical role in increasing efficiency, improving governance, and stimulating economic development, ultimately accelerating Albania's path to EU membership.

In this context, the Albanian government has already made significant strides in digital transformation, promoting the shift from offline to online services. It has invested in the development of electronic systems, the digitalization of physical archives, and the expansion of interconnected platforms through the government interoperability framework. A key example is the centralized "e-Albania" portal, which enables citizens and businesses to access public services online, reducing bureaucracy and improving transparency. The platform is integrated with various institutional registries through the GovNet government network—a secure, fiber-optic infrastructure connecting over 250 public institutions. Furthermore, the Government Data Center, built to modern standards, hosts centralized services, offering optimized and cost-effective solutions to public institutions while enhancing service security and performance. These developments illustrate Albania's readiness to embrace innovation and digital technologies, reinforcing its commitment to EU integration through improved governance, service delivery, and institutional accountability.

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Regulatory and Digital Challenges: Examining Growth and Innovation in MSMEs Across the EU and Accession Countries

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Abstract

Micro, small, and medium-sized enterprises (MSMEs) are essential to economic growth, industrial production, employment, and exports across the European Union (EU) and its accession countries. This study investigates how regulatory and digitalization barriers influence MSME growth and innovation in these regions. Using data from the Eurobarometer Flash 486 survey, the analysis examines annual growth projections and their relationship with regulatory constraints, digitalization challenges, types of innovation, firm size, and the firm's location in either an EU member state or an accession country. The study employs ordinal logistic regression to assess the impact of these barriers across different growth categories. The status of being an accession country is included as a moderating factor to evaluate its influence on growth dynamics and business performance. The findings indicate that regulatory and digitalization barriers impact MSME growth, though their effects vary. A favorable legal and administrative environment enhances employment and turnover growth, while financial constraints, skill shortages, and inadequate IT infrastructure hinder expansion. Innovation drives growth, with firms introducing new products, services, or processes experiencing higher expansion rates. However, in Bosnia, Macedonia, and Kosovo, these effects shift, becoming more pronounced in some cases and less significant in others, highlighting the need for targeted policies to address country-specific barriers and support MSME competitiveness.

This study underscores key priorities for EU policymakers, particularly the need to reduce regulatory burdens, accelerate digital transformation, and enhance support mechanisms for MSMEs in accession countries. Addressing these challenges will contribute to strengthening the resilience, competitiveness, and long-term sustainability of MSMEs across the European market.

Keywords: *Business Growth, Digitalization Barriers, Innovation, MSMEs, Regulatory Challenges*

Introduction

MSMEs in both EU member states and accession countries are vital are crucial in fostering industrial production, employment, and exports, contributing substantially to GDP. In the EU, MSMEs represent 99% of all businesses and create two-thirds of all private sector jobs (Chládková, 2009). Their role is especially important in Central and Eastern European countries, which have experienced the economic transformation and integration into the EU (Dobrzanski & Grabowski, 2019; Mockaitis & Bahl, 2014; Păun et al., 2008)our analysis requires the estimation of an average for the core of 15 member states of the European Union (EU 15. In many of these countries, MSMEs have become the main drivers of economic growth, especially after the reduction of large state-owned enterprises (Hull, 2022; Mockaitis & Bahl, 2014)small, and medium-sized enterprises in selected countries of Central and Eastern Europe (CEE.

The importance of MSMEs is also evident in their contribution to exports and GDP (Böwer & Turrini, 2010; Fernández-Serrano & Romero, 2014; Garg & Agarwal, 2017). As these economies have undergone significant transitions, governments have implemented various policies and support programs aimed at enhancing the performance and competitiveness of MSMEs. These include financial aid, regulatory reforms, and improvements in infrastructure (Akang, 2024; Garg & Agarwal,

2017). Such interventions have proven essential in fostering an environment where MSMEs can thrive despite challenges like limited access to financing and complex institutional systems .

The growth of MSMEs has been essential for economic development in the European Union (EU) and accession countries, playing a key role in diversifying local economies and creating jobs. Government support plays a critical role in the growth of MSMEs, particularly through policies that enhance access to financing, promote regulatory reforms, and support infrastructure development. These initiatives enable many MSMEs to expand locally and internationalize, boosting their competitiveness (Gaston & Bell, 1985; Kushubakova & Strakhova, 2020). However, despite considerable progress, MSMEs continue to face challenges, such as limited access to financial resources and complex institutional systems. As such, further support is essential to help these businesses thrive and contribute to sustainable economic development (Akang, 2024; Amroune et al., 2014)1967; Emery and Trist, 1965.

In addition to government support, digitalization has become a crucial factor for MSME growth, particularly in the EU and accession countries. However, barriers like outdated infrastructure, lack of technology skills, and complex regulations impede the effective adoption of digital tools (Kallmuenzer et al., 2024; Vo Thai et al., 2023). Institutional challenges, such as insufficient government backing and risk-averse cultures, slow down the digital transformation (Mikušová & Stanovská, 2025; Moharrak et al., 2025). Despite these hurdles, MSMEs that successfully embrace digitalization can significantly enhance their efficiency, sustainability, and innovation, positioning themselves for long-term growth and competitiveness (Kumar et al., 2024; Mikušová & Stanovská, 2025; Vo Thai et al., 2023). Innovation is another key driver for MSME growth, helping firms improve products, increase market competitiveness, and enhance operational efficiency (Chatterjee et al., 2021; Love & Roper, 2015). Leadership support is essential for adopting new technologies, such as social media marketing, which can drive customer engagement and business growth (Chatterjee et al., 2021; Olazo, 2023). Innovative firms are also more likely to succeed in export markets, further fueling innovation by exposing them to international competition and new customer demands (Kumar et al., 2024; Mikušová & Stanovská, 2025; Olazo, 2023). Smaller firms often experience faster growth, particularly in their early stages, challenging Gibrat's Law, which suggests growth is independent of size (Cesinger et al., 2018; Chan et al., 2006; Davidsson et al., 2002). These firms tend to be more agile and innovative, enabling them to capitalize on market opportunities (Kallmuenzer et al., 2024; Kumar et al., 2024). While smaller firms can grow rapidly, their long-term success depends on overcoming resource limitations and managing internal and external challenges (Davidsson et al., 2002; Efendic et al., 2016).

While some studies examine the role of MSMEs in economic growth within the EU and transition economies, including their contributions to GDP and job creation, most research fails to thoroughly explore the impact of regulatory and digitalization barriers in these particular contexts (Böwer & Turrini, 2010; Chládková, 2009). Moreover, while literature on the impact of firm size and innovation on MSME growth is abundant, there is a lack of studies that simultaneously integrate all of these factors, especially in the context of differences between EU member states and accession countries. The analysis of accession countries, compared to EU member states, is an approach that has been underexplored and is essential for understanding how these factors interact and influence MSME growth in these countries (Davidsson et al., 2002; Efendic et al., 2016). Thus, this study addresses the gap by investigating the impact of regulatory and digitalization barriers on growth and innovation in MSMEs, while considering the moderating role of firm size and the EU accession status, providing a more comprehensive and integrated view of the challenges faced by MSMEs in these transition countries (Krasniqi & Mustafa, 2016; Mikušová & Stanovská, 2025)Jovanovic's Learning Theory- JLT, Resource Based View-RBV, and Institutional Theory-IT.

This study aims to examine how regulatory and digitalization barriers, along with internal factors such as innovation and firm size, affect MSME growth, particularly in the context of EU and accession countries. The research question of this study is: how do regulatory barriers, digitalization barriers, innovation, and firm size impact the growth of Micro, Small, and Medium Enterprises (MSMEs) in the European Union (EU) and accession countries? The objectives of the research are as follows: (1) To assess the impact of regulatory barriers on MSME growth in the EU and accession countries; (2) To evaluate the influence of digitalization barriers on MSME growth and innovation in these countries; (3) To explore the role of innovation in fostering business growth and competitiveness in MSMEs across these regions; (4) To investigate how firm size affects growth, particularly the differences in growth patterns between smaller and larger MSMEs; (5) To determine whether the status of being an accession country moderates the effects of these factors on business growth.

Using data from the Eurobarometer Flash 486 survey, this study focuses on examining annual growth categories and their relationship with regulatory barriers, digitalization challenges, types of innovation introduced, firm size, and the location of the enterprise, specifically whether it is in an EU member state or an accession country. The analysis employs ordinal logistic regression to assess the effects of these barriers and other predictors across the different growth categories. Furthermore, machine learning algorithms, such as the XGBoost Classifier and Random Forest, are utilized to improve predictive accuracy and to determine the relative importance of various factors influencing MSME growth.

After this introduction, the article folow with the Theoretical Background and Literature Review, examining existing research on regulatory and digitalization barriers, innovation, and firm size in MSME growth, with a focus on the challenges faced by MSMEs in EU accession countries. The Methodology section describes the data collection and analysis approach, utilizing ordinal logistic regression and machine learning algorithms like XGBoost Classifier and Random Forest. The Results section presents the findings on how these factors influence MSME performance. Finally, in the Discussion, the results are interpreted in the context of existing literature, highlighting implications for policymakers and business leaders, summarizing the key findings, and suggesting directions for future research.

Theoretical Background and Literature Review

The growth of MSMEs is influenced by a combination of internal factors, such as innovation, resources, and capabilities, and external factors, such as regulatory, technological, and institutional barriers. MSMEs face significant challenges related to government regulations, the adoption of digital technologies, innovation, and firm size. To understand how these factors impact the growth of MSMEs, especially in European Union (EU) countries and accession countries, it is essential to draw on various theories that address these issues in an integrated manner.

Institutional Theory and MSME Growth

Institutional Theory is essential for understanding the dynamics that impact the growth and survival of MSMEs. It focuses on how organizations adapt to institutional environments — formal rules (laws, regulations) and informal norms (cultural expectations, societal pressures) that shape behavior. According to North (1990), institutions are the "rules of the game" in society, influencing organizational actions. These institutions can either facilitate or obstruct MSME growth by promoting or hindering innovation and access to finance. MSMEs, especially in EU accession countries, face challenges such as complex tax laws, bureaucratic processes, and changing regulations that demand significant adaptation (Meyer & Rowan, 1977). Furthermore, digitalization is a major challenge, as external pressures to adopt technology may provide opportunities or expose weaknesses. Scott (1995) highlights that the institutional environment dictates the resources available to firms, which impacts their ability to invest in new technologies. MSMEs in less developed digital infrastructures often face insufficient institutional support, making them vulnerable to competitors in more advanced economies (Krasniqi & Mustafa, 2016).

Recent studies have applied Institutional Theory to explore MSME growth challenges. Kumari et al. (2024) focus on SME internationalization, emphasizing how government regulations and financial support systems shape strategic decisions. These SMEs face unique challenges due to restrictive institutional frameworks in their home countries. Pizzi and Coronella (2024) examine how European SMEs adapt to the Corporate Sustainability Reporting Directive, showing that these SMEs often follow isomorphic behaviors, imitating larger companies' sustainability practices to comply with regulations, which may hinder their innovation. Abdissa et al. (2022)the purpose of this study is to investigate the determinants of sustainable growth of SMEs in developing countries, notably in Ethiopia. To achieve the objectives of this study, both descriptive and explanatory research designs were used. In addition to this, primary data was collected from SMEs engaged in service, manufacturing, trade, construction, and urban agriculture. The sampling techniques used for this study is the stratified simple random sampling technique in which 194 employees of SMEs were drawn as a sample size for this study. Moreover, multiple linear regression models were used with the Statistical Package for the Social Sciences (SPSS explore how political instability and corruption in Ethiopia impede MSME growth, stressing the importance of institutional reform for stable growth environments. Croucher et al. (2024)studies that compare the relative responses to external shocks and the outcomes for SMEs operating in different institutional settings are limited. We examine the relative degrees of success European and African SMEs experienced in avoiding the worst consequences of the COVID-19 pandemic. Design/methodology/approach: We use the resource dependency theory (RDT investigate the survival of SMEs during the COVID-19 pandemic, showing how government support mechanisms helped SMEs survive, demonstrating the critical role of institutional support in times of crisis.

Resource-Based View and MSME Growth

In the context of the growth of MSMEs, the Resource-Based View (RBV) plays a central role in explaining how a company's internal resources contribute to its long-term performance and competitiveness. According to the RBV, a company's growth depends not only on size or financial resources but also on how it manages and leverages valuable, rare, difficult-to-imitate, and non-substitutable resources (Barney, 1991, 2001). Larger companies, with greater access to resources such as financial capital, technology, and human capital, often enjoy a competitive advantage, which facilitates expansion and innovation. However, smaller firms can also compete effectively by utilizing organizational capabilities such as agility and innovation to exploit market niches and overcome resource scarcity (Liu & Yang, 2019). Therefore, the RBV suggests that business growth is deeply influenced by the company's ability to strategically and innovatively utilize its resources, regardless of its size (Penrose, 1959; Teece et al., 1997). Firm size significantly impacts growth, with smaller firms often experiencing faster growth than larger ones, especially in the early stages (Cesinger et al., 2018; Chan et al., 2006; Davidsson et al., 2002). This challenges Gibrat's Law, which suggests growth is independent of size (Cesinger et al., 2018; Efendic et al., 2016; Krasniqi & Mustafa, 2016). Smaller firms tend to be more agile and innovative, allowing them to capitalize on market opportunities more effectively (Kallmuenzer et al., 2024; Kumar et al., 2024)harnessing the benefits of modern technologies, many small and medium-sized enterprises (SMEs. However, the relationship between size and growth is influenced by factors like industry, managerial capabilities, and external conditions, such as institutional support (Cesinger et al., 2018; Krasniqi & Mustafa, 2016; Moreno et al., 2010). While smaller firms can grow rapidly, their

long-term success depends on overcoming resource limitations and managing internal and external challenges effectively (Davidsson et al., 2002; Efendic et al., 2016).

The RBV also provides a robust explanation for the impact of innovation on business growth, emphasizing the importance of valuable resources and capabilities that enable continuous adaptation and innovation (Cuthbertson & Furseth, 2022; Do et al., 2022; Sedera et al., 2016). Innovation not only creates new products or services but also generates valuable and rare resources, which can provide a sustained competitive advantage and drive long-term business growth (Tolossa et al., 2025). By investing in innovative resources and organizational capabilities, firms can overcome market challenges and maintain their competitiveness (Butt, 2025; Liao et al., 2015).

Dynamic Capabilities Theory and MSME Growth

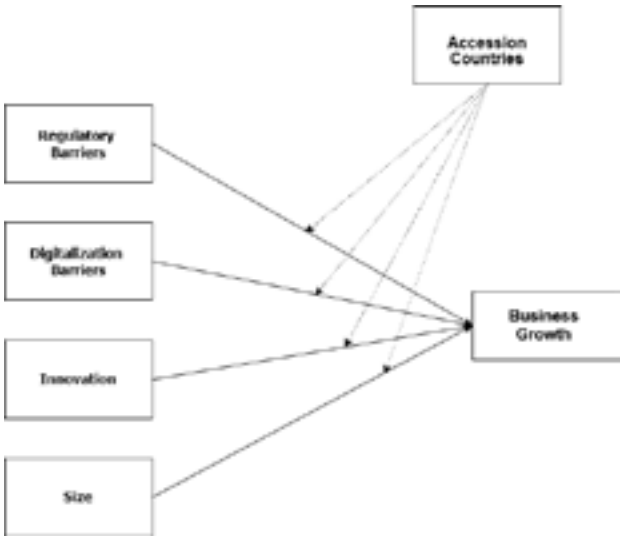
Dynamic Capabilities Theory is essential for understanding how MSMEs achieve sustainable growth in rapidly changing markets. According to Teece et al. (1997), dynamic capabilities refer to a firm's ability to integrate and reconfigure resources to adapt to evolving market conditions. This theory asserts that competitive advantage comes not just from existing resources but from a firm's ability to innovate and renew its capabilities (Teece et al., 1997). For MSMEs, especially in emerging or transition economies, developing dynamic capabilities is crucial to overcome challenges such as technological changes, regulatory shifts, and market uncertainty. Dynamic capabilities help MSMEs innovate and thrive in competitive environments, particularly during digital transformation and regulatory harmonization, as seen in EU accession countries (Helfat & Martin, 2015). MSMEs with strong dynamic capabilities are better equipped to adapt to new technologies and regulatory changes, which is vital in today's fast-paced economy (Eisenhardt & Martin, 2000)more generally, the resource-based view of the firm. We argue that dynamic capabilities are a set of specific and identifiable processes such as product development, strategic decision making, and alliancing. They are neither vague nor tautological. Although dynamic capabilities are idiosyncratic in their details and path dependent in their emergence, they have significant commonalities across firms (popularly termed 'best practice'. Key elements of dynamic capabilities include sensing opportunities, seizing them through innovation, and transforming the organization to stay competitive. MSMEs that adapt their business models to technological trends are more likely to succeed in the digital economy, especially when overcoming digitalization barriers (Helfat & Martin, 2015; Teece et al., 1997).

Barragan and Becker (2024) examine how digital orientation impacts SME performance during digital transformation and suggest that SMEs with strong dynamic capabilities are better equipped to handle these challenges. Their research highlights the importance of strategic resource allocation during digital transformation, demonstrating that SMEs capable of adapting to digital changes perform better once they surpass initial setbacks (Barragan & Becker, 2024). Wiklund et al. (2009) explore how entrepreneurial orientation and the ability to adapt resources can influence SME growth. They argue that firms that proactively adjust to environmental and technological changes are more likely to achieve long-term growth. Weaven et al. (2021) investigate how dynamic capabilities contribute to MSME resilience during economic downturns. Their study suggests that MSMEs with robust dynamic capabilities can reconfigure resources and adapt their business models to survive crises, emphasizing the importance of these capabilities in sustaining growth, even in difficult conditions (Weaven et al., 2021).

Research model

The research modelo (Fig. 1) highlights the interrelationship between regulatory barriers, digitalization barriers, innovation, firm size, and business growth in EU accession countries, based on Institutional Theory, RBV, and Dynamic

FIG. 1 – Research Model



Capabilities Theory. Institutional Theory explains that the regulatory environment, such as complex laws and constantly changing regulations, can either facilitate or hinder MSME growth. In EU accession countries, firms must adapt to both national regulations and EU standards, which can present challenges but also opportunities for growth. RBV emphasizes that innovation, whether in products, processes, or environmental practices, is a key driver of growth, as it creates valuable and rare resources that provide a competitive advantage. While larger firms may have more resources to support growth The status of being an accession country moderates these factors, with the institutional context in these countries shaping firm behavior and performance. Thus, the model reflects that growth is influenced by a combination of institutional pressures, internal capabilities, innovation, and firm size, with firms in EU accession countries needing to navigate these factors effectively to achieve success.

Research Methodology

Data and sample

We used microdata from the "SMEs, Start-ups, Scale-ups, and Entrepreneurship" survey, conducted by the European Commission in 2020 as part of the Flash Eurobarometer. This survey examines the challenges and barriers faced by businesses in EU countries and those in the accession process, focusing on growth, sustainable practices, and digitalization. Data was collected through telephone interviews with managers between January and April, 2020. The initial sample included 12,902 MSMEs, reduced to 11,032 after addressing missing values.

A detailed overview of the sample composition, including key demographic, economic, and sectoral characteristics, is provided in Table A.1 in Appendix.

Measures

Table 1 presents the variables used in this study, including their definitions and measurement scales, covering aspects related to business growth, regulatory barriers, digitalization challenges, innovation, country-specific factors, and control variables.

Table 1 – Overview of variables used in the study

Variables	Measure
Business growth	
Over the next few years, on average how much does your company plan to grow per year in terms of the number of full-time or full-time equivalent employees?	1 - Does not plan to grow; 2 - Grows less than 10% per year; 3 - Grows between 10 and 20% per year; 4 - Grows more than 20% per year
Over the next few years, on average how much your company plans to grow per year in terms of turnover	1 - Does not plan to grow; 2 - Grows less than 10% per year; 3 - Grows between 10 and 20% per year; 4 - Grows more than 20% per year
Regulatory Barriers	
Legal and administrative environment of the firm	1 - Very bad; 2 - Bad; 3 - Good; 4 - Very good
Regulatory barriers or administrative burdens are one of the biggest problems for the firm.	0 - No; 1 - Yes
Legal or administrative environment is a barrier to innovation in the firm	0 - No; 1 - Yes
Barriers to digitalization	
Lack of financial resources	0 - No; 1 - Yes
Lack of skills, including management skills	0 - No; 1 - Yes
Lack of information technology infrastructure, such as high-speed internet connection	0 - No; 1 - Yes
Regulatory obstacles	0 - No; 1 - Yes
IT security issues	0 - No; 1 - Yes
Uncertainty about future digital standards	0 - No; 1 - Yes
Internal resistance to change	0 - No; 1 - Yes
Innovation	
A new or significantly improved product or service for the market	0 - No; 1 - Yes
A new or significantly improved production process or method	0 - No; 1 - Yes
Firm size	Number of employees

Country	Bosnia and Herzegovina, North Macedonia, Serbia, Turkey
Control Variables	
NACE sector	Sections B to Q
Part of a national or international business group	0 - No; 1 - Yes
Predominantly family-owned	0 - No; 1 - Yes
Country GDP per capita	Euros
Country GDP_gr 2019	%

Data Analysis

We employed ordinal logistic regression to analyze the factors influencing firm growth. Specifically, we estimated two separate models: one for employment growth and another for turnover growth. Ordinal logistic regression was chosen as it allows us to assess the relationship between explanatory variables and the probability of a firm belonging to different growth categories while preserving the ordinal nature of the dependent variables. Additionally, we estimated Odds Ratios, which indicate the magnitude and direction of the effects of each independent variable on the dependent variable. This approach facilitates the interpretation of the results, allowing for a clearer understanding of the likelihood of firms experiencing different levels of growth based on the predictors included in the models.

Results

The results indicate that a more favorable legal and administrative environment significantly enhances employment growth (OR = 1.22; $p < 0.001$) and turnover growth (OR = 1.27; $p < 0.001$). In contrast, perceiving the legal and administrative environment as a barrier to innovation negatively affects employment growth (OR = 0.91; $p < 0.05$), although it does not have a statistically significant impact on turnover growth (OR = 1.07; $p = 0.145$). Furthermore, regulatory obstacles hinder turnover growth (OR = 0.91; $p < 0.01$), while their effect on employment growth is not statistically significant (OR = 0.98; $p = 0.682$), highlighting the restrictive effects of excessive bureaucracy on business expansion.

A lack of financial resources is a significant barrier to turnover growth (OR = 0.90; $p < 0.05$) but does not significantly affect employment growth (OR = 0.93; $p = 0.119$). Similarly, a lack of skills, including management skills, reduces employment growth (OR = 0.91; $p < 0.05$) but does not have a significant impact on turnover growth (OR = 1.01; $p = 0.781$). The lack of IT infrastructure, such as high-speed internet access, negatively affects both employment growth (OR = 0.82; $p < 0.001$) and turnover growth (OR = 0.91; $p < 0.05$), reinforcing the importance of digital resources for business expansion.

Innovation emerges as a key driver of business growth. Firms that introduce new or significantly improved products or services experience higher employment growth (OR = 1.58; $p < 0.001$) and turnover growth (OR = 1.70; $p < 0.001$). Likewise, firms that adopt new production processes or methods show a positive effect on employment growth (OR = 1.32; $p < 0.001$) and turnover growth (OR = 1.42; $p < 0.001$), supporting the idea that innovation plays a crucial role in business success.

Firm size is positively associated with both employment growth (OR = 1.04; $p < 0.001$) and turnover growth (OR = 1.02; $p < 0.001$), indicating that larger firms are more likely to expand in both dimensions.

In Turkey, firms exhibit a significantly higher probability of employment growth (OR = 7.75; $p < 0.01$). In contrast, in Macedonia, the likelihood of employment growth is lower (OR = 0.27; $p < 0.05$), highlighting countries disparities in business growth dynamics.

In Bosnia and Herzegovina, the perception of the legal and administrative environment as a barrier to innovation has a lower impact on employment growth (OR = 2.62; $p < 0.001$) and turnover growth (OR = 2.37; $p < 0.01$) compared to EU countries. Similarly, the lack of skills, including management skills, has a smaller impact on employment growth (OR = 1.79; $p < 0.05$) and turnover growth (OR = 1.92; $p < 0.05$) than in EU countries. Furthermore, the impact of the lack of IT infrastructure, such as high-speed internet access, on turnover growth (OR = 2.29; $p < 0.05$) is less significant in Bosnia and Herzegovina than in EU countries. By contrast, regulatory obstacles have a more pronounced effect in Bosnia and Herzegovina, exerting a stronger negative impact on employment growth (OR = 0.57; $p < 0.05$) and turnover growth (OR = 0.45; $p < 0.01$) compared to EU countries. Regarding uncertainty about future digital standards, its impact on the propensity for turnover growth (OR = 0.56; $p < 0.05$) is significantly lower in Bosnia and Herzegovina. Concerning innovation, the impact of introducing new products or services on employment growth (OR = 0.56; $p < 0.05$) and process innovation on turnover growth (OR = 0.34; $p < 0.05$) is considerably lower than in EU countries.

In Macedonia, the negative impact of a lack of skills, including management skills, on turnover growth (OR = 0.49; $p < 0.05$) is stronger than in EU countries. Similarly, the effect of lacking IT infrastructure on employment growth (OR = 0.26; $p < 0.05$) is more pronounced in Macedonia than in the EU. On the other hand, regulatory obstacles in Macedonia have a greater impact on employment growth (OR = 3.06; $p < 0.05$) and turnover growth (OR = 3.16; $p < 0.05$) compared to EU countries. However, uncertainty about future digital standards has a lower impact in Macedonia, both on employment growth (OR =

12.09; $p < 0.001$) and turnover growth (OR = 4.35; $p < 0.01$). Internal resistance to change in Macedonia is also a significant barrier, negatively affecting both employment growth (OR = 0.33; $p < 0.05$) and turnover growth (OR = 0.32; $p < 0.05$).

In Kosovo, the negative impact of a lack of financial resources on turnover growth (OR = 0.61; $p < 0.05$) is higher than in EU countries, pointing to financial constraints that hinder business expansion.

Finally, firm age is negatively associated with both employment growth (OR = 0.98; $p < 0.01$) and turnover growth (OR = 0.99; $p < 0.01$), and the NACE D sector (Electricity, Gas, Steam, and Air Conditioning Supply) shows a significant negative impact on growth prospects. Firms in this sector have a lower likelihood of increasing employment (OR = 0.44; $p < 0.05$and turnover growth (OR = 0.35; $p < 0.05$) compared to other sectors.

TABLE 2 – Ordinal logistic regression for employment growth and turnover growth

	Employment growth		Turnover growth	
	OR (CI 95%)	P	OR (CI 95%)	p
Legal and administrative environment of the firm	1,22 (1,16 - 1,29)	0,000**	1,27 (1,21 - 1,34)	0,000**
Regulatory barriers or administrative burdens are one of the biggest problems for the firm	0,98 (0,91 - 1,06)	0,682	0,91 (0,85 - 0,99)	0,020*
Legal or administrative environment is a barrier to innovation in the firm	0,91 (0,83 - 0,98)	0,041*	1,07 (0,98 - 1,17)	0,145
Lack of financial resources	0,93 (0,85 - 1,02)	0,119	0,90 (0,82 - 0,98)	0,019*
Lack of skills, including management skills	0,91 (0,83 - 0,99)	0,041*	1,01 (0,92 - 1,11)	0,781
Lack of information technology infrastructure, such as high-speed internet connection	0,82 (0,73 - 0,90)	0,000**	0,91 (0,82 - 1,03)	0,047*
Regulatory obstacles	0,87 (0,78 - 0,96)	0,008**	0,97 (0,88 - 1,08)	0,579
IT security issues	0,96 (0,87 - 1,07)	0,486	0,93 (0,97 - 1,19)	0,188
Uncertainty about future digital standards	0,93 (0,97 - 1,19)	0,162	0,92 (0,84 - 1,02)	0,098
Internal resistance to change	0,98 (0,89 - 1,08)	0,649	0,98 (0,89 - 1,07)	0,600
A new or significantly improved product or service for the market	1,58 (1,45 - 1,73)	0,000**	1,70 (1,57 - 1,85)	0,000**
A new or significantly improved production process or method	1,32 (1,20 - 1,45)	0,000**	1,42 (1,29 - 1,56)	0,000**
Size	1,04 (1,03 - 1,05)	0,000**	1,02 (1,01 - 1,03)	0,000**
Bosnia	1,34 (0,63 - 2,85)	0,451	0,99 (0,49 - 2,04)	0,990
Turkey	7,75 (1,70 - 35,28)	0,008**	2,66 (0,47 - 15,01)	0,267
Macedonia	0,27 (0,10 - 0,76)	0,013*	0,65 (0,24 - 1,79)	0,408
Serbia	1,48 (0,49 - 4,45)	0,482	0,92 (0,26 - 3,32)	0,903
Kosovo	1,72 (0,70 - 4,26)	0,239	1,04 (0,45 - 2,38)	0,928
Legal and administrative environment of the firm x Bosnia	0,89 (0,69 - 1,16)	0,399	0,86 (0,67 - 1,11)	0,243
Regulatory barriers or administrative burdens are one of the biggest problems for the firm x Bosnia	1,10 (0,71 - 1,72)	0,665	0,83 (0,54 - 1,28)	0,405
Legal or administrative environment is a barrier to innovation in the firm x Bosnia	2,62 (1,69 - 4,06)	0,000**	2,37 (1,43 - 3,91)	0,001**
Lack of financial resources x Bosnia	1,30 (0,76 - 2,22)	0,331	1,29 (0,74 - 2,25)	0,364
Lack of skills, including management skills x Bosnia	1,79 (1,02 - 3,12)	0,041*	1,92 (1,05 - 3,52)	0,035*
Lack of information technology infrastructure, such as high-speed internet connection x Bosnia	1,86 (0,78 - 4,43)	0,164	2,29 (1,06 - 4,93)	0,035*
Regulatory obstacles x Bosnia	0,57 (0,37 - 0,88)	0,011	0,45 (0,27 - 0,73)	0,002**
IT security issues x Bosnia	1,55 (0,56 - 4,24)	0,397	1,75 (0,51 - 5,95)	0,372
Uncertainty about future digital standards x Bosnia	1,1 (0,47 - 2,58)	0,824	4,82 (2,32 - 9,99)	0,000**
Internal resistance to change x Bosnia	1,74 (0,95 - 3,19)	0,074	0,94 (0,50 - 1,76)	0,841
A new or significantly improved product or service for the market x Bosnia	0,56 (0,32 - 0,99)	0,048*	0,69 (0,40 - 1,17)	0,170
A new or significantly improved production process or method x Bosnia	0,48 (0,23 - 1,02)	0,056	0,34 (0,14 - 0,82)	0,016*
Size x Bosnia	1,00 (1,00 - 1,01)	0,232	1,00 (1,00 - 1,01)	0,246
Legal and administrative environment of the firm x Turkey	0,65 (0,41 - 1,05)	0,080	1,07 (0,64 - 1,80)	0,789
Regulatory barriers or administrative burdens are one of the biggest problems for the firm x Turkey	0,83 (0,42 - 1,64)	0,588	0,73 (0,38 - 1,40)	0,339
Legal or administrative environment is a barrier to innovation in the firm x Turkey	0,71 (0,36 - 1,38)	0,312	0,69 (0,35 - 1,37)	0,291

Lack of financial resources x Turkey	0,60 (0,32 - 1,12)	0,109	0,65 (0,36 - 1,18)	0,155
Lack of skills, including management skills x Turkey	1,44 (0,68 - 3,05)	0,338	1,56 (0,71 - 3,42)	0,263
Lack of information technology infrastructure, such as high-speed internet connection x Turkey	0,84 (0,44 - 1,62)	0,606	0,95 (0,53 - 1,73)	0,877
Regulatory obstacles x Turkey	1,09 (0,52 - 2,27)	0,819	0,75 (0,38 - 1,49)	0,413
IT security issues x Turkey	1,04 (0,50 - 2,18)	0,918	1,62 (0,77 - 3,42)	0,208
Uncertainty about future digital standards x Turkey	0,59 (0,28 - 1,24)	0,160	0,48 (0,21 - 1,08)	0,077
Internal resistance to change x Turkey	1,69 (0,76 - 3,75)	0,196	1,24 (0,62 - 2,47)	0,542
A new or significantly improved product or service for the market x Turkey	0,68 (0,37 - 1,24)	0,213	0,71 (0,40 - 1,26)	0,241
A new or significantly improved production process or method x Turkey	1,63 (0,87 - 3,04)	0,128	0,85 (0,47 - 1,55)	0,602
Size x Turkey	1,00 (0,99 - 1,00)	0,771	1,00 (1,00 - 1,01)	0,315
Legal and administrative environment of the firm x Macedonia	1,27 (0,93 - 1,74)	0,126	1,12 (0,83 - 1,52)	0,460
Regulatory barriers or administrative burdens are one of the biggest problems for the firm x Macedonia	0,99 (0,53 - 1,84)	0,964	0,80 (0,45 - 1,42)	0,448
Legal or administrative environment is a barrier to innovation in the firm x Macedonia	0,85 (0,43 - 1,68)	0,640	0,54 (0,28 - 1,04)	0,067
Lack of financial resources x Macedonia	1,23 (0,59 - 2,53)	0,579	0,69 (0,37 - 1,27)	0,234
Lack of skills, including management skills x Macedonia	0,69 (0,35 - 1,35)	0,274	0,49 (0,29 - 0,82)	0,007**
Lack of information technology infrastructure, such as high-speed internet connection x Macedonia	0,26 (0,08 - 0,85)	0,026*	0,71 (0,31 - 1,63)	0,425
Regulatory obstacles x Macedonia	3,06 (1,02 - 9,18)	0,046*	3,16 (1,09 - 9,17)	0,034*
IT security issues x Macedonia	1,48 (0,68 - 3,21)	0,325	0,93 (0,42 - 2,07)	0,862
Uncertainty about future digital standards x Macedonia	12,09 (4,4 - 33,22)	0,000**	4,35 (1,89 - 10,01)	0,001**
Internal resistance to change x Macedonia	0,33 (0,12 - 0,94)	0,038*	0,32 (0,11 - 0,92)	0,035*
A new or significantly improved product or service for the market x Macedonia	1,14 (0,53 - 2,49)	0,733	0,58 (0,28 - 1,19)	0,138
A new or significantly improved production process or method x Macedonia	1,56 (0,53 - 4,57)	0,415	1,32 (0,55 - 3,18)	0,530
Size x Macedonia	1,00 (0,99 - 1,01)	0,497	1,01 (1,00 - 1,02)	0,086
Legal and administrative environment of the firm x Serbia	0,76 (0,53 - 1,09)	0,135	0,92 (0,61 - 1,39)	0,682
Regulatory barriers or administrative burdens are one of the biggest problems for the firm x Serbia	0,52 (0,23 - 1,18)	0,119	0,57 (0,22 - 1,45)	0,235
Legal or administrative environment is a barrier to innovation in the firm x Serbia	1,88 (0,69 - 5,17)	0,220	1,50 (0,57 - 3,98)	0,414
Lack of financial resources x Serbia	1,16 (0,31 - 4,32)	0,827	0,69 (0,21 - 2,29)	0,543
Lack of skills, including management skills x Serbia	0,49 (0,18 - 1,33)	0,161	0,98 (0,38 - 2,55)	0,972
Lack of information technology infrastructure, such as high-speed internet connection x Serbia	1,44 (0,34 - 6,06)	0,620	0,85 (0,29 - 2,52)	0,774
Regulatory obstacles x Serbia	1,18 (0,15 - 9,42)	0,878	5,94 (0,67 - 52,27)	0,109
IT security issues x Serbia	1,88 (0,54 - 6,53)	0,317	0,97 (0,23 - 4,12)	0,964
Uncertainty about future digital standards x Serbia	4,00 (0,77 - 20,87)	0,100	2,57 (0,48 - 13,6)	0,268
Internal resistance to change x Serbia	2,65 (0,62 - 11,43)	0,191	2,25 (0,45 - 11,29)	0,324
A new or significantly improved product or service for the market x Serbia	1,01 (0,53 - 1,93)	0,966	1,28 (0,61 - 2,68)	0,510
A new or significantly improved production process or method x Serbia	2,02 (0,78 - 5,18)	0,146	3,72 (0,88 - 15,77)	0,075
Size x Serbia	1,00 (1,00 - 1,01)	0,608	1,00 (1,00 - 1,01)	0,272
Legal and administrative environment of the firm x Kosovo	0,87 (0,67 - 1,12)	0,267	0,86 (0,68 - 1,09)	0,211
Regulatory barriers or administrative burdens are one of the biggest problems for the firm x Kosovo	0,96 (0,60 - 1,53)	0,865	1,11 (0,69 - 1,77)	0,676
Legal or administrative environment is a barrier to innovation in the firm x Kosovo	1,29 (0,76 - 2,16)	0,343	1,69 (0,93 - 3,07)	0,086
Lack of financial resources x Kosovo	0,99 (0,65 - 1,51)	0,965	0,61 (0,39 - 0,95)	0,029*
Lack of skills, including management skills x Kosovo	1,05 (0,52 - 2,09)	0,900	0,61 (0,31 - 1,20)	0,153
Lack of information technology infrastructure, such as high-speed internet connection x Kosovo	0,50 (0,21 - 1,22)	0,127	0,53 (0,21 - 1,37)	0,194
Regulatory obstacles x Kosovo	0,64 (0,33 - 1,23)	0,181	0,62 (0,32 - 1,21)	0,159

IT security issues x Kosovo	0,97 (0,56 - 1,68)	0,904	0,76 (0,41 - 1,41)	0,386
Uncertainty about future digital standards x Kosovo	0,77 (0,38 - 1,56)	0,465	0,48 (0,18 - 1,32)	0,155
Internal resistance to change x Kosovo	0,96 (0,52 - 1,76)	0,889	1,18 (0,61 - 2,29)	0,624
A new or significantly improved product or service for the market x Kosovo	1,20 (0,67 - 2,15)	0,547	1,20 (0,68 - 2,12)	0,524
A new or significantly improved production process or method x Kosovo	0,81 (0,42 - 1,54)	0,519	0,94 (0,48 - 1,86)	0,867
Size x Kosovo	1,00 (0,99 - 1,01)	0,881	1,00 (0,99 - 1,00)	0,576
Firm age	0,98 (0,98 - 0,99)	0,000**	0,99 (0,98 - 0,99)	0,000**
Part of a national or international business group	1,04 (0,92 - 1,18)	0,499	1,02 (0,90 - 1,15)	0,751
Predominantly family-owned	1,05 (0,96 - 1,15)	0,299	1,05 (0,96 - 1,14)	0,260
NACE C	0,84 (0,46 - 1,54)	0,581	0,79 (0,43 - 1,47)	0,461
NACE D	0,44 (0,20 - 0,98)	0,045*	0,35 (0,15 - 0,79)	0,012*
NACE E	0,52 (0,26 - 1,05)	0,067	0,55 (0,27 - 1,1)	0,089
NACE F	1,05 (0,57 - 1,92)	0,885	0,82 (0,44 - 1,52)	0,525
NACE G	0,85 (0,47 - 1,56)	0,610	0,82 (0,44 - 1,51)	0,521
NACE H	0,75 (0,40 - 1,39)	0,362	0,56 (0,3 - 1,05)	0,071
NACE I	0,69 (0,37 - 1,28)	0,243	0,62 (0,33 - 1,16)	0,135
NACE J	1,18 (0,63 - 2,22)	0,597	1,17 (0,62 - 2,21)	0,624
NACE K	0,91 (0,48 - 1,71)	0,766	0,87 (0,46 - 1,65)	0,669
NACE L	0,70 (0,37 - 1,33)	0,277	0,77 (0,40 - 1,48)	0,430
NACE M	1,03 (0,56 - 1,89)	0,932	1,05 (0,56 - 1,95)	0,883
NACE N	1,26 (0,68 - 2,35)	0,466	0,90 (0,48 - 1,69)	0,737
NACE P	0,60 (0,31 - 1,16)	0,126	0,56 (0,29 - 1,09)	0,088
NACE Q	0,75 (0,40 - 1,43)	0,386	0,62 (0,32 - 1,17)	0,138
NACE R	0,82 (0,41 - 1,63)	0,574	0,87 (0,45 - 1,70)	0,691

Note: * $p < 0.05$; ** $p < 0.01$; OR – Odds Ratio; CI – Confidence Interval

Discussion

This study aimed to examine how regulatory and digitalization barriers, along with internal factors such as innovation and firm size, affect the growth of MSMEs in the EU and some accession countries. The research sought to determine the extent to which these factors influence employment and turnover growth and whether the status of being an accession country moderates these effects.

The findings reveal that a favorable legal and administrative environment contributes to business expansion, while regulatory barriers hinder growth. In Bosnia and Herzegovina, firms seem to develop adaptive strategies to mitigate regulatory challenges, making these barriers less restrictive compared to EU countries. In contrast, regulatory obstacles in Macedonia appear to have a greater impact on firm growth, suggesting that businesses in this country may be more affected by bureaucratic inefficiencies or specific institutional conditions.

Digitalization barriers play a crucial role in shaping MSME growth. Lack of IT infrastructure is a significant constraint, particularly in Macedonia, where it has a stronger negative impact on employment growth than in EU countries. However, uncertainty about future digital standards has a more pronounced effect in Macedonia, suggesting that firms in this region might be proactively adjusting their growth strategies in anticipation of regulatory changes.Skill shortages represent another critical factor influencing business expansion. In Bosnia and Herzegovina, firms experience fewer restrictions due to skill gaps compared to EU countries, potentially due to alternative workforce development strategies. However, in Macedonia, the negative impact of skill shortages on turnover growth is stronger, indicating that firms struggle more with revenue expansion due to workforce limitations. Financial constraints are also more restrictive in Kosovo, where limited access to financial resources poses a significant obstacle to business growth.

Innovation emerges as a key driver of firm expansion, with businesses introducing new products and processes experiencing higher growth rates. However, in Bosnia and Herzegovina, the effects of innovation on employment and turnover growth are lower than in EU countries, suggesting that firms in this region face greater difficulties in translating innovation into business success.

Firm size remains an important determinant of growth, with larger firms being more likely to expand both in employment and revenue. Resistance to change, particularly in Macedonia, negatively impacts both employment and turnover growth, highlighting the importance of fostering adaptability and strategic flexibility among businesses.

Although this study provides a comprehensive analysis of the factors influencing employment and turnover growth, several limitations should be acknowledged. First, the study is based on secondary and cross-sectional data, which restricts the ability to establish causal relationships. While logistic regression models identify significant associations, future research could employ longitudinal studies or experimental approaches to better determine cause-and-effect relationships. Second, the data relies on self-reported information, which may introduce biases such as social desirability bias or recall bias. Future studies could incorporate objective business performance data, including financial statements or employment records, to improve the accuracy of the findings. Third, the research focuses on a specific set of countries, including Bosnia and Herzegovina, Macedonia, and Kosovo, which allows for regional comparisons but may limit generalization to other economic and regulatory environments. Future research could expand the geographical scope to include other accession countries that were not covered in this study, allowing for a more comprehensive analysis of business growth dynamics in economies undergoing the EU accession process.

Finally, this study highlights the role of innovation in business growth, but further research could explore the different types of innovation (e.g., product vs. process innovation) and their specific effects on firm performance. Conducting sector-specific analyses could also provide a more detailed understanding of growth challenges across different industries.

Appendix

TABLE A.1 – Sample caraterization

		N	%
Age	2019 and after	115	1,0%
	Between 2015 and 2018	1131	10,3%
	Between 2000 and 2014	4762	43,2%
	Before 2000	5024	45,5%
Size	1 to 9 employees	6317	57,3%
	10 to 49 employees	2985	27,1%
	50 to 249 employees	1730	15,7%
NACE	B - Mining and quarrying	39	0,4%
	C - Manufacturing	2130	19,3%
	D - Electricity, gas, steam and air conditioningsupply	53	0,5%
	E - Water supply,sewerage,waste management/remediation activities	108	1,0%
	F - Construction	1108	10,0%
	G - Wholesale and retail trade, repair of motor vehicles and	3169	28,7%
	H - Transportation and storage	631	5,7%
	I - Accommodation and food service activities	598	5,4%
	J - Information and communication	446	4,0%
	K - Financial and insurance activities	235	2,1%
	L - Real estate activities	260	2,4%
	M - Professional, scientific and technical activities	1118	10,1%
	N - Administrative and support service activities	460	4,2%
	P - Education	200	1,8%
	Q - Human health and social work activities	327	3,0%
	R - Arts, entertainment and recreation	150	1,4%

Country	France	419	3,8%
	Belgium	418	3,8%
	The Netherlands	395	3,6%
	Germany	398	3,6%
	Italy	341	3,1%
	Luxembourg	166	1,5%
	Denmark	407	3,7%
	Ireland	354	3,2%
	Greece	427	3,9%
	Spain	411	3,7%
	Portugal	413	3,7%
	Finland	425	3,9%
	Sweden	405	3,7%
	Austria	411	3,7%
	Cyprus (Republic)	163	1,5%
	Czech Republic	393	3,6%
	Estonia	334	3,0%
	Hungary	418	3,8%
	Latvia	425	3,9%
	Lithuania	427	3,9%
	Malta	152	1,4%
	Poland	405	3,7%
	Slovakia	333	3,0%
	Slovenia	437	4,0%
	Bulgaria	359	3,3%
	Romania	408	3,7%
	Turkey	249	2,3%
	Croatia	422	3,8%
	North Macedonia	175	1,6%
	Serbia	168	1,5%
	Bosnia and Herzegovina	182	1,6%
	Kosovo	192	1,7%

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Albania's National Security in the Digital Age: An Analysis of the Role of Cyber Security

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Abstract

Modern technology, and in particular the Internet, has brought tremendous benefits in the global communications sphere, enabling rapid, economic and independent interaction by geographic distance. Like any new technology made available to a large number of users, the Internet presents not only positive things and benefits, but at the same time a number of problems. However, technological advances are accompanied by numerous risks, which come mainly through the misuse of these technologies by criminal elements. In this context, cybercrime has emerged as one of the main threats, affecting individuals along withorganisations and states. In Albania, the increase in internet use has increased the risk of organized crime through the use of technology. Cyber crime has been a progressive increase. However, it should be noted that today there is still a legal vacuum regarding the treatment of organised forms of cybercrime in Albania. This legal vacuum has led to the lack of treatment of this phenomenon (organized cyber crime) by the Court and the Prosecution. Today, it is widely discussed about the types of organized criminal groups that carry out these types of activities. The variety and opportunities that the visible and underworld offers, or invisible in the cyberspace (deep web or dark-nets) allow the spaces for criminal forms to be diversifying, leaving classical frameworks of organized crime. The article analyzes the approach to cyber risks, stressing that awareness of these risks and adaptation of safeguards is necessary. In addition, the argument that absolute security cannot be achieved is a central idea, one that requires a flexible and sustainable approach to dealing with threats that evolve in parallel with technological development. Building on this philosophy, a comprehensive national security and cyber security strategy for Albania is a necessary step to address the challenges of the digital age and protect national security.

***Keywords**: (Cyber security; cybercrime; information security; national strategy; national security)*

Introduction

Often security is treated in a segmental way, implementing specific solutions to disconnected problems. Security specialists all agree that the security element, whether in the traditional or cyber or virtual sense, must be placed and designed at the foundation of the structure we want to protect.

To achieve this objective, a comprehensive strategy is needed. Without this strategy, we will not be able to implement the most efficient solutions and have results. Our tourism is represented by a wonderful nature which we are slowly cementing and breaking down with country and country constructions, above all, without harmony. Let's not make the same mistake. (Liu, 2021)

Reflecting a national security strategy that summarizes within it and a strategy on information security is necessary. This strategy will force us to reflect on the nature of the values we desire and judge that need to be defended. In the framework of a comprehensive strategy we can determine what the risks that are in our face, what is the reality we have to face, what is the probability that these risks will be realized and what their impact will be on the values or assets we want to protect.

Only in this way can we put in place the most effective means of preventing risks. Only building a coherent strategy will enable us to understand which segment that weak link is located that endangers the entire system. And all this cannot be solved only by an implementation of technical measures, but by understanding and integrating the functioning of technology, process and human factor. (Peck, 1983)

Playing with people's fears is a method used by security bodies often prone to an increase in budget or benefits of different natures. However, the logic of this reflection was motivated by something diametrically opposite. They say that not knowing and not acting is wrong, but knowing and continuing to do so is the fault of the cyber researcher.

Review of the Literature on Cyber Security and Cyber Threats

Cyber security is an area of particular importance for the political and economic stability of states, being influenced by technological advancements and global information interconnection. Recent studies point out that the information society is a fulsive of industrial society, where information and knowledge are strategic resources. Telecommunications technologies, particularly the internet, have become key tools for information exchange, but also pose new cybersecurity risks.

Cyberattacks have intensified significantly, including attacks on critical information infrastructure, data manipulation, espionage and disinformation. The Estonian case (2007) represents one of the largest cyber attacks on a country, which was influenced by coordinated DDoS attacks. Also, reports on cybersecurity show that cybercrime spreads at alarming paces, due to the open nature of the internet and the lack of a universal legal framework applicable globally. (Kibernetike, 2024)

To address cybersecurity challenges, countries have been trying to improve defense legislation and strategies. Albania has adopted the National Cyber Security Strategy 2021-2023, focusing on protecting critical information infrastructures and integrating European directives. The case of the 2022 cyberattack on Albania's state infrastructure, attributed to Iranian actors, prompted the need for new safeguards and enhanced cooperation with NATO and other international organizations. (ALIAJ, qershor 2023)(Klorenta PASHAJ, 2025)

The challenges for Albania in this regard are related to the lack of technical resources and human capacities to cope with emerging threats. The analysis shows that integrating artificial intelligence and advanced analysis can help predict attacks and reinforce cyber defenses).(Klorenta PASHAJ, 2025)

Hypothesis and Research Question

The hypothesis of this study is cyber security is not only a technical issue, but a strategic component of national security, which directly affects the political, economic and social stability of a state. The research question posed is: How does information security affect the stability and protection of national interests in a country like Albania?

Expected results

Based on existing analyses, the study is expected to show that:

- Cyber security has a direct impact on maintaining national stability.
- Cyberattacks can be used as destabilizing tools by state and non-state actors.
- Improving technical and legal capacities is a must to ensure effective protection of critical infrastructure.
- The integration of artificial intelligence and advanced analytical techniques will strengthen predicting and responding to cyber attacks.
- Cyberattacks in the Western Balkans region have increased by 35% in the period 2020-2024, directly affecting the financial sectors and government infrastructure.
- Albania has experienced a 50% increase in cyber attacks during 2022, compared to 2021, according to the National Cyber Security Authority.

Cyber Attacks and Their Impact

In the Western Balkans, cyberattacks have become more sophisticated, targeting critical sectors, such as banks and government institutions. Cases like the one of the attack on Credins Bank and Intesa San Paolo show that financial security is turning into a frequent target of cyberattacks. Also, disinformation strategies have become more common, being exploited to destabilize public opinion and domestic politics.(Klorenta PASHAJ, 2025)

- Increased cyber attacks in Albania (2020-2024)
  - 2020: 150 reported attacks
  - 2021: 200 attacks
  - 2022: 300 attacks
  - 2023: 350 attacks
  - 2024: 400 attacks

FIG. 1 The increase in cyber attacks in Albania from 2020 to 2024.



- The worst cyber attacks in Albania (2023)
  - Financial Sector: 40%
  - Government infrastructure: 30%
  - Private business: 20%
  - Individuals: 10%

FIG. 2 The sectors most affected by cyberattacks in Albania during 2023,
where the financial sector is most at risk with 40% of attacks. Cyber Security Role in Albania (2020-2024)



FIG. 3

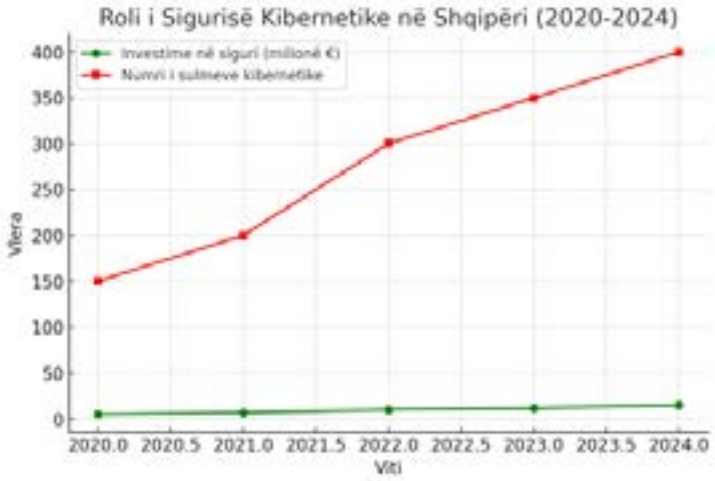


Fig 3, shows the evolution of cyber security investments in Albania and the increase in the number of attacks from 2020 to 2024

Place information security in national security strategy

In one hand, national security as a concept is considered as a guarantee of the exercise of human rights and as such is one of the most important duties of a state. This guarantee, pursuant to Article 12 of the Declaration of Human Rights, must be met by a public force which equally protects the broad interests of the entire population and not only those to whom it is entrusted.

On the other hand, at this beginning of the 21st century, information, treated in all possible forms, electronic or traditional, constitutes a real asset for individuals and private and state bodies and is considered a strategic resource around which what is now called the information society develops. It is not the first time that technology and related innovations have been at the base of profound changes for society: yesterday, with innovations in the fields of energy and today, with the diversification of knowledge and information through new telecommunications technologies.

This concept of the information society, as a continuation of the industrial society of some years ago, puts at its center information and knowledge, as well as the way of their conduct without geographical and time limits. Telecommunications technologies (and among them the most widely used is the Internet) are a very important and unavoidable vector for most activities. This reality is illustrated by the increasingly important place that is taking into our daily lives what is called the virtual space (cyberspace), which is increasingly changing traditional time and geographic boundaries and the way we live and think nowadays. (Liu, 2021)

In this prism, information as an economic engine of development, is an intangible good that requires protection in the height of its values and importance, on the part of individuals, organisms and above all, the State. Crimes aimed at manipulating, deleting, modifying, surveillance, spying on information circulating in communication networks may directly affect the interests of an individual, an organism, or a State.

Thus, information security is directly linked to the sovereignty of a state which passes away from the protection of critical infrastructures, systems and networks, of the cultural assets of the nation, of material and non-material goods, summed up in a single word: the protection of values.

In the circles of security specialists, the consideration of information security issues is often treated as a problem entirely related to a technical dimension and often as a demagogy or virtual problematic. Unfortunately, the facts have only partially given this way of thinking right.

Indeed, these virtual attacks have had more than real results, with a very negative balance for public or private bodies. For illustration, let's take the example of Estonia, a sovereign state and member of euro-Atlantic bodies, as summarized today in the language of politics we consume daily, the European Community and NATO bodies. After the removal of the Statue of a Soviet soldier from a park in Estonia's capital, a massive attack on Estonia's information infrastructure caused these infrastructures to stop functioning, creating total chaos in the country's economy.

This attack used a not-very-complicated "flooding" technique through ghost computers (bootnets) over the Estonian infrastructure, which overloaded the network in such a way that the latter could not cope with the load and ceased to function. Estonian Defence Minister Jaal Aavisko would tell The New York Times 1: We are dealing with a situation affecting national security, comparable to a situation where your ports are bombed by the sea. In this prism the results of a virtual attack are effectively more than real.

The National Security Strategy states that :"Albania ranks among the countries where telecommunications development, internet access and socialization of society progress rapidly. Increasing communication is an added value in the economic and social development of the country, but at the same time exposes it to cyber-nature risks with state and non-state actors. Cyberattacks have the potential to severely damage information exchange in public institutions, telecommunications and financial and banking systems, causing disruption to vital services. (Mbrojtjes, 2014)

For this reason, the security of these communications and information networks is of particular importance. Albania ranks among the countries where telecommunications development, internet access and computerisation progress very quickly. But the increase in the use of online communication, although it is an added value in the economic and social development of the country, at the same time exposes it to the dangers of cyber nature with state and non-state actors. To address the issues of cybercrime security, Albania has taken a series of institutional and legal steps in an effort to cope with this phenomenon. The Cyber Security Strategy outlines current challenges in the security issues of the interconnection and information system. themes and key points to meet these challenges.

A range of factors, such as the speed of technological developments, the dynamics and complexity of the use of cyberspace, put the Albanian state ahead of real challenges for capacity building for cyber defence, along with policies, guidelines, coordination and monitoring procedures. Some of the challenges that characterize this situation and Their orientations for the future include: (Cyber Defence Strategy 2018-2020)

Cyberspace, which any human being can use without time and geographical constraints, offers asymmetrical advantages to malicious attackers, not those who are protected. As a result of sophisticated methods, the development of technological tools of cyberattacks or the sponsorship of these attacks by states are serious, ever-increasing threats to national security.

To prevent further exacerbation of these threats, the creation of a "free and fair cyberspace" should be parallel to the creation of a "secure cyberspace";

- **Internet development** and new computer systems, industrial control systems, mobile phones, memory and laboratories make us more efficient, but more vulnerable in the environment where we perform functional tasks;
- **Social networks :** A particular challenge for open societies is the use of digital communication to influence public opinion, for example through hidden efforts to influence social media discussions and manipulation of information on news portals. This approach has already taken on particular importance as an element of hybrid warfare;
- **Cybercrime:** Developing an invisible marketplace, easily accessible to buy and sell information, as well as marketing cybercrime tools, has created facilities for criminals to take advantage of this ever-increasing opportunity for malicious purposes and benefits.
- **Privacy:** Personal privacy is also threatened due to new methods of communication and ways of using information systems and the Internet.
- **Anonymity:** Cyberspace has no physical boundaries. Attackers on the field cybersetting are different and the difficulty of identifying makes it easier to work Theirs (from individual hackers to organized criminal groups and states), p.sh. Hackers and cyber criminals can use the advantage of methods to launch attacks that They are unreadable and difficult to eliminate.

At 300 milliseconds, a tasting attack can travel the world twice, but scientists in turn to identify a cyber attacker can spend weeks, months and years. Countermeasures are always overdue and hackers find vulnerabilities and exploit them for their own sake. Financial constraints: Financial constraints are the biggest possible challenge. Given that cyber defense for many countries and organizations is a priority as a concept and strategy, investments in "cyber defence" should be at the level corresponding to the actual risk. (Mbrojtjes, 2014)

Digital Sovereignty and Strategic Autonomy

Digital sovereignty refers to the EU's ability to control and protect its digital infrastructure from external influences, including control over data, software and hardware. The EU has divided digital sovereignty into three main areas: citizens, industry and politics (EU JOIN, 2017). Strategic digital autonomy aims to ensure that the EU can use secure and independent technologies from third party influences (Timers, 2019). One of the eu's main cybersecurity challenges is the risk of losing control over the information and algorithms that process it. Threats include cyber attacks on critical infrastructure, including energy, transportation and healthcare sectors. Another challenge is the lack of cybersecurity experts, making it difficult to retain skilled professionals in this field. (Couture & Toupin, 2018)

To assess cyber security, the EU used cyber readiness index (CRI) 2.0, which includes seven key elements: national strategy, incident response, law enforcement against electronic crime, information exchange, investment in research and development, diplomacy and crisis protection (Institute for Policy Studies, 2015). This index helps measure national capabilities to address cyber threats. The EU has taken important steps to strengthen cyber security, including the establishment of the European Union Cyber Security Agency (ENISA), which has identified and ranked the top 10 cybersecurity threats by 2030 (ENISA, 2023). Furthermore, the EU has promoted the development of a strong legal and regulatory framework to ensure the protection of critical infrastructure.

Conclusions and Recommendations

In conclusion, the analysis shows that cyber security is essential to protecting national sovereignty and economic stability. Cyberattacks are not only technical but also strategic threats that can destabilize a country. For this reason, national cybersecurity policies must be updated constantly to address emerging threats.

Strengthening legislation – Harmonising national regulations with international standards on cyber security is needed.

Technical and human capacity development – Investing in training and education for cyber security specialists.

International cooperation – Increasing partnerships with international organizations such as NATO and the EU for information sharing and technical support.

The use of new technologies – Integrating artificial intelligence and data analysis to improve protection against cyber attacks.

Raising public awareness – Educational campaign for citizens and businesses to understand the importance of cybersecurity and defensive methods.

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Battleground Balkans: The EU's Struggle Against Hybrid Threats and Foreign Influence

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Abstract

The Western Balkans remain a crucial battleground for geopolitical competition, where hybrid threats—spanning disinformation campaigns, cyber warfare, economic coercion, political interference, and energy dependency—undermine both regional stability and efforts for European integration. External actors, particularly Russia and China, exploit these tools to weaken democratic governance, disrupt Euro-Atlantic aspirations, and diminish the EU's influence in the region.

This paper examines the EU's evolving response to these threats, focusing on legal, political, and institutional mechanisms aimed at enhancing security resilience. Using North Macedonia as a case study, the analysis explores the effectiveness of EU-supported initiatives in countering foreign malign influence, strengthening democratic institutions, and fostering societal resilience. The paper argues that mitigating hybrid threats in the Western Balkans is not only a security imperative but also a test of the EU's strategic credibility and geopolitical competitiveness.

Addressing these challenges requires a recalibrated approach that integrates security policies, regulatory frameworks, and enhanced regional cooperation to safeguard the EU's long-term influence and stability in its immediate neighborhood.

Keywords: *Hybrid Threats, Foreign Influence, European Union, Western Balkans*

Introduction

The Western Balkans, a historically contested region at the crossroads of Europe, remains a critical arena for geopolitical competition. Today, this contest is no longer waged solely through conventional diplomatic or military means but increasingly through sophisticated hybrid strategies. These encompass cyber warfare, economic coercion, political interference, and disinformation campaigns, presenting complex challenges to both regional stability and the European Union's integration agenda.

The legacy of unresolved ethnic tensions, fragile democratic institutions, and structural economic vulnerabilities has left the region particularly susceptible to such threats. External actors—most notably Russia and China—have capitalized on these weaknesses to expand their geopolitical footprint, directly undermining the EU's long-standing objective of stabilizing the region through democratic reform and enlargement.

The full-scale invasion of Ukraine by Russia has heightened the strategic significance of the Western Balkans. Although the EU continues to be the main economic partner and institutional benchmark for the region, ongoing internal conflicts and a slow enlargement process have led to a strategic void that external powers have swiftly taken advantage of. Concurrently, China's Belt and Road Initiative, along with focused cultural diplomacy, has added new dimensions of influence, complicating the EU's capacity to maintain stability and bolster democratic resilience.

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Hybrid Threats in the Western Balkans: Key Actors and Strategies

Conceptualizing Hybrid Threats in Geopolitical Competition

Hybrid threats have emerged as a defining feature of contemporary international relations, especially in regions characterized by persistent geopolitical competition, such as the Western Balkans. Hoffman (2007) originally conceptualized *hybrid warfare* as the convergence of conventional military force and irregular tactics, including guerrilla warfare and terrorism, within a unified battlespace. Over time, this framework has evolved to encompass a wider array of non-kinetic instruments—such as cyber operations, disinformation, and political interference—designed to exploit systemic vulnerabilities while remaining below the threshold of direct military confrontation (Rid, 2020).

The Western Balkans' legacy of ethnic conflict, unresolved bilateral disputes, and fragile institutional structures renders the region particularly vulnerable to these complex strategies. Recognizing its strategic salience, both Russia and China have refined their influence operations to shape public opinion, obstruct Euro-Atlantic integration, and foster structural dependencies. These efforts are further enabled by patterns of competitive authoritarianism, in which ruling elites preserve the façade of democracy while systematically eroding checks and balances—a phenomenon extensively documented in the region (Bieber, 2018).

The logic of hybrid threats reflects the changing nature of modern conflict: rather than aiming for territorial conquest or outright military victory, external actors seek to weaken institutional cohesion, undermine democratic credibility, and destabilize governance through protracted, deniable actions. While Hoffman's (2007) model illustrates the operational fusion of state and non-state tactics, Rid (2020) underscores that the primary objective of hybrid operations is to erode political trust and disable adversarial systems without triggering open warfare. In the Western Balkans, such tactics allow authoritarian actors to exert strategic influence over vulnerable democracies without provoking overt confrontation or escalation.

To better understand these mechanisms, scholarly literature distinguishes between soft power and more coercive modalities. Nye's (2004) concept of soft power emphasizes attraction through culture, values, and diplomacy. In contrast, Walker and Ludwig (2017) introduce the concept of sharp power—the strategic use of media, education, and information by authoritarian states to distort, manipulate, and penetrate the information environments of democratic societies. China's Confucius Institutes and state-sponsored media partnerships, along with Russia's deployment of ethno-nationalist narratives via Orthodox Church networks, exemplify how sharp power tactics are leveraged not merely to persuade but to reshape the target environment in favor of authoritarian norms.

These dynamics are further illuminated by Levitsky and Way (2010), who describe how competitive authoritarian regimes preserve the formal architecture of democracy—elections, independent media, and pluralism—while simultaneously undermining them through informal mechanisms such as patronage, coercion, and media capture. In the Western Balkans, these tendencies are evident in widespread state capture, politicized media systems, and opaque governance, all of which create fertile ground for foreign interference. The intersection of hybrid threat theory with the literature on authoritarian resilience offers a compelling framework for understanding not just *how*, but *why* actors like Russia and China employ hybrid strategies to shape the region's institutional and political evolution.

Disinformation and Information Warfare

Disinformation remains one of the most visible and effective tools of hybrid influence in the Western Balkans. Russian-backed media outlets such as RT Balkan and Sputnik Serbia actively disseminate narratives designed to promote Euroscepticism and exploit ethnic divisions. These campaigns frame the EU as a neo-colonial force and present Russia as a historical ally and protector of Slavic and Orthodox Christian values. According to the European External Action Service (2025), such operations are increasingly structured, with coordinated digital amplification tactics and cross-platform distribution networks that enhance their reach and perceived legitimacy.

The 2018 referendum in North Macedonia on the country's name change offers a well-documented example of Russian disinformation tactics. Coordinated information operations—amplified through social media platforms and pro-Russian outlets—sought to delegitimize the referendum by portraying it as a threat to national sovereignty and cultural identity (Petreski, 2018). These efforts aimed to suppress voter turnout and undermine public trust in the country's Euro-Atlantic integration path, particularly its accession to NATO and the European Union (Stronski & Himes, 2019). By framing Western alignment as a betrayal of national values, these campaigns weaponized historical grievances to cultivate a narrative of cultural siege.

In contrast, China's information influence in the Western Balkans is subtler yet strategically orchestrated. Through state-backed media cooperation, content-sharing agreements, and public diplomacy efforts, Chinese narratives promote the Belt and Road Initiative as a benign, development-driven enterprise. These portrayals emphasize economic opportunity and infrastructural progress while intentionally downplaying potential risks related to political leverage or institutional dependence. Such framing seeks to normalize Chinese presence as non-threatening and apolitical, reinforcing a narrative of mutual benefit

and pragmatic engagement (Vangeli, 2017; Pavlićević, 2019). Underlying both authors' analyses is the assumption that China's rise in the region is not merely economic but deeply political—structured to recalibrate the geopolitical balance by offering an alternative model of global engagement, one that prioritizes infrastructural diplomacy over normative alignment. This suggests that China's approach to influence is fundamentally relational: it embeds power not through direct confrontation, but through the cultivation of asymmetric dependencies that appear cooperative on the surface but carry strategic implications over time.

China's Soft Power and Strategic Messaging

China has steadily expanded its soft power toolkit across the Western Balkans, with North Macedonia serving as a particularly strategic focal point. As Krstinovska (2022) documents, Beijing's efforts in the region encompass a wide array of cultural and educational initiatives, including the establishment of Confucius Institutes, academic exchange programs, state-media partnerships, and public diplomacy campaigns. These mechanisms are carefully curated to promote a favorable image of China while fostering long-term channels of influence among local elites.

One notable example is the "Ni Hao" television series, broadcast bi-weekly on Telma, a national television station in North Macedonia. Sponsored by the Chinese Embassy, the program blends cultural content and language education with portrayals of China as technologically advanced, historically rich, and ideologically neutral. Its stated objective is to present "China the way it is," emphasizing achievements in architecture, medicine, philosophy, and innovation, while subtly promoting the narrative of China as a global leader and model for development. In line with Joseph Nye's expanded conception of soft power as the ability to shape the preferences of others through attraction rather than coercion, such initiatives are not merely cultural but strategic in intent (Nye, 2004). They work to set the agenda and define what is seen as legitimate or desirable within public and elite discourse.

Such outreach serves more than just image-building purposes. It plays a strategic role in cultivating elite familiarity with Chinese governance models and enhancing China's discursive power in the region. Scholarships, bilateral training initiatives, and joint educational projects create structured opportunities for future political and administrative elites to engage with Chinese institutions. These soft power instruments, while framed as benign, lay the groundwork for long-term influence by embedding positive perceptions of China among decision-makers and opinion leaders.

Cybersecurity Threats and Digital Influence

The cybersecurity domain has become a critical frontier for hybrid threats in the Western Balkans. Russian state-linked groups—particularly APT28 (also known as Fancy Bear), associated with the GRU—have been implicated in cyber intrusions targeting government institutions in Montenegro, especially during politically sensitive events such as the 2016 coup attempt and NATO accession process. These operations aimed to erode public trust, compromise institutions, and signal Moscow's regional reach without open confrontation (NATO Strategic Communications Centre of Excellence [StratCom COE], 2021; CyberScoop, 2017). For instance, during the 2016 parliamentary elections, Montenegro experienced large-scale distributed denial-of-service (DDoS) attacks on state webpages and phishing campaigns directed at parliamentary institutions (CyberScoop, 2017).

Simultaneously, China has expanded its digital footprint across the region. Huawei, a central actor in China's tech diplomacy, has been involved in developing 5G networks, Smart City infrastructure, and surveillance systems in multiple Western Balkan states. These systems, while marketed as development initiatives, raise significant concerns about data sovereignty, digital privacy, and technological dependency. Analysts argue that the integration of Chinese digital technologies poses strategic risks and undermines efforts to align the region with EU cybersecurity standards (StratCom COE, 2021).

Economic Coercion and Energy Dependence

Hybrid influence in the Western Balkans is also exerted through economic statecraft. Russia has long leveraged its dominance in regional energy markets, particularly via Gazprom, to entrench economic dependency and obstruct diversification. In countries such as Serbia, Bosnia and Herzegovina, and North Macedonia, Moscow has utilized pipeline infrastructure, long-term contracts, and preferential pricing to consolidate its role as the primary energy supplier. In Serbia, for instance, approximately 90% of natural gas imports originate from Russia via the TurkStream pipeline, reinforcing deep structural reliance. This dependency not only enhances Moscow's geopolitical leverage but also complicates the European Union's efforts to promote energy diversification and reduce Russian influence in the region (Atlantic Council, 2023; Reuters, 2025).

China's expanding economic footprint under the Belt and Road Initiative (BRI) has significantly reshaped the infrastructural and financial landscape of the Western Balkans. In countries such as Montenegro and Serbia, large-scale infrastructure projects—including highways, energy plants, and industrial zones—have been financed by opaque, high-interest loans from Chinese state banks. These financial arrangements often lack transparency, increase debt exposure, and fail to meet EU procurement or environmental standards. Such dependencies may compromise recipient states' willingness to align fully with

EU policy norms, thereby weakening the leverage of conditionality (The Vienna Institute for International Economic Studies, 2025).

For instance, Montenegro's highway project, funded by a Chinese loan, has raised concerns over debt sustainability and environmental impact. The project has been criticized for its high cost and lack of transparency, leading to increased scrutiny from the European Union and other international observers (European Parliament, 2022).

Regional Cases: Serbia and Bosnia and Herzegovina

While North Macedonia offers a revealing case study of hybrid threats, the cases of Serbia and Bosnia and Herzegovina expose deeper structural vulnerabilities and more entrenched foreign influence mechanisms.

In Serbia, the hybrid threat landscape is shaped by deep-rooted historical, cultural, and political affiliations with Russia, which positions itself as the protector of Slavic and Orthodox Christian values. Serbia often engages in strategic hedging, navigating between its EU accession path and strong diplomatic, military, and economic ties with both Russia and China (Freedom House, 2022). Russia's influence in Serbia is multi-layered. RT Balkan and Sputnik Serbia operate with official licenses and command a wide audience, serving as core instruments for disseminating Kremlin-aligned narratives. These outlets amplify anti-NATO sentiment, frame the EU as hegemonic, and echo Russian positions on the Kosovo question (Reporters Without Borders, 2024). Politically, Serbian elites often parrot Russian talking points on territorial sovereignty and great-power pluralism. Following the 2022 Russian invasion of Ukraine, Belgrade witnessed pro-Russian street demonstrations, with parallel displays of Russian and Serbian flags symbolizing cultural and ideological alignment (Freedom House, 2022).

In Bosnia and Herzegovina, the hybrid threat environment is shaped by ethnopolitical fragmentation and institutional paralysis. The Republika Srpska, under Milorad Dodik, has become a major conduit for Russian influence. Dodik's secessionist rhetoric, frequent rejection of NATO integration, and open support from Russian officials reflect Moscow's intent to destabilize Bosnia's Euro-Atlantic trajectory (Bechev, 2019; NATO StratCom, 2023). Russian-language media have actively amplified these narratives, presenting Dodik as a legitimate voice of regional autonomy. China, though less overt, is increasingly active in economic and technological domains in both countries.

In Serbia, China has invested heavily in the mining, steel, and surveillance sectors. These investments, many under opaque terms, raise environmental concerns and governance challenges (Freedom House, 2022). Notably, Chinese surveillance systems and facial recognition cameras have been installed in Belgrade as part of joint public security initiatives. Even more symbolically, joint police patrols between Serbian and Chinese officers have blurred the boundaries between civil law enforcement and strategic security alignment (Atlantic Council, 2021; Freedom House, 2022).

Both Serbia and Bosnia suffer from low media literacy, polarized public discourse, and a fragile rule of law. These systemic weaknesses provide fertile ground for external actors to entrench influence, derail reform agendas, and undermine EU conditionality. The result is not just influence, but institutional erosion, where democratic procedures persist, but their normative substance is gradually hollowed out under foreign-aligned clientelist networks.

Expanding the Hybrid Toolkit: Infrastructure, Tech, and Influence

Hybrid threats in the Western Balkans have evolved beyond traditional cyberattacks and disinformation campaigns to encompass strategic infrastructure entanglement and technological dependency. This shift reflects a deliberate strategy by external actors, particularly China and Russia, to align Balkan governance structures with authoritarian norms and strategic subordination (European Commission, 2022).

China's Digital Silk Road exemplifies this transformation. The initiative integrates financing, technology, and infrastructure—such as smart cities, broadband systems, surveillance networks, and 5G rollouts—into development frameworks that deepen structural dependencies. In Serbia, for instance, Huawei has been a key partner in developing smart city infrastructure, offering low-cost financing and technology solutions that bind local governments into long-term technical and political alignments (Haxhixhemajli, 2025). While these systems are presented as apolitical modernization efforts, they raise significant concerns regarding data sovereignty, procurement transparency, and compatibility with EU digital regulations (Lemoine & Gaudillière, 2023).

A notable case is Montenegro's Bar-Boljare highway project, financed by a nearly $1 billion loan from China's Exim Bank. The project has been criticized for cost overruns, lack of oversight, and environmental degradation, highlighting the risks associated with non-EU funding mechanisms (Balkan Insight, 2021). Although Chinese capital is often more accessible, its long-term implications include strategic compromises and diminished policy autonomy. Russia, on the other hand, reinforces economic dependency through energy diplomacy. Gazprom's dominance in Serbia and Bosnia and Herzegovina maintains Moscow's influence over fuel pricing and supply, particularly during politically sensitive periods. Despite EU efforts to diversify energy sources via LNG terminals and cross-border grids, progress remains sluggish due to political inertia and entrenched elite interests (European Commission, 2022).

Complementing these hard power tools are soft power mechanisms. Russia funds Orthodox Church initiatives, wartime commemorations, and shared historical narratives to foster a sense of common identity and challenge Western alignment (Galeotti, 2019). China employs Confucius Institutes, scholarships, and language programs to establish elite-to-elite connections that promote long-term goodwill and ideological alignment (Krstinovska, 2022).

Collectively, these strategies result in systemic entrenchment. By targeting infrastructure, education, and elite networks, China and Russia embed themselves into the institutional and sociopolitical fabric of the Western Balkans, undermining EU cohesion and raising serious concerns about the Union's capacity to uphold democratic resilience and regulatory sovereignty in its immediate periphery.

Comparative Hybrid Toolkit: Russia vs. China in the Western Balkans

Domain	Russia	China
Information Warfare	Disinformation via RT Balkan, Sputnik; ethnic and anti-EU narratives	State media partnerships; positive messaging through BRI coverage
Cyber Operations	APT28 (Fancy Bear) cyberattacks on gov't institutions, elections	Digital infrastructure via Huawei raises concerns about data security
Political Influence	Support for secessionist elites (e.g., Republika Srpska); pro-Russian parties	Elite networks via scholarships, CCP-linked training, Confucius Institutes
Energy Leverage	Gazprom controls fuel supply in Serbia, Bosnia	Infrastructure loans for energy sectors tied to Chinese contractors
Economic Coercion	Targeted investment to delay EU diversification efforts	Debt entrapment via BRI (e.g., Montenegro highway loan)
Cultural Diplomacy	Orthodox Church ties; historical revisionism	Mandarin programs; cultural TV; Confucius Institutes

Methodology

This study uses a qualitative case study approach to examine hybrid threats in the Western Balkans, focusing on the EU's response in North Macedonia. Hybrid threats—including disinformation, cyber operations, and foreign interference—are assessed through a triangulated methodology combining policy analysis, document review, and media monitoring.

Primary sources include EU, NATO, and national strategic frameworks, with supplemental data from the European External Action Service (EEAS), ENISA, and Freedom House. These inform evaluations of institutional readiness and foreign influence patterns. Disinformation analysis draws on fact-checking groups and the EUvsDisinfo platform, especially around key events like the 2018 name referendum. Though cyber attribution is limited, increased digital intrusions during political milestones suggest coordinated external campaigns.

North Macedonia was chosen for its relevance as a NATO member and EU candidate, with notable exposure to Chinese and Russian influence in digital and media domains. Contextual insights were also drawn from literature on authoritarian strategies and informal input from journalists and policy experts.

This multi-source, interdisciplinary approach enables a focused assessment of how hybrid threats manifest and how EU instruments respond in a politically contested and strategically pivotal environment.

The European Union's Response to Hybrid Threats in the Balkans

Legal and Policy Frameworks

Hybrid threats have become central to EU security discourse, especially following Russia's aggression in Ukraine. Key frameworks such as the EU Global Strategy (European External Action Service [EEAS], 2016), the Cybersecurity Strategy (European Commission, 2020), and the Strategic Compass (EEAS, 2022) have established the legal scaffolding for countering foreign interference and enhancing security across partner states.

In 2022, the EU introduced the FIMI Toolbox to streamline responses to foreign information manipulation (EEAS, 2025a). Instruments like the Rapid Alert System and the Hybrid Fusion Cell facilitate coordination across EU institutions and with partner governments (Fasciani, 2024).

Yet implementation remains uneven. Countries like North Macedonia, not fully within EU enforcement jurisdiction, lack binding commitments to enact security reforms. Institutional fragility, limited cyber expertise, and political volatility hamper effective uptake. Despite technical assistance and funding via IPA III, the absence of regulatory leverage impedes long-term impact (European Commission, 2022).

Political and Institutional Initiatives

To address structural vulnerabilities, the EU has broadened its engagement beyond governments to civil society and media sectors. Initiatives like the Action Plan Against Disinformation (European Commission, 2018) and the EUvsDisinfo campaign (EEAS, 2023) support fact-checking platforms, journalistic training, and public resilience initiatives.

Still, these efforts often operate under fragmented, short-term funding regimes. In North Macedonia, watchdog organizations tracking Russian and Chinese narratives face resource constraints and limited policy integration (Kovalčíková, 2023). Without long-term support and institutional anchoring, such civil society actions risk remaining symbolic rather than transformative.

Strategic Coordination with NATO and the U.S.

The EU's operational reach is significantly bolstered through collaboration with NATO and the United States. NATO's Strategic Communications Centre of Excellence and CCDCOE contribute vital expertise on hybrid threat tactics (NATO, 2023; CCDCOE, 2025), while the U.S.-led Digital Connectivity and Cybersecurity Partnership (U.S. Department of State, 2025) promotes digital resilience and safeguards against malign technological penetration.

However, operational cooperation often lags behind strategic declarations. Intelligence-sharing silos, policy divergences, and bureaucratic overlaps dilute the impact of otherwise well-aligned initiatives (OSW, 2020). For the Balkans, where hybrid threats are cross-cutting and adaptive, these coordination gaps undermine collective deterrence.

Structural and Operational Limitations

Despite a broadened hybrid threat toolkit, the EU's capacity for decisive intervention is constrained by internal fragmentation and strategic ambiguity. Member state disagreements—especially regarding conditionality linked to infrastructure or tech procurement—hinder a unified front. Countries with strong commercial ties to China often resist firmer stances (European Parliament, 2022). The credibility of the EU enlargement process has also deteriorated. North Macedonia's stalled accession, despite meeting formal criteria, exemplifies how political obstructions weaken reform incentives and fuel Euroscepticism (Fasciani, 2024). Annual progress reports reference hybrid threat preparedness but lack teeth: there are no robust enforcement tools for non-compliance, nor meaningful rewards for substantive progress (European Commission, 2022). True resilience cannot be reduced to technical checklists. It requires sustained political will, institutional clarity, and credible pathways to integration. Without these, the EU risks projecting influence without securing legitimacy in its most geopolitically vulnerable neighborhood (Brethous & Kovalčíková, 2023).

Case Study: North Macedonia as a Test for EU Security Resilience

Why North Macedonia?

North Macedonia serves as a concentrated case study of hybrid threats in the Western Balkans. Situated at the crossroads of East and West and bearing a legacy of ethnic divisions, institutional fragility, and strategic ambiguity, the country is uniquely exposed to both the pressures of geopolitical competition and the promises of Euro-Atlantic integration. The 2018 Prespa Agreement, which resolved a decades-long name dispute with Greece, marked a pivotal moment in North Macedonia's Euro-Atlantic trajectory, enabling its accession to NATO in 2020. Yet this breakthrough also laid bare the country's susceptibility to external disinformation campaigns. According to the NATO Strategic Communications Centre of Excellence (2020), Russia perceived the agreement as a threat to its strategic posture in the Balkans and responded with coordinated influence operations. These campaigns sought to delegitimize the referendum, weaponizing nationalist sentiment and framing the agreement as a betrayal of national identity imposed by Western powers. At the same time, the European Union's internal divisions and the slow enlargement process have eroded the credibility of its influence. The Bulgarian veto on the opening of EU accession talks, rooted in historical and linguistic disputes, has been particularly damaging. Such blockages foster public disillusionment and amplify narratives of EU inconsistency and unreliability—narratives that are readily exploited by Russian and Chinese state media to present alternative models of partnership based on non-interference and rapid financing (AP News, 2025; Euronews, 2025).

While the EU remains North Macedonia's largest trade partner and development donor, its perceived failure to shield the country from bilateral obstructions—despite broad reforms aligned with EU standards—has weakened public trust. The hybrid threat landscape in North Macedonia is therefore not just externally constructed but also internally sustained by political uncertainty, institutional gaps, and unfulfilled European promises. In this context, North Macedonia offers a critical test case for evaluating the effectiveness, limitations, and credibility of the EU's hybrid threat posture. It highlights the need for integrated deterrence, consistent strategic communication, and political solidarity if the EU aims to remain a credible actor in a contested geopolitical neighborhood.

Russia's Hybrid Threats in North Macedonia

The 2018 name referendum in North Macedonia, tied to the Prespa Agreement, was a critical inflection point in Russia's evolving hybrid influence strategy in the Western Balkans. Leading up to the vote—which determined whether the country would adopt the name "Republic of North Macedonia" and thereby clear the path to NATO membership—Russian-linked

media outlets and online disinformation networks actively pushed narratives portraying the referendum as a Western-imposed affront to Macedonian sovereignty (Time, 2018).

According to Larrabee, Wilson, and Gordon (2021), these campaigns disseminated misleading claims on platforms like Facebook and Twitter, warning that EU and NATO membership would lead to cultural dilution, mandatory conscription, and the erosion of national identity. These narratives were amplified by local media actors sympathetic to pro-Kremlin views, creating an echo chamber effect that undermined institutional credibility and suppressed voter turnout.

While no specific cyberattack was definitively attributed to APT28 or other known actors, the referendum period was marked by heightened cyber vulnerability, with phishing campaigns, attempted website defacements, and digital misinformation mirroring patterns previously seen in Montenegro and Ukraine (ENISA, 2023; NATO StratCom COE, 2023). These incidents point to a broader hybrid toolkit that combines disruption of information ecosystems with latent cyber probing to weaken public trust in democratic processes (Lund University, 2024).

Beyond the digital sphere, Russia's influence permeates North Macedonia's political and religious sectors. Pro-Russian nationalist factions have vocally opposed Western-oriented reforms, often mirroring Moscow's anti-NATO rhetoric. At the same time, ideological and theological alignment between the Russian Orthodox Church and segments of the Macedonian Orthodox community has allowed Moscow to advance narratives of shared cultural heritage and Orthodox unity (Galeotti, 2019; Strategic Analysis, 2023). Although Russia's economic leverage in North Macedonia is less extensive than in Serbia or Bosnia, energy-related lobbying and strategic communications still play a role in discouraging alignment with EU energy diversification goals. North Macedonia remains heavily reliant on Russian gas, though diversification efforts via the Alexandroupolis LNG terminal in Greece are underway (Agenda Pública, 2024). These actions are part of a broader Kremlin strategy aimed at fracturing Euro-Atlantic consensus, exploiting regional fragmentation, and preserving Russian spheres of influence through multi-domain hybrid engagement.

China's Economic and Digital Influence

In contrast to Russia's disruptive information tactics, China has adopted a long-term strategy of economic entrenchment and normative influence in North Macedonia, emphasizing infrastructure investment, digital integration, and cultural diplomacy. As part of the Belt and Road Initiative, North Macedonia has received funding and construction support for major infrastructure projects—including highways, energy systems, and public buildings—that aim to bridge investment gaps left by delayed EU development mechanisms. However, concerns persist regarding the opacity of these deals, environmental sustainability, and the risk of long-term debt dependency (Krstinovska, 2022).

One of the most strategically sensitive areas of engagement lies in digital infrastructure. The Chinese telecom giant Huawei has played a central role in expanding North Macedonia's telecommunications ecosystem, from 4G upgrades to preliminary groundwork for a future 5G rollout. These infrastructure projects frequently include "smart city" packages involving surveillance cameras, traffic monitoring, and centralized data systems. According to Haxhixhemajli (2025), such arrangements raise critical questions about data sovereignty, cybersecurity alignment, and the strategic dependency they foster on Chinese technologies—concerns echoed by both EU and NATO cybersecurity frameworks.

Beyond hardware and infrastructure, China's soft power strategy has targeted the social and political fabric of the country. At the Ss. Cyril and Methodius University in Skopje, the Confucius Institute offers courses, scholarships, and exchanges that promote Chinese language, history, and governance narratives. In parallel, the television series "Ni Hao," broadcast on Telma TV with Chinese embassy sponsorship, presents a curated depiction of China's development, scientific prowess, and cultural heritage. As Krstinovska (2022) notes, these portrayals are not neutral—they are designed to normalize China's governance model and foster elite-level familiarity with Beijing's ideological and diplomatic posture.

What is particularly distinctive about China's influence in North Macedonia is its implicit appeal to technocratic pragmatism over normative convergence. By providing tangible infrastructure and showcasing administrative efficiency, China presents itself not as a rival to the West, but as a parallel model of development unconstrained by the bureaucratic complexities of EU accession. This soft coercion operates through attraction and asymmetrical interdependence: economic loans tied to Chinese contractors, digital infrastructure reliant on proprietary platforms, and educational exchanges that create epistemic affinity among future elites.

These tools, while less confrontational than Russian influence operations, still function strategically: they aim to create long-term dependencies, reframe regional development discourse, and offer China as a "non-Western" alternative to the EU—one that emphasizes pragmatism, mutual benefit, and non-interference over values-based conditionality. As MERICS (2021) concludes, this normative soft power strategy is a central component of China's geopolitical competition in Europe's periphery, subtly redirecting alliances toward multipolarity rather than Euro-Atlantic exclusivity.

Domestic Resilience and the Limits of EU Engagement

The European Union has invested significantly in strengthening North Macedonia's democratic resilience, particularly in the areas of electoral integrity, media literacy, and cybersecurity. Through the Instrument for Pre-Accession Assistance (IPA), the EU has financed a diverse portfolio of initiatives aimed at building institutional capacity, supporting civil society

organizations (CSOs), and promoting independent media. EU-sponsored programs have included technical training in hybrid threat recognition, capacity-building within public institutions, and partnerships with fact-checking platforms to improve public awareness of disinformation (European Commission, 2022).

Despite these efforts, the impact of EU engagement remains uneven and structurally limited. Persistent governance deficits—including politicized administration, uneven rule of law, and underdeveloped data protection frameworks—undermine the sustainability of reform. Many EU interventions are delivered through short-term project cycles, which often fail to embed resilience into national systems (Hybrid CoE, 2020).

Civil society, though active, operates in a difficult media landscape. Investigative journalists and watchdog NGOs face pressures ranging from political interference to digital harassment. These actors are essential in identifying foreign influence narratives, yet they are structurally under-resourced and frequently targeted for their exposure of Russian and Chinese activities. As highlighted by the EU Institute for Security Studies (2022), the absence of institutional protection for these actors facilitates a permissive environment for malign influence operations.

A central constraint is the credibility crisis in the EU enlargement process. Although North Macedonia has undertaken significant reforms aligned with EU standards, its accession path has been obstructed by unresolved bilateral disputes—particularly with Bulgaria over historical and linguistic recognition. These political vetoes diminish the EU's leverage and erode public faith in its promises. Russia and China capitalize on this gap by promoting themselves as consistent and development-oriented alternatives to an indecisive and conditional European project (Bechev, 2022).

The lesson is clear: resilience cannot be built on conditionality alone. Without credible strategic incentives and long-term engagement, EU-backed reforms will struggle to outlast domestic political volatility and external hybrid pressure. A recalibrated EU approach—focused on strategic consistency, structural funding, and institutional cooperation—is vital to ensure North Macedonia can withstand both coercive influence and systemic fragmentation.

Limitations

This study offers a focused analysis of hybrid threats and the European Union's strategic responses in the Western Balkans, using North Macedonia as a case study. While it draws on a wide range of authoritative secondary sources—including policy briefs, cybersecurity assessments, and media reports—it is limited by the potential biases inherent in such documents and by the lack of grassroots or informal perspectives. The single-country focus, though valuable for depth, constrains broader regional generalization due to North Macedonia's unique political and geopolitical context. Additionally, the fast-evolving nature of hybrid tactics, particularly in cyber and disinformation domains, presents challenges to the temporal relevance of the findings. The absence of primary research methods, such as interviews or field surveys, further limits insights into local perceptions and institutional resilience. Nonetheless, the study contributes meaningfully to understanding the EU's hybrid threat posture in one of its most strategically contested neighborhoods.

Policy Recommendations

To effectively counter hybrid threats and restore strategic credibility in the Western Balkans, the European Union must pursue a more assertive and integrated policy approach. The following three recommendations are designed to operationalize hybrid threat resilience within the EU's enlargement and neighborhood strategies.

Integrate Hybrid Resilience into EU Accession Criteria

Hybrid threat preparedness should be institutionalized within the EU enlargement framework. Accession candidates—including North Macedonia, Serbia, and Bosnia and Herzegovina—must adopt robust national cybersecurity strategies, enforce media pluralism, and introduce screening mechanisms for foreign investments in critical infrastructure sectors. The European Commission should condition IPA funding and enlargement evaluations on measurable progress in countering disinformation, strengthening digital governance, and ensuring regulatory transparency. Embedding hybrid threat benchmarks will align internal resilience with external integration, reinforcing the EU's normative influence.

Enhance Transatlantic Coordination Mechanisms

Given the cross-domain nature of hybrid threats, deeper alignment between the EU, NATO, and the United States is essential. A dedicated Transatlantic Hybrid Threat Task Force should be established to coordinate intelligence-sharing, cyber preparedness, and strategic communication. Joint exercises and response simulations should target electoral infrastructure, media ecosystems, and energy grids, particularly in high-risk states like Serbia and Montenegro. Unified deterrence strategies and operational coherence will maximize resilience and demonstrate transatlantic solidarity.

Diversify Energy and Digital Infrastructure Dependencies

Structural vulnerabilities arising from Russian energy dominance and Chinese digital entrenchment must be addressed through proactive diversification. The EU should scale investments in renewable energy, regional grid interconnectivity, and secure digital systems. European development banks and funding mechanisms must offer competitive financing alternatives to opaque Chinese loans. Parallel support should promote market access for Western tech firms, backed by cybersecurity and data protection compliance. Reducing strategic dependencies will enhance regional sovereignty and solidify the EU's geopolitical position in Southeast Europe.

Conclusion

The Western Balkans remain a pivotal testing ground for the European Union's capacity to confront hybrid threats, assert normative influence, and uphold its enlargement commitments. As Russia and China intensify their multidimensional influence strategies—including disinformation, cyber operations, economic penetration, and elite capture—the region's systemic vulnerabilities are increasingly weaponized against democratic consolidation and Euro-Atlantic alignment.

Although the EU has taken meaningful steps—investing in democratic reforms, media literacy, and digital security—its efforts are undermined by fragmented implementation and waning strategic credibility. Internal divisions and protracted accession timelines have created a gap between policy rhetoric and political delivery, weakening the Union's leverage and leaving space for authoritarian counter-narratives to take root.

North Macedonia illustrates both the promise and fragility of EU engagement. Despite institutional reforms and NATO accession, its stalled EU membership path and exposure to bilateral vetoes have created a vacuum of strategic uncertainty. External actors have seized this vacuum, testing both the resilience of national institutions and the resolve of the European project.

To address these challenges, the EU must move from reactive defense to proactive engagement. Hybrid threat preparedness should be embedded into the accession framework, enlargement momentum restored for reform-oriented states, and coordination mechanisms with NATO and the U.S. institutionalized. These steps are critical not only for regional resilience, but for preserving the EU's normative authority and geopolitical relevance.

The Western Balkans are not a peripheral concern—they constitute Europe's strategic frontline. Securing the region requires more than technical support; it demands coherent strategy, credible incentives, and enduring transatlantic solidarity. Only then can the EU withstand the pressures of hybrid warfare and deliver on its promise of a secure, united, and democratic Europe.

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Addressing Digital Disinformation in Albania: A Regulatory Approach

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Abstract

The digital age has dramatically reshaped the media landscape, providing unprecedented access to information while simultaneously enabling the rapid spread of disinformation. This phenomenon has posed significant challenges to public trust, democratic stability, and informed decision-making, particularly in Albania, where media regulation remains fragmented and struggles to keep pace with the evolving digital environment. This article examines the role of media regulation in addressing disinformation in Albania within an international framework. It evaluates global regulatory approaches, including legislative measures and analyzes their relevance to Albania's regulatory landscape. The research methodology employs a mixed-methods approach, combining an evaluation of international regulatory frameworks, with a quantitative survey. The survey assesses Albanian media consumers' perceptions of disinformation prevalence, media trust levels, and awareness of regulatory enforcement. The results indicate that weak enforcement of media regulations in Albania contributes significantly to the persistence of disinformation. Survey participants reported high exposure to misleading content, particularly on social media, and expressed low trust in digital platforms. Additionally, the study reveals a lack of public awareness regarding existing media regulations and skepticism about their effectiveness. The article's findings are based on a relatively small sample size (n=50), limiting the generalizability of results. Future research should incorporate larger datasets and qualitative interviews to provide a more comprehensive analysis of the regulatory challenges in Albania. This research provides an in-depth analysis of Albania's media regulation deficiencies and offers a framework for addressing digital disinformation through legal, technological, and educational strategies. Strengthening enforcement mechanisms, increasing transparency in media ownership, and improving media literacy are identified as key solutions. This research ultimately advocates for a comprehensive, multi-faceted regulatory approach that balances legal oversight, technological solutions, and public education. Strengthening enforcement measures, promoting media transparency, and adopting best practices from international frameworks will be pivotal in fostering a resilient and trustworthy digital media ecosystem in Albania.

Keywords: *Digital Age, Disinformation, Media Regulation, Albania, EU Standards*

Introduction

The digital revolution has dramatically transformed the media landscape, fundamentally altering how information is produced, disseminated, and consumed. In the digital age, social media platforms and online news outlets have become primary sources of information, but they have also become fertile ground for the rapid spread of disinformation. This phenomenon poses significant challenges to public trust, democratic discourse, and social stability. Amid these challenges, effective media regulation has emerged as a critical tool in mitigating the adverse effects of disinformation. However, the effectiveness of regulatory frameworks largely depends on their enforcement.

Albania presents a compelling case for examining the impact of regulatory enforcement on disinformation. As the country grapples with a fragmented media landscape and evolving digital consumption patterns, weak enforcement of media regulations has been identified as a major contributor to the persistence of disinformation on digital platforms. In a media environment where political influence and concentrated ownership further complicate regulatory efforts, the vulnerabilities inherent in Albania's current system are starkly apparent.

Internationally, regulatory initiatives such as the European Union's Digital Services Act and various self-regulatory frameworks have sought to address the spread of false information. Yet, the success of these models is contingent upon robust enforcement mechanisms that hold digital platforms accountable. The Albanian experience, with its enforcement gaps and regulatory deficiencies, underscores the broader challenges faced by countries in the disinformation age, where insufficient oversight can lead to the proliferation of misleading and harmful content.

This research explores the hypothesis that weak enforcement of media regulations in Albania significantly contributes to the persistence of disinformation on digital platforms. By examining both local regulatory practices and international frameworks, this study aims to provide a nuanced understanding of how enforcement deficiencies facilitate disinformation. Ultimately, the research seeks to offer policy recommendations that not only strengthen regulatory oversight in Albania but also align its media governance with international standards, thereby enhancing the resilience of the public sphere against the pervasive threat of digital disinformation.

Literature Review

The issue of media regulation in the digital age, particularly in the context of combating disinformation on digital platforms, is a pressing concern in the digital age, and its persistence is closely linked to the strength or weakness of media regulation enforcement.

Weak enforcement of media regulations in Albania is hypothesized to significantly contribute to the ongoing spread of disinformation, particularly on digital platforms. This assertion can be substantiated through various previous studies that highlight the challenges faced by countries with inadequate regulatory frameworks and the implications of such weaknesses.

In Albania, where media regulations are often fragmented and enforcement mechanisms remain weak, disinformation continues to thrive. This literature review examines how regulatory failures contribute to this phenomenon by drawing on both theoretical and empirical studies.

The Digital Media Ecosystem and Disinformation

The digitalization of media has fundamentally changed how information is produced, disseminated, and consumed. (Napoli, 2019) highlights the blurring lines between real and fake news as social media platforms increasingly dominate news dissemination. Algorithmic gatekeeping plays a major role in this shift, influencing what content users see and reinforcing ideological bubbles that make individuals more susceptible to misinformation. This dynamic aligns with findings from (Flew, 2021), who argues that digital platforms function as both intermediaries and content regulators yet lack effective oversight mechanisms to curb disinformation.

(Gillespie, 2018) further expands on this by emphasizing the opacity of content moderation system, where platform algorithms selectively amplify or suppress content without clear accountability. These studies suggest that weak regulatory frameworks allow platforms to prioritize engagement metrics over content accuracy, exacerbating the spread of false information.

For Albania, this phenomenon is particularly relevant as social media platforms (such as TV and Fact Checking Organizations) is one of the primary sources of news yet lacks sufficient regulation and enforcement. The absence of strict oversight over digital content allows politically driven misinformation and economically motivated clickbait to thrive. The Audio-Visual Regulatory Authority of Albania (AMA) is the competent authority in the field of audio broadcasting services, audiovisual and other support services in Albania (Council of Ministers, 2013). According to (European Commission, 2024) the independence of AMA is not guaranteed due to the risk of political and corporate influence on the appointment procedures of AMA board members, the political affiliation of the AMA chair and board members and shortcomings in enforcing the Broadcasting Code on media outlets that air pre-recorded political content during electoral campaigns (European Commission, 2024).

Regulatory Challenges and Weak Enforcement

Weak regulatory enforcement has been identified as a major factor in the persistence of disinformation. (Napoli, 2019) critiques the slow evolution of media regulations compared to the rapid advancements in digital technologies, arguing that existing regulatory frameworks are outdated and struggle to keep pace with new media challenges. (Flew, 2021) echoes this concern, pointing to the fragmented approach to platform regulation, where enforcement is often inconsistent, leaving gaps for disinformation to spread unchecked.

(Saurwein & Spencer-Smith, 2020) further explore governance responses to online disinformation within the European Union (EU), identifying inconsistencies across member states and the need for stricter platform accountability. Their findings are particularly relevant for Albania, which, despite aspiring to align with EU regulations, still faces significant enforcement gaps in its media governance system.

(Marsden, Meyer, & Brown , 2020) argue that co-regulation—where platforms collaborate with governments—could be more effective than self-regulation alone. However, their study warns that without proper enforcement, voluntary agreements risk becoming performative rather than impactful.

According to (European Commission, 2024) in Albania media independence and pluralism continues to be affected by the high market concentration, the overlap of business and political interests, the lack of transparency of financing sources, the high concentration of media ownership. As reported, Commission recommendations requiring Albania to adopt amendments of legal framework were not implemented.

Political influence over media regulation exacerbates weak enforcement, allowing disinformation to persist without meaningful consequences. The lack of independence in media oversight bodies, coupled with limited penalties for non-compliance, results in ineffective deterrents against false or misleading content. For Albania, the law provides for limited transparency rules requiring the disclosure of company ownership. This is only applicable to the audiovisual and print media, online media are not subject to any ownership restrictions (European Commission, 2024).

The Role of Algorithmic Governance and Content Moderation

Another major challenge in regulating disinformation stems from algorithmic governance. (Napoli, 2019) and (Gillespie, 2018) emphasize how platform algorithms prioritize engagement over accuracy, often amplifying polarizing content that contributes to misinformation. Gillespie, in particular, highlights the intransparency of moderation policies, where companies selectively enforce rules based on economic and political interests rather than public interest.

(Flew, 2021) discusses the monopolization of digital platforms, arguing that platform capitalism reinforces regulatory gaps by prioritizing profit-driven decisions over ethical content moderation. His analysis suggests that without strong external oversight, platforms will continue to moderate content in ways that benefit their commercial interests rather than public discourse.

For Albania, this raises concerns about the lack of accountability in algorithmic decision-making, where political actors and interest groups can exploit digital platforms to manipulate narratives. The study by (Saurwein & Spencer-Smith, 2020) suggests that platform transparency laws, such as those proposed under the EU Digital Services Act (DSA) could help improve accountability. However, Albania has yet to implement similar measures, leaving regulatory blind spots in platform governance.

Media Freedom and the Role of Journalism in Countering Disinformation

Regulatory failures are further compounded by challenges in media freedom and journalist safety in Albania. (Bino, 2022) in the Albanian Media Freedom Report highlights political influence, self-censorship, and economic pressures on independent journalism, all of which limit the ability of journalists to effectively counter disinformation.

(Napoli, 2019) critiques how smaller news organizations struggle to compete in the digital economy, leading to a dominance of corporate-owned media outlets that may prioritize political and financial interests over journalistic integrity. In Albania, this is evident in the high concentration of media ownership, which often aligns with political elites, reducing the space for independent reporting.

The report also highlights legal pressures on journalists, noting over 30 lawsuits filed against reporters in 2022, many of which were initiated by government officials or powerful interest groups. These legal actions contribute to self-censorship, further weakening media's role in combating disinformation.

(Saurwein & Spencer-Smith, 2020) argue that fact-checking organizations and investigative journalism are crucial counterweights to disinformation. However, such initiatives require stronger institutional support to be effective in Albania's constrained media environment.

The Need for Stronger Regulatory Frameworks and Policy Interventions

Given the persistence of disinformation and the weaknesses in current enforcement mechanisms, several scholars highlight the need for stronger policy interventions.

- (Flew, 2021) and (Marsden, Meyer, & Brown , 2020) argue that governments must adopt stricter accountability measures for digital platforms, such as mandatory transparency reports, clearer content moderation policies, and algorithmic audits.
- (Saurwein & Spencer-Smith, 2020) emphasize the importance of harmonizing national regulations with EU digital policies, particularly in regions aspiring for EU membership, such as Albania.
- (Napoli, 2019) and (Gillespie, 2018) stress that greater public awareness and media literacy programs are essential in reducing the impact of disinformation at the societal level.

Media literature provides strong support for the hypothesis that weak enforcement of media regulations in Albania contributes to the persistence of disinformation on digital platforms. Studies by (Napoli, 2019), (Flew, 2021), (Gillespie, 2018) and others highlight the systemic failures in digital governance, emphasizing how algorithmic amplification, political influence, and economic pressures shape disinformation dynamics.

Moreover, research on regulatory frameworks suggests that Albania's media governance lags behind international best practices, limiting its ability to curb disinformation effectively.

Research Question, Hypothesis and Methodology Approach

Research Questions

How does the weak enforcement of media regulations in Albania contribute to the persistence of disinformation on digital platforms? What lessons can be drawn from to improve media governance in Albania?

Hypothesis

Main hypothesis is: Weak enforcement of media regulations in Albania significantly contributes to the persistence of disinformation on digital platforms.

This lack of robust oversight not only facilitates the spread of misleading content but also undermines public trust in media institutions and hinders efforts to establish a transparent, accountable digital information ecosystem.

Expected Outcomes

This methodology is designed to validate the hypothesis by demonstrating that weak regulatory enforcement correlates with higher levels of disinformation on digital platforms in Albania. The study is expected to reveal a statistically significant relationship between weak enforcement of media regulations in Albania and the persistence of disinformation on digital platforms. Data gathered from the survey is anticipated to indicate that weak enforcement not only facilitates the spread of disinformation but also undermines public trust in media institutions.

Based on the collected data, the study is likely to propose comprehensive policy recommendations aimed at strengthening media regulatory enforcement.

The research aims to produce actionable policy recommendations that enhance enforcement mechanisms, align Albanian media regulation with international standards, and ultimately reduce the impact of disinformation on public discourse.

Methodology Approach

This study employs a mixed-methods approach, with a primary focus on a quantitative survey designed to gauge Albanian media consumers' perceptions of disinformation prevalence, media trust, and awareness of media regulatory enforcement. The methodology is structured as follows:

Survey Design and Administration

A structured questionnaire was developed based on key themes identified in the literature, including:

1. Perceptions of disinformation: Frequency and platforms where false or misleading information is encountered.
2. Trust in media sources: Evaluation of trust levels across different media channels (television, online news, social media, print, radio, and fact-checking organizations).
3. Awareness and effectiveness of regulatory enforcement: Respondents' familiarity with media regulations in Albania and their perceptions of how effectively these regulations are enforced to combat disinformation.

The survey was administered to a diverse sample of Albanian media consumers using online methods, in order to make it time efficient and more accessible. Although the targeted sample was intended to capture a wide cross-section of the population, the final dataset consisted of 50 responses.

Data Collection

The survey collected responses on demographic information (age, gender, education level, and residence), media consumption habits, perceptions of disinformation prevalence, levels of trust in various media sources, and awareness of media regulatory enforcement. The questions included a mix of closed-ended items (using Likert scales and multiple-choice options) and an open-ended section for additional qualitative insights.

Data Analysis

Quantitative data from the survey were analyzed using descriptive statistical methods to summarize the overall trends in media trust, perceptions of disinformation, and awareness of enforcement mechanisms. Key metrics such as mean scores, frequency distributions, and cross-tabulations were calculated to explore relationships between variables (e.g., the correlation between perceived enforcement effectiveness and trust in media). Although the sample size is relatively modest (n = 50), the analysis provides initial insights into the impact of weak regulatory enforcement on the spread of disinformation.

Limitations and Future Directions

While the survey provides valuable preliminary data, the limited sample size restricts the generalizability of the findings. Future research will benefit from a larger, more representative sample to further validate the observed trends. Additionally, supplementing the quantitative data with in-depth qualitative interviews could enhance understanding of the nuances behind the public's perceptions of media regulation.

Overall, this methodology approach offers a foundational perspective on the role of media regulation enforcement in combating digital disinformation in Albania, and it serves as a basis for developing more comprehensive regulatory strategies aligned with international standards.

Results

A total of 50 respondents participated in the survey, representing a diverse cross-section of Albanian media consumers. Data analysis of the survey revealed several key trends.

Demographics and Media Consumption

TABLE 1: Demographics Summary

Demographic	Category	Percentage
Age	Under 18	2%
	18-24	38%
	25-34	22%
	35-44	22%
	45-54	12%
	55-64	4%
	65 or above	0%
Gender	Male	78%
	Female	22%
Education	Primary	0%
	Secondary	6%
	Undergraduate degree	36%
	Postgraduate degree	48%
	Other	10%
Residence	Urban area	94%
	Suburban area	4%
	Rural area	2%

It is important to discern for the purpose of this study, in the demographic information that the majority of the participants (84%) are people with a high level of education (undergraduate and/or postgraduate degree). Preliminary analysis suggested that individuals with higher levels of education report a greater ability to discern disinformation. The correlation between age, education level, and trust in media sources suggests that younger individuals, especially those with lower educational attainment, may be more susceptible to disinformation. This may be due to a lack of critical media literacy skills or a greater reliance on social media for news.

Media Consumption and Trust Ratings

TABLE 2: Media Consumption and Trust Ratings

Media Source	Daily Usage (% of respondents)	Average Trust Rating				
		1 (No Trust)	2 (Low Trust)	3 (Moderate Trust)	4 (High Trust)	5 (Complete Trust)
TV	28%	8.00%	14.00%	34.00%	34.00%	10.00%
Print newspapers/magazines	8%	8.00%	14.00%	38.00%	30.00%	10.00%
Online news websites	54%	16.00%	22.00%	42.00%	14.00%	6.00%
Social media platforms	86%	24.00%	28.00%	40.00%	6.00%	2.00%
Fact Checking Organizations	14%	10.00%	10.00%	36.00%	36.00%	8.00%
Other	18%					

Trust levels in various media sources vary considerably. Fact Checking Organizations, TV and Print newspapers/magazines receive higher trust ratings, while Social Media and Online News Websites receive the lowest scores. The frequency of digital platform use for news and the types of sources selected by respondents indicate that those who rely heavily on social media may encounter more disinformation. This could be attributed to the algorithms that prioritize sensational or misleading content over factual reporting.

Fact-checking organizations receive a relatively higher trust score varying from moderate to high trust (approximately 72%), suggesting that respondents view them as a reliable countermeasure to disinformation.

Cultural attitudes towards media and information consumption may also play a role in this. In societies where skepticism towards traditional media is prevalent (i.e Albania), individuals are more inclined to seek information from alternative sources, potentially increasing exposure to disinformation.

Perceptions of Disinformation and Regulatory Enforcement

TABLE 3: Perceptions of Disinformation and Regulatory Enforcement

Prevalence of Disinformation on Digital Platforms	1 (Not prevalent)	2 (Slightly Prevalent)	3 (Moderately Prevalent)	4 (Very Prevalent)	5 (Extremely Prevalent)
	2.00%	2.00%	38.00%	32.00%	26.00%
Frequency of Disinformation on Digital Platforms	Daily	Weekly	Occasionally	Rarely	Never
	40.00%	12.00%	40.00%	8.00%	0.00%
Impact of Disinformation on Media Trust	Greatly Decreased Trust	Somewhat Decreased Trust	No Effect	Somewhat Increased Trust	Greatly Increased Trust
	28.00%	50.00%	18.00%	4.00%	0.00%
Effectiveness of Media Regulation Enforcement in Albania	1 (Not Effective at all)	2 (Slightly Effective)	3 (Moderately Effective)	4 (Very Effective)	5 (Extremely Effective)
	28.00%	16.00%	34.00%	12.00%	10.00%
Belief in Stronger Media Regulation Impact on lowering Disinformation	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	26.00%	42.00%	28.00%	4.00%	0.00%

Participants perceive disinformation to be highly prevalent on digital platforms, as shown in the aggregated table above, varying from moderately prevalent to very prevalent (approximately 70%). This indicates a widespread belief that misleading content is common in the digital media landscape.

A significant number of participants reported encountering disinformation on social media platforms and online news sites. 40% of participants reported daily encounters of disinformation, while another 40% reported occasional encounters, indicating the majority of participants.

When asked whether they believed that the spread of disinformation affected their trust in media overall, 50% of participants reported somewhat decreased trust and 28% greatly decreased trust, indicating the majority of participants.

Awareness and Perception of Regulatory Enforcement

50% of participants reported they were not familiar at all with the media regulations in Albania, and 38% percent reported they were somewhat familiar. This lack of awareness regarding media regulations stems from insufficient public outreach and education efforts by authorities.

Of those, 34% believed that media regulation enforcement in Albania is moderately effective, 16% reported slightly effective and 28% reported not effective at all. The majority of answers (78%) indicate a low overall trust in media regulation enforcement in Albania, indicating that the current oversight mechanisms are inadequate. Media regulations are perceived as ineffective or poorly enforced, further diminishing trust in the media.

The participants were also questioned whether they believed that stronger enforcement of media regulations would reduce the prevalence of disinformation on digital platforms. On this, 48% of participants agreed, 26% strongly agreed and another 28% were neutral. Overall, 68% of participants indicated that stronger enforcement would lead to reduced disinformation.

Recommendations and Conclusions

Recommendations

1. Enhancing Regulatory Oversight and Enforcement.
   The study revealed a lack of trust in the effectiveness of Albania's media regulation enforcement. Strengthening regulatory bodies by increasing transparency, independence, and accountability is essential. The AMA (Audiovisual Media Authority) should enforce digital monitoring and impose stricter penalties for non-compliance. Digital platforms operating in Albania should be required to monitor and assess content moderation decisions.
2. Aligning with International Standards
   Albania should fully integrate with EU acquis and European standards and best practices, with a focus on amending the legal framework to increase the transparency of media ownership and align civil aspects of defamation, in contrast to the decriminalization. Cooperation with international media regulatory bodies should be strengthened to facilitate the exchange of best practices and ensure compliance with European norms. European Commission recommendations should be fully implemented in order to ensure a secure media landscape.
3. Improving Public Awareness and Media Literacy
   The study found that individuals with higher education levels were better at discerning disinformation. A national media literacy program should be introduced in schools and universities to educate citizens on identifying false information. Public awareness campaigns should be conducted to inform citizens about media regulations, fact-checking tools, and responsible digital consumption. Collaboration with fact-checking organizations should be expanded to provide accessible and reliable verification tools for the public.
4. Regulating Social Media and Digital News Platforms
   Given that social media was reported as the least trusted news source, platforms should be required to implement stronger content moderation policies and collaborate with regulatory authorities. Algorithm transparency laws should be introduced to ensure that platform users understand how content is recommended and how disinformation is amplified.
5. Encouraging Fact-Checking and Independent Journalism
   Funding and legal support for independent journalism should be increased to ensure diverse and unbiased reporting. Media outlets should be encouraged to participate in self-regulation initiatives through independent oversight boards that enforce ethical journalism standards.
6. Strengthening Co-Regulation Between the Government and Digital Platforms
   A hybrid regulatory approach should be adopted, combining government oversight with platform-led initiatives to ensure balanced enforcement without infringing on freedom of expression. Policymakers, journalists and tech companies combined would be able to create mitigating efforts to disinformation spread across media.

Conclusions

The findings of this research support the hypothesis that weak enforcement of media regulations in Albania significantly contributes to the persistence of disinformation on digital platforms. The study revealed a widespread perception of disinformation as highly prevalent, particularly on social media and online news websites. Trust in these platforms remains low, while fact-checking organizations and traditional media sources maintain relatively higher levels of credibility.

Additionally, the research highlights a low level of awareness and confidence in Albania's media regulatory enforcement mechanisms, with most respondents perceiving them as ineffective. This underscores the need for stronger enforcement, better public awareness, and alignment with international best practices to enhance Albania's media governance.

A significant takeaway is the role of education and media literacy in improving citizens' ability to recognize disinformation. Respondents with higher levels of education demonstrated greater confidence in distinguishing false information, emphasizing the need for structured media literacy programs as a long-term solution to combat digital disinformation.

Finally, the study identifies policy gaps that Albania must address, particularly in regulating digital platforms, ensuring transparency in content moderation, and holding social media companies accountable for the content they distribute. By implementing a multi-layered regulatory approach, combining legal frameworks, technological solutions and public education, Albania can develop a resilient media environment that safeguards public trust, democratic stability, and responsible digital communication.

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The Right to Private and Family Life in the Context of Surrogacy: An Analysis of Article 8 of the European Convention on Human Rights

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Abstract

This paper analyzes the rights to private and family life under Article 8 of the European Convention on Human Rights (ECHR), focusing on a specific and controversial aspect of these rights: surrogacy. Surrogacy can be defined as a reproductive practice whereby a woman (the surrogate mother) agrees to carry and give birth to a child for a couple or individual who is unable to conceive naturally, usually for health or biological reasons. This process often involves the use of assisted reproductive technology, such as in vitro fertilization (IVF). Surrogacy raises significant concerns regarding the protection of the rights of the individuals involved in the process, including the surrogate mother, the child, and the prospective parents.

The paper examines how Article 8 of the ECHR protects the aspects of private and family life in the context of such relationships, focusing on how the European Court of Human Rights (ECtHR) interprets and applies this provision in cases related to surrogacy. In numerous cases, the ECtHR has ruled that member states have an obligation to respect the rights of individuals participating in surrogacy, ensuring that the relationships created through this process comply with standards protecting not only private life but also family life. Legal recognition of family ties, rights of the surrogate mother, rights of prospective parents, and the protection of the child's interests regarding identity and integrity are key elements considered.

Furthermore, this paper draws connections to the judicial and legislative practices of member states, concluding how they have developed specific regulations on surrogacy and how these regulations balance the protection of private and family life rights. Some states have imposed strict bans on surrogacy for various ethical reasons to protect the privacy of the individuals involved, while others have permitted it under stringent conditions. Finally, the paper offers recommendations for improving legal policies and enhancing the protection of the rights of surrogate mothers, parents, and children, with a focus on respecting privacy rights and preserving the integrity of family life.

Introduction

Surrogacy, as a process of assisted reproduction, has gained significant importance in modern societies, particularly following the development of reproductive technologies and medical support. Nevertheless, this process has raised numerous legal and ethical issues that remain unresolved in many countries, including Albania. While some international and European legal frameworks have established specific regulations on surrogacy, Albania still lacks a clear and comprehensive legal framework governing this process, thus leaving a significant gap in the protection of the rights and freedoms of the individuals involved. The most debated issues include the rights of the surrogate mother, the intended parents, and the children born through this process, as well as the balance of these rights with the technological advancements in reproduction.

Objective and Research Question

This paper aims to examine the legal omissions and the absence of a clear framework on surrogacy in Albania, analyzing the potential impact of a dedicated law aligned with international practices. The paper will explore the need for a specific legal framework for surrogacy, supported by examples from international legislation, and suggest potential steps for improving the Albanian legal context.

This study addresses the lack of legal regulation on surrogacy in Albania, focusing on the right to private and family life as guaranteed under Article 8 of the European Convention on Human Rights (ECHR). The main research question guiding the analysis is:

How does the lack of a legal framework on surrogacy in Albania affect the respect for the right to private and family life, in accordance with Article 8 of the ECHR?

To address this question, a predominantly doctrinal methodology is employed, analyzing legal literature and relevant case law, and comparing legislation and practices in different ECHR member states. This approach combines theoretical interpretation with practical application of international and national legal norms, aiming to draw conclusions that may influence the development of an effective legal framework that respects fundamental rights in the field of surrogacy in Albania.

Based on this research question, the hypothesis guiding the study is that the absence of a clear and unified surrogacy legislation in Albania creates legal and practical gaps, which lead to uncertainty and difficulties in recognizing and protecting the fundamental rights of individuals, including the right to private and family life. Additionally, the hypothesis assumes that adopting a harmonized legal framework in line with ECHR standards and jurisprudence would contribute to increased legal certainty, the protection of the best interests of the child, and the respect of the dignity and autonomy of all parties involved in the surrogacy process.

The methodology of this study consists of a detailed doctrinal analysis of academic literature and legal sources, including legal studies, scholarly articles, and official documents on surrogacy and the right to private and family life. A key part of the methodology is the examination of the jurisprudence of the European Court of Human Rights, particularly how Article 8 of the Convention is interpreted and applied in various cases related to surrogacy. To enhance the understanding of the legal context, a comparative analysis is also conducted with the legal frameworks and judicial practices of other ECHR member states, aiming to identify common standards and the diversity in regulating this complex issue. This methodological approach helps to produce balanced conclusions and to provide recommendations based on well-argued and contextually grounded analysis.

The Importance of Surrogacy in Albanian Society

Surrogacy has been made possible through technological and scientific developments and is closely linked to the rights to private and family life, which are protected by international provisions such as Article 8 of the European Convention on Human Rights (Council of Europe, European Convention on Human Rights, 1950). This provision guarantees the right to private and family life and has been a crucial foundation for decisions of the European Court of Human Rights (ECtHR) regarding surrogacy cases. The ECtHR's jurisprudence has emphasized the importance of protecting an individual's right to participate in assisted reproduction and ensuring that each person has the right to be recognized as a parent and to receive external assistance in creating a family. In this context, a continuous tension exists between technological advancement and the protection of fundamental individual rights. This tension is even more pronounced in countries that have yet to establish a clear and adapted legal framework for surrogacy, including Albania.

The Constitution of the Republic of Albania, under Article 37 (Constitution of the Republic of Albania, 1998), guarantees individuals' rights to respect for private and family life. This serves as the basis for individual rights in Albania regarding privacy and family formation, including discussions around the rights of individuals involved in processes such as surrogacy. Meanwhile, Article 53 (Constitution of the Republic of Albania, 1998) states that Albania is obligated to respect international human rights commitments it has ratified, including rights related to private and family life, such as those guaranteed by the European Convention on Human Rights (ECHR).

In the Albanian legal system, beyond the Civil Code and Family Code, there are other legal provisions related to reproduction and family matters that may directly impact the issue of surrogacy, even though there is no specific legislation regulating this process. The Family Code does not contain specific provisions related to assisted reproductive processes, including surrogacy, and the absence of a clear legal framework on this issue has created considerable legal uncertainty.

Article 36 of the Albanian Civil Code stipulates that legal relationships between parents and children are established as a result of natural birth. This provision has sometimes been interpreted as potentially recognizing family relationships arising through surrogacy, but there is no explicit legal norm supporting this possibility.

The Law on Health (Law No. 10/319, 2011) plays a significant role in Albania's healthcare system, as it regulates a wide range of issues related to public health and its protection. Although this law does not directly address surrogacy, it offers a framework that could serve as a foundation for developing procedures for assisted reproduction and protecting the health of the surrogate mother and the child born through this process. For example, Article 7 (Law No. 10/319, 2011) addresses the protection of reproductive health. This provision could be applied to regulate assisted reproductive services, ensuring the protection of the mother's and child's health during pregnancy.

Similarly, Article 14 of the Health Law (Law No. 10/319, 2011), which deals with reproductive health services, could also serve as a foundation for developing regulations related to assisted reproduction and for protecting the rights of individuals seeking help to form a family. This provision could be used to establish clear procedures and conditions for the use of assisted reproductive technologies, including improving health conditions and protecting the surrogate mother and the child born through this process.

Article 27 of the Health Law (Law No. 10/319, 2011), which deals with the use of medical technologies in healthcare, is another provision that could be applied to regulate the use of assisted reproductive technologies, including in vitro fertilization (IVF) or other methods involved in surrogacy. This article relates to data protection and the need for adequate oversight of these technologies, ensuring that individuals involved in these procedures receive both legal and health protections.

Another important legal provision is Article 31 of the Health Law (Law No. 10/319, 2011), which guarantees the preservation of individual integrity during medical procedures. This provision is particularly important for the protection of surrogate mothers, as it ensures that no individual is exploited for medical purposes regardless of potential harm to their health.

Additionally, Article 38 of the Health Law (Law No. 10/319, 2011) regulates the use of medical devices and technologies, ensuring their safe usage and the protection of the rights and health of the individuals involved. This article can serve as a safeguard for individuals participating in assisted reproductive procedures, guaranteeing that the technologies used for reproductive assistance are safe and that health protection standards are respected.

The Right to Private and Family Life (Article 8 ECHR)

Fundamental Principles

At the international level, one of the most essential legal instruments that helps define the rights of individuals involved in surrogacy is Article 8 of the European Convention on Human Rights (Council of Europe, European Convention on Human Rights, 1950). This provision guarantees the right to private and family life, granting individuals the ability to create a family and to protect their private lives. The judgments of the European Court of Human Rights (ECtHR) have created a rich body of case law addressing similar issues, as in the case of Parrillo v. Italy (2015), where the Court emphasized that every individual has the right to decide how to form a family, respecting the rights of the surrogate mother and the child born through surrogacy.

Article 12 of the European Convention on Human Rights is also particularly relevant to surrogacy, as it addresses the right of individuals to found a family. In certain cases, individuals who cannot conceive children naturally may form a family through surrogacy, which is a fundamental right under Article 12 (European Court of Human Rights, 2015).

The Convention on the Rights of the Child and International Cooperation in Adoption Matters (Hague Convention, 1989), ratified by Albania, is another international instrument. It ensures that any practice related to the birth of a child, including surrogacy, respects the rights of the child and prioritizes their best interests. According to Article 7 of this convention, children born through surrogacy have full rights concerning their identity and legal parentage (UN Convention on the Rights of the Child, 1989). This convention supports the rights of children and ensures that every child has the right to recognition and protection from any form of discrimination, as well as the guarantee of rights for children born through assisted reproduction processes.

An important aspect of the surrogacy debate in Albania is the protection of the rights of the individuals involved in the process, including surrogate mothers, intended parents, and children. "Recognizing and protecting the rights of children born through surrogacy is a legal and ethical imperative, and it is necessary for Albanian legislation to create a framework that promotes transparency and ensures the protection of private and family life" (Lamçe J. , 2019). Lamçe argues that the process of assisted reproduction, particularly surrogacy, should be regulated in a way that ensures a balance between the interests of intended parents and the rights of surrogate mothers and children born in this manner. Albania could establish legislation aligned with international standards that supports the rights of families created through surrogacy.

Surrogacy, as a form of assisted reproduction, has evolved significantly from traditional practices that helped couples who could not conceive naturally. Through this process, couples unable to have children naturally have the opportunity to form a family. However, this practice has raised numerous ethical and legal dilemmas concerning the protection of the rights of all individuals involved (Simpson.S, 2018).

IVF technology has opened up opportunities for couples and individuals facing various situations, such as permanent or temporary infertility, to have children through reproductive technologies. Nevertheless, this process has raised many ethical questions, including the rights of the surrogate mother, the protection of the child, and the rights of intended parents who choose this method to form a family (Hargreaves, 2019).

At the international level, surrogacy presents numerous ethical and legal challenges. Some countries have attempted to establish legislation that protects the rights of all parties involved. For example, in the United States, some states allow surrogacy, while others prohibit it or strictly regulate it, ensuring the protection of the rights of surrogate mothers and the children born through this practice (White, 2017). This discussion is crucial for Albania, which must consider a legal framework that respects the rights of all individuals involved.

A study by Smith (Smith, 2020) emphasizes the need for sustainable and detailed legislation that can address issues such as the protection of the private life of the surrogate mother and intended parents. The study notes the diversity in surrogacy legislation worldwide and that each legal system must consider the variability of needs to protect the individuals involved in the process.

In Albania, although assisted reproductive technologies have been present since the 1990s, surrogacy is still not clearly and comprehensively regulated by law. While the Civil Code of the Republic of Albania and the Family Code address legal relationships between parents and children, they do not contain specific provisions regulating assisted reproduction and surrogacy. The lack of dedicated surrogacy legislation has resulted in legal uncertainty regarding the rights of surrogate mothers, biological parents, and the children born through this process (Muka G. , 2019)

For this reason, there is a broad consensus among academics and practitioners that Albania needs detailed legislation to protect the rights of all individuals involved in the process. According to Muka, such a law should regulate key aspects of the process, including the rights of the surrogate mother to protect her health and life, as well as ensuring the rights of intended parents to safeguard the rights of the child born from this process (Muka G. , 2019). Such legislation could help prevent abuse and exploitation of surrogate mothers by commercial agencies or individuals who may not respect the ethical principles of the process.

Another important analysis is provided by Dajti, who examines the impact of surrogacy and assisted reproduction in Albania. According to Dajti, Albania should establish a legal framework that allows the use of assisted reproductive methods, including surrogacy, while also ensuring that the rights of surrogate mothers, biological parents, and the children born through these methods are protected (Dajti A. , 2018).

Another review is conducted by the author Zogu (Zogu E. , 2020), who analyzes the impact of assisted reproduction technologies and developments in Albania. In a broader context, the author Hoxha (Hoxha M. , 2021) (pays special attention to the ethical and legal aspects of assisted reproduction, discussing the role of state institutions in regulating these practices. She proposes that Albania should establish an independent commission to oversee the implementation of these practices and ensure they are carried out in accordance with ethical and legal standards (Hoxha M. , 2021).

Author Lamçe (Lamçe J. , 2020) in her study on the legal issues of assisted reproduction in Albania, analyzes the gaps in Albanian legislation regarding surrogacy and the consequences for the rights of those involved. Lamçe emphasizes that, in addition to the lack of a detailed legal framework, the issue of protecting the rights of children born through surrogacy must be taken into account, ensuring these children have their rights recognized and protected. She also argues that Albania needs a comprehensive legal reform to create a stable and legally secure system for this practice, offering full protection of the rights of the individuals involved (Lamçe J. , 2020).

Article 8 of the European Convention on Human Rights (ECHR) protects individuals' rights to private and family life, considering any interference with these rights unacceptable except in justified and necessary cases. This provision serves as the foundation for the protection of the rights of individuals involved in practices like surrogacy, and for this reason, it is essential for the analysis of the legal and ethical regulation of this process.

The Case of Surrogacy in Jurisprudence

The European Court of Human Rights (ECtHR) has had a significant influence on the evolution of national legislation in many states, offering an in-depth interpretation of Article 8, particularly in the context of assisted reproduction practices, including surrogacy. In the case Parrillo v. Italy (Italy, 2015), for example, the Court examined a complaint by a woman who sought recognition as the parent of a child born via a surrogate mother. The Court emphasized that any interference in family relationships, especially regarding the parental rights of children born through surrogacy, must comply with international standards for the protection of private and family life.

This is one of the most important cases related to surrogacy under Article 8 of the European Convention on Human Rights (ECHR). In this case, an Italian couple sought recognition of a relationship established through a surrogacy process, in which another woman had given birth to their child. The ECtHR noted that each member state must respect the rights of individuals involved in the process and ensure protection of private life and the rights of children born this way. The Court underlined the necessity for states to establish legislation that allows for the recognition of such relationships through a clear and secure legal procedure.

This case had a significant impact on the international arena and influenced the practice of states with legislation similar to Italy's, which prohibits surrogacy. Parrillo v. Italy serves as an example for countries attempting to strike a balance between domestic regulations and the international rights of individuals who use such practices.

Furthermore, in S.H. v. Austria (S.H. v. Austria, 2013), the ECtHR determined that the rights of individuals seeking to form a family must be respected without being hindered by unnecessary restrictions in national legislation. This case was important because the Court clarified that any legal uncertainty arising from the lack of a clear legal framework for surrogacy can violate the rights to private and family life, as guaranteed by Article 8 of the ECHR. The ruling reinforced the position that assisted reproduction practices, including surrogacy, should be grounded in human rights principles and protected by national laws. The case involved Austrian authorities refusing to recognize a child born via a surrogate, based on Austria's legislation prohibiting surrogacy.

In analyzing the application of Article 8 of the ECHR to surrogacy, it is important to mention that the ECtHR has emphasized individuals' rights to form a family as part of the right to private life. In E.B. v. France (E.B. v. France, 2008), the ECtHR interpreted that an individual has the right to create a family in various ways, including surrogacy, when a person or couple faces the inability to have children naturally. The Court stressed that interference in individuals' private lives must

be justified, and that such procedures must respect the dignity of those involved, including the rights of children born via surrogacy. This case focused on practices in France, where an individual who had used the services of a surrogate mother sought legal recognition of his relationship with the child after birth. The ECtHR ruled that, even if a state has laws prohibiting such practices as surrogacy, that prohibition cannot justify unjustified interference with the fundamental rights of the individuals involved. In Albania, this case could serve as a catalyst for legislative reform concerning the rights of parents who use surrogacy and for ensuring adequate protection of the rights of children born through this practice.

In line with this interpretation, Albania, as a member of the Council of Europe, is obliged to harmonize its legislation with these international principles. According to Albanian legal experts, such legal uncertainty could lead to violations of the rights of surrogate mothers, biological parents, and children born via surrogacy (Muka G. , 2019). The case of S. v. Switzerland (S. v. Switzerland, 2004) examined the legality of surrogacy and the impact its prohibition could have on individuals' rights to form a family. The ECtHR emphasized that such interference must be based on a strong legal foundation and must not harm the rights of individuals who seek to form a family through these methods. In this case, a couple sought to use surrogacy as a method to have a child. They used a surrogate mother in a country where it was legal, since it was prohibited in Switzerland. After the child was born, Swiss authorities refused to register the legal relationship between the parents and the child, arguing that under Swiss law, only the biological mother is considered the legal parent of a child born through surrogacy—even if the commissioning parents had provided the genetic material.

The case of M. v. The Netherlands (M. v. The Netherlands, 2014) addressed the consequences of using surrogacy in a legal system where the process was only partially regulated. This case involved a foreign couple who had used a surrogate mother to have a child. After the child's birth and registration in a country where surrogacy was legal, they returned to the Netherlands to begin legal recognition procedures. However, Dutch authorities refused, citing that surrogacy was categorically prohibited there. According to local law, biological mothers were the only ones who could be considered legal parents of children born through this method. The ECtHR stressed the importance of respecting the rights to private life and the rights of individuals involved, including surrogate mothers and biological parents. The ruling emphasized that states cannot create rigid and unfair restrictions that harm individuals' rights—especially in the case of surrogacy, which is a growing and increasingly accepted practice in many countries around the world.

The case of Odièvre v. France (Odièvre v. France, 2003) concerned a surrogate mother's request to preserve her anonymity, while the parents sought to know her identity for the sake of the child's rights. The case involved a mother who had given birth to a child through an egg donation procedure under French law, which guaranteed the anonymity of biological parents, preventing the child from knowing their identity. In this case, Odièvre, a woman who had given birth to a child via an assisted reproduction procedure under French law, which guaranteed anonymity, sought the right to know the identity of the child's biological parents. She argued that her rights to private and family life, as guaranteed by Article 8 of the ECHR, were violated because she could not know the identity of the child's parents—a matter directly related to her rights as a mother and to the child's interest in knowing their biological origins.

On the other hand, the French authorities defended the legitimacy of biological parent anonymity, emphasizing that anonymity is a right supported by French law. The ECtHR ruled that interventions in the private lives of the mother and child must be justified, and a balance must be maintained between the rights of the individuals involved. This case firstly provides a clear interpretation of Article 8 of the ECHR, highlighting that interference in private and family life—such as requests to know the identity of biological parents—must be reasonable and in line with the law and public interest. Secondly, it focuses on balancing individual rights with state policy and practice, requiring respect for laws that support anonymity and the protection of biological parents.

Surrogacy in Albania

Absence of Specific Legislation

In Albania, the current legal framework concerning the protection of individual rights is scattered across various legal acts, including the Civil Code, the Family Code, and laws on the protection of human rights. However, as Xhika (Xhika, 2018) points out, the need for clear legislation on surrogacy is essential to ensure more complete and effective protection for the rights of all individuals involved in the process. Surrogacy, as a form of assisted reproduction, has sparked significant legal and ethical debate globally, particularly because of its impact on individual and family rights. This process is made possible by technological advancements, notably in vitro fertilization (IVF), which enables individuals who cannot conceive naturally to form families. Nevertheless, while technological progress has offered new opportunities in family creation, it has also introduced complex legal issues related to the rights of the parties involved.

In Albania, the current legislation does not directly address the surrogacy process, creating a legal vacuum that makes it difficult to protect the rights of those involved. Article 51 of the Albanian Civil Code (Law No. 7850, 1994) defines "parental rights over children," including the right to exercise parental authority and to ensure the welfare of the child. This article is relevant to surrogacy, as it raises debates over the legal rights of intended parents who are not the birth parents but who utilize a surrogate mother.

Article 122 of the Civil Code addresses the "recognition of parent-child relationships" and could be applied to ensure that the rights of parents who use surrogacy are legally recognized and protected. This article provides a legal opportunity to recognize both biological and intended parents following the use of surrogacy.

The Family Code of the Republic of Albania, Article 58 (Law No. 106, 2019), which governs "parent-child relationships," could serve as a legal basis for addressing the relationship between future parents and children born through surrogacy. It may provide a framework for legally recognizing parental rights and for safeguarding the child's right to identity and parental care. Similarly, Article 61, which outlines "the rights and duties of parents," could be directly relevant in defining the obligations of biological and intended parents in the context of surrogacy, including the protection of the surrogate mother's rights.

The Need for Regulation

From a legal standpoint, efforts to regulate this process should begin with an assessment of the need to enact specific legislation that would clearly and comprehensively regulate surrogacy. This legislation should ensure the protection of the rights of surrogate mothers, intended parents, and children born from this process. Amendments may also be required to the Health Law (Law No. 106, 2019), which could offer a clear legal framework for regulating assisted reproduction procedures and for safeguarding the health of both surrogate mothers and children.

Furthermore, a dedicated law on assisted reproduction could be adopted to comprehensively cover all aspects of the surrogacy process, including eligibility criteria, consent procedures, and the legal rights of all parties involved. At the international level, another significant instrument influencing the regulation of surrogacy is the United Nations Convention on the Rights of the Child (UN Convention on the Rights of the Child, 1989), which Albania has ratified. This convention is based on several key provisions that protect children's rights and ensure that every child has the right to legal identity and recognition. In this context, Article 7 of the Convention is especially relevant, as it stipulates that "children have the right to a legally recognized identity, to know their parents, and to maintain a relationship with them" (UN Convention on the Rights of the Child, 1989). This is critically important in the context of surrogacy, where safeguarding the rights of children born through such methods is essential to protecting their best interests.

Conclusions and Recommendations

Key Conclusions

In conclusion, it is important to highlight that the topic of surrogacy and the protection of the right to private and family life is not only a legal issue but also an ethical and social one. Surrogacy, as a form of assisted reproduction, has created new opportunities for individuals who cannot have children naturally to build families. Consequently, it has become necessary to develop a comprehensive and detailed legal framework that addresses the complexities of the process and guarantees the rights of all parties involved. One of the central issues discussed in this paper is the protection of the right to private and family life, guaranteed under Article 8 of the European Convention on Human Rights (ECHR). The existence of a clear and stable legal framework is essential to ensure that the rights of all individuals involved are respected and protected (Parrillo v. Italy, 2015). In this regard, it is worth noting that many member states of the Council of Europe have adopted different approaches to regulating surrogacy. Some have opted to prohibit the practice for ethical reasons and to safeguard the private lives of those involved, while others have legalized it under strict legal conditions (Convention for the Protection of Human Rights and Fundamental Freedoms, 1989). Another important aspect analyzed in this paper is the protection of the rights of children born through surrogacy. The Convention on the Rights of the Child—a key international instrument—guarantees the rights of children, including the right to be legally recognized and to have their identity protected (UN Convention on the Rights of the Child, 1989). This is directly linked to surrogacy, as ensuring the legal identity and recognition of children born through this practice is vital to protecting their legal integrity and long-term interests. On the other hand, Albania's current legislation does not explicitly regulate surrogacy, which creates a legal gap that may result in uncertainty regarding the rights of parents and children. This lack of regulation leaves room for differing legal interpretations and can undermine the legal security of those involved in the surrogacy process.

Proposals for Albanian Legislation

In conclusion, it is recommended that Albania adopt a specific law to comprehensively regulate the issues related to surrogacy, ensuring the protection of the rights of the surrogate mother, the intended parents, and the children born through this process. This law should clearly define:

- the eligibility criteria for surrogate mothers,
- the legal procedures for approving surrogacy arrangements, and
- the conditions to safeguard the health of all parties involved.

The new legislation should also ensure that the legal relationships between biological parents and children born through surrogacy are clear and formally recognized. Protection of the surrogate mother's rights:The law must guarantee the protection of the surrogate's rights throughout the entire process, including her health and her right to bodily autonomy. This includes adequate oversight by health and legal authorities to ensure that the surrogate mother is fully informed and protected from exploitation.

Guarantee of children's rights:The legal recognition of children born through surrogacy must ensure the protection of their identity and their right to be recognized as members of a family unit. Safeguarding the child's best interests must be a core principle of any legal framework addressing surrogacy.

Harmonization with international law: Albania should collaborate with other countries and international organizations to align its legislation with international norms, especially those related to human rights and child protection. This would help prevent legal conflicts in cross-border surrogacy cases and ensure consistency with international obligations, such as the Convention on the Rights of the Child.

Creation of an independent oversight mechanism:An independent monitoring system should be established to ensure that surrogacy practices comply with legal and ethical standards. This mechanism could include independent commissions or agencies responsible for overseeing assisted reproduction procedures and the implementation of surrogacy laws, while also ensuring the protection of the rights of all individuals involved.

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The complexity of online disinformation and awareness for digital media literacy

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Abstract

In today's digital age, the proliferation of social media platforms and the ease of sharing information have transformed the way people consume news and interact with society. While these advances have undoubtedly brought many benefits, they have also brought a new challenge: the spread of misinformation online. This article explores the current social topic of online misinformation and highlights the urgent need for digital media education as a tool to navigate the complexities of this phenomenon. It examines the impact of online misinformation on individuals, communities and democracies, while emphasizing the role of education and media literacy in empowering individuals to critically evaluate information and make informed decisions. The article closes with conclusions and recommendations for policymakers, educators, and individuals to promote digital media literacy and combat the spread of misinformation online.

Keywords: *social media, online disinformation, misinformation, media literacy, media education, digital citizenship*

Introduction

Social media has created much greater opportunities to communicate and share information. As E. Scherer (2012) points out, for this reason people are abandoning traditional media, exchanging information with each other through social networks, saying and sharing what they know. According to J. V. Pavlik (2001), the Internet has exceeded the capabilities of these media and offers opportunities to create a feeling of involvement and direct influence of the user in his actions, to adapt and present a certain content in a personalized way, taking into account the preferences, interests, behavior and history of his actions and to provide a certain source of information or service only when the user actively requests it and at the moment he wants it.

Online platforms offer space even to people who do not belong to the field of journalism, to produce journalistic materials, including news, and are followed by many users. The diversity of these communication platforms and the distribution of material and information through "trust networks" (networks of people who exchange information online based on mutual trust) have led to the increasing spread of inaccurate, false, malicious material and fake news. fake and disinformation (UNESCO, 2020).

In recent years, the prevalence of fake news and disinformation online has grown exponentially, posing a significant challenge to society. Online platforms have become the basis for the spread of disinformation, conspiracy theories and propaganda, which are often intentional and are the logical result of five features of the digital media ecology: the financial decline of legacy news, the instantaneous growth of the news cycle, the speed of the circulation of misinformation and disinformation, the increasingly emotional nature of online discourse and the growing number of financial beneficiaries. (V. Bakir and A. McStay (2018).

Users of these platforms share images, messages, videos and events, which they consider newsworthy (R. Jewitt, 2009), trusting their publishers (C. Silverman and J. Singer - Vine, 2016). This has far-reaching consequences, including erosion of trust, polarization and threats to democratic processes. The producer of false information often aims to misinform (C. Edson et al., 2018). Misinformation is simply inaccurate news coverage, possibly by accident. (D. A. Scheufele & N. M. Krause, 2019). An inaccurate or misleading article may be misinformation or disinformation, but in this case the intention of the communicator remains difficult to determine (C. Wardle & H. Derakhshan, 2018). Simply labeling suspect or incorrect information from social networks is not always effective (Clayton et al., 2020). Two of the main motives for the spread of false information are the economic aspect and the ideological aspect. (H. Allcott and M. Gentzkow 2017).

Disinformation is the dissemination of harmful information. (C. Wardle, 2017). It has the potential to shape public opinion, influence political beliefs (A. J. Berinsky, 2017) and fuel social divisions. The rapid spread of false narratives can reinforce existing prejudices, deepen social divisions and undermine social cohesion. Furthermore, the manipulation of information can erode trust in institutions, including the media, and create fertile ground for the erosion of democratic values. Understanding the impact of online disinformation is essential to understanding the urgency of addressing this issue.

Digital media literature and its role

Digital media knowledge plays a vital role in equipping individuals with the skills needed to navigate the complex digital landscape. They empower individuals to critically evaluate sources of information, distinguish fact from fiction, and recognize potential biases. Digital media knowledge encompasses a range of competencies, including information literacy, media production skills, and the ability to engage in responsible digital citizenship. By fostering these skills, individuals are better equipped to make informed decisions and resist the lure of disinformation online.

Digital media literature consists of all literary and multimedia materials produced for distribution, consumption and sharing in the digital environment. Unlike traditional literature, digital media literature has its own unique features, such as hypermedia, that allows users to explore and connect with content interactively. Users can click on links, navigate through pages, complete different levels of events, and create different literary experiences, making reading more interactive and engaging.

Digital media literature has changed and evolved greatly in recent years, offering a wide spectrum of possibilities for authors and their readers. It is an interesting field of study that reflects the impact of technology on the way we create and distribute creative works. C. E. Werts (2008), distinguishes between digital and media literature. After selecting from many definitions, for digital literature she states: "Digital literacy is more than just the technical ability to properly operate digital devices; it includes a variety of cognitive skills used in the execution of tasks in digital environments, such as surfing the web, deciphering user interfaces, working with databases and chatting in chat rooms" (p. 6), while for media literature he writes that it "provides a framework for accessing, analyzing, evaluating and creating messages in various forms - from print to online video. Media literacy builds an understanding of the media's role in society, as well as the essential skills of inquiry and self-expression needed by citizens of a democracy" (Ibid).

The role of digital media literature is different and important in the age of information and technology. Digital media literature serves to transmit information, news, analysis and reports quickly and easily; can affect the emotions and feelings of the audience; allows different voices and perspectives to be raised; can bring people together in forums, social networking groups and other digital platforms to share thoughts and ideas; has opened the way for new artistic formats and creative expression; has brought new opportunities for literary analysis and criticism; has brought about a major change in the way people learn and acquire knowledge; has played an important role in the dissemination of political ideologies and their influence on public opinion; it has a great impact on the formation of people's cultural identity and has brought about an increase in cooperation and interaction at the global level.

Media literature has also transformed the way we read, write and use literary works. It creates new opportunities for authors and artists to experiment with different forms of creativity and to connect more widely with their audience. Changes in technology and the use of digital media continue to influence this field, making it increasingly dynamic and innovative.

Media literacy and its importance, promotion and encouragement to acquire it

The concept of media literacy was defined at the National Leadership Conference on Media Literacy (1992) in Aspen, USA. News and media literacy has been broadly defined as "the ability to access, analyze, evaluate and create messages in various forms. (P. Aufderheide, 1992). Media literacy develops the skills to access media, understand, explain, evaluate and create media content.

The concept of media literacy, like literacy itself, has long been controversial (C. Luke, 1989). This concept has had different contestations, and as a result, also different definitions. Definitions currently range from the tautological (computer literacy is the ability to use computers) to the extremely idealistic: shorthand for cultural ideals as eclectic as economic development, personal fulfillment, and individual moral strength (S. Livingstone, 2004). Alternative definitions come from different disciplinary and theoretical frameworks, which operate in different cultural contexts, changing with media developments. (R. Penman and S. Turnbull, 2007).

Today, media literacy is emerging in a new form, called computer literacy or Internet literacy. Whether this form is truly 'new' and whether it is appropriately labeled 'education' is the subject of a range of academic, political, community and public debates (S. Livingstone (2004).

B. Bachmair and C. Bazalgette (2007) write: "Media literacy continues to be a recognized term that includes a broad portfolio of skills, knowledge and understanding related to modern communication media" (p. 82).

There is a wider consensus on the importance of media literacy as a tool to develop skills for information analysis, evolution and communication in all forms.

Integrating media literacy education into school curricula can equip pupils and students with the critical thinking skills needed to navigate the digital landscape. This includes teaching them how to evaluate information sources, identify disinformation and engage in respectful dialogue online. Schools can partner with media education organizations and experts to develop comprehensive programs that address the challenges of online disinformation.

Digital media literacy skills must be constantly updated and adapted as the online landscape evolves. This requires ongoing research, training and collaboration between researchers, educators, policy makers and technology experts. P. Aufderheide's (1992) report to the National Leadership Conference on Media Literacy (1992) notes: "Emphasis in media literacy training range widely, including informed citizenship, aesthetic appreciation and expression, advocacy social, self-esteem and consumer competence. The range of accents will expand as literacy increases." (p. 9)

Continuous learning ensures that individuals are equipped with the most up-to-date tools and knowledge to navigate the ever-changing challenges posed by online disinformation. Educational institutions should integrate media education into their curricula from an early age. This includes teaching about developing critical thinking skills, information verification techniques and responsible digital citizenship. Educators should collaborate with media education experts to use effective and engaging teaching materials and methods.

Continued research and innovation in the field of digital media literacy is essential to keep pace with emerging technologies and information ecosystems. Funding agencies and academic institutions should allocate resources to support research that examines the effectiveness of media literacy interventions, explores new strategies to combat online disinformation, and identifies emerging challenges and trends.

Policymakers can play a crucial role in promoting and educating media literacy in schools, developing regulations to curb the spread of disinformation, and promoting transparency on online platforms. Educators can integrate media literacy into curricula by teaching students how to critically evaluate sources, fact-check information, and engage in respectful discourse online. Finally, individuals must take personal responsibility by being vigilant consumers of information, questioning sources, and sharing content responsibly.

Promotion of digital media education

In one of the recommendations of the Parliamentary Assembly of the Council of Europe, this definition is given: "Media education can be defined as teaching practice that aims to develop media competence, understood as a critical and distinctive attitude towards the media in order to form well-balanced citizens, able to make their own judgments based on available information. It enables them to access the necessary information, analyze it and be able to identify the economic, political, social and/or cultural interests behind it. Media education teaches individuals to interpret and produce messages, to choose the most suitable media for communication and, ultimately, to have a greater role in the media supply and product" (Council of Europe, 2016; p. 78). This type of education aims at learning about media with the aim of providing young people with knowledge, developing their critical understanding and active participation, enabling them to interpret and make informed judgments as media consumers, to become media producers in their own way, thus becoming more powerful participants in society.

Media education aims to develop critical and creative skills of young people (D. Buckingham, 2001). This education should be promoted as the tool that develops people's skills to protect themselves from the undesirable effects of the media (R. Penman and S. Turnbull, 2007). Through this education, individuals learn to identify sources and analyze content based on the criteria of authenticity, objectivity and impact.

Media education informs individuals about media manipulation techniques, making them more aware of covert advertising, fake news, and other interventions that may have different goals. Media education promotes the ability to express oneself through media. Individuals learn to produce their own content, such as videos, articles, blogs, podcasts, using technology in innovative and creative ways. Through media education, people learn about the influence of media on society and culture. They develop knowledge on important social issues, such as media and cultural diversity, media ethics and the influence of the media on politics and public opinion; learn to understand and respect the diversity of different opinions, beliefs and attitudes. This helps to develop a more open and prepared society for dialogue and cooperation.

Media literacy helps develop the skills needed to filter, organize and process information in a productive way. This helps broaden the knowledge and skills used in a wide range of disciplines and situations. Recent studies assess it as an important resource for fulfilling the promise of digital citizenship (H. Martens and R. Hobbs, 2013).

In addition to media content analysis, media literacy emphasizes ethics and responsibility for shared information. Individuals learn to recognize the difference between freedom of expression and weak influence and understand the weight of their words and actions in the virtual and real world.

Media education proclaims the importance of using technology in a reasonable and productive way. This includes managing time online, balancing media use and other activities, and using technology to achieve positive goals.

Media skills are an attractive asset for many jobs and other fields. Media literacy helps individuals advance in their careers and use technologies to achieve personal and professional goals.

In conclusion, education and media literacy have a vital role in empowering individuals in a world dominated by media and information. This type of education helps to form a more critical, conscious and powerful society, which is able to deal with the challenges and opportunities of the information age. In an improved way, education and media literacy should become an integral part of the education system to prepare a powerful and informed generation.

The impact of disinformation on the internet, addressing and fighting to prevent it

The impact of disinformation online can be very damaging and widespread. Disinformation is the dissemination of false, manipulated or distorted information in order to influence people's thoughts, beliefs and behaviour. This impact can occur in many ways and with different consequences:

Disinformation can significantly influence the thoughts and behaviors of individuals. When people come into contact with false information, they can make wrong decisions and base false understandings of the world. This can influence personal decisions as well as their beliefs about various issues, including health, politics and more.

Disinformation can cause tension and conflict in communities. When false information is spread about different ethnic, religious or other groups, it can escalate hatred and division. One such example is the spread of false stereotypes that can damage relations between different groups and cause conflicts.

Nowadays, the Internet and social networks are important channels for communication and information. Disinformation can manipulate public opinion and influence democratic processes, including elections. The use of disinformation to spread false news about politicians, political platforms or various political issues can lead to false votes and damage the integrity of democratic processes.

Addressing the problem of incorrect information and disinformation online in a more active way is done through the development of an internal approach to control the news consumption habits of individuals. This term means knowledge of how news is produced and consumed and useful skills in exercising control over these processes (E. K. Vraga et al., 2021).

Addressing disinformation online requires a multifaceted approach involving policymakers, technology companies, independent organizations, educators, individuals and international bodies. Partnerships and collaborative initiatives can lead to the development of comprehensive approaches and best practices for addressing disinformation online. Sharing knowledge, resources and experiences can increase the collective impact of efforts to promote digital media literacy.

Scientists and educators have identified helpful behaviors and attitudes to combat misinformation and disinformation online. A simple but effective technique for users is to read a story before sharing it based on the headline alone. This limits the spread of disinformation and challenges individuals to contemplate information before promoting it, but requires a higher degree of cognitive processing (L. Wang & S. R. Fussell, 2020).

Efforts to combat fake news are mainly focused on three types of solutions (N. Mele et al., 2017), which are related to three different actors: the information provider (the information provider approach emphasizes the role of systems and information providers); clarification of information from the mass (users are able to recognize or at least question fake stories by looking at each other's user comments) and audience (audience's critical ability to process fake news) (S. M. Jones-Jang, T. Mortensen and J. Liu, 2019).

While significant progress has been made in understanding and addressing online disinformation, there are still several important areas for future research.

Further investigation is needed to understand the long-term effects of exposure to online disinformation on individuals and societies. Research can explore the impact on political beliefs, social attitudes, and trust in institutions over time. Long studies can provide valuable insights into the persistence of the effects of online disinformation.

Research can focus on developing targeted interventions to address specific vulnerabilities and biases that make individuals susceptible to online disinformation. By understanding the psychological and cognitive factors that contribute to belief in false information, tailored interventions can be designed to effectively combat these biases and promote critical thinking.

Since algorithms and artificial intelligence play an important role in the distribution of content, further research is needed to understand their impact on the spread of disinformation online. Studies could examine algorithmic biases, echo chambers, and the effectiveness of algorithmic interventions in reducing the visibility of false information.

Research should explore cross-cultural differences in the perception, sharing, and consumption of online disinformation. Understanding how different cultural contexts and social norms influence susceptibility to disinformation can inform the design of culturally sensitive interventions and policies.

Further exploration of the ethical implications of addressing online disinformation is needed. Research can delve into issues of privacy, freedom of expression and responsibility of online platforms in content moderation. Balancing the need to combat disinformation while preserving democratic values and individual rights requires careful ethical consideration. Online disinformation continues to be a significant challenge in today's digital age, affecting society, democracy and individual well-being. It is essential to address this issue by promoting digital media literacy, fostering critical thinking skills, and implementing effective strategies at multiple levels.

Education plays a key role in equipping individuals with the necessary skills to navigate the complex digital landscape. By integrating media literacy education into the curriculum and promoting lifelong learning, individuals can develop the ability to critically evaluate information, identify biases, and verify sources. This empowers them to make informed decisions and resist the influence of online disinformation.

Online disinformation is part of a wider ecosystem that includes amplification networks, social media algorithms and monetization strategies. Understanding and addressing these interrelated elements is vital to effectively combat disinformation. Research should explore the dynamics of this ecosystem and its impact on the distribution and impact of false information.

Online platforms should prioritize transparency and accountability in their content moderation algorithms, policies and practices. There should be clear guidelines and mechanisms for reporting false information and disinformation. Technology companies must work towards developing effective algorithms and tools that identify and reduce the spread of disinformation while respecting user privacy and freedom of expression.

Individuals play a vital role in combating disinformation online. Responsible sharing of information should be promoted, encouraging individuals to verify the accuracy of information before sharing it. Critical thinking, fact-checking and digital etiquette should be encouraged to prevent the unintentional dissemination of false or misleading content. Engaging in constructive discussion and respectful dialogue online fosters a healthy information ecosystem.

Given the borderless nature of the Internet, international cooperation is essential to effectively tackle online disinformation. Governments can intervene with laws and regulations to stop the spread of disinformation and to punish those who carry out such activities. Those should collaborate with organizations and technology companies, exchanging best practices, policies and strategies to collectively address this global issue. Platforms should also consider adapting their efforts to address region-specific challenges and cultural nuances.

Conclusions and suggestions

Tackling the issue of online disinformation requires a collective effort from all stakeholders. Digital media knowledge plays a crucial role in equipping individuals with the skills to critically evaluate information, identify disinformation and make informed decisions.

Digital media literature has fundamentally changed the way we consume, distribute and create information and culture. The use of technology and digital media has changed people's lives culturally, socially, politically and economically and has brought great progress in society and civilization. However, as with any technology, it is important to build a conscious and ethical use of digital media to have a positive impact on society and our world.

It is important to note that digital media literature has both challenges and risks. Information shared quickly can spread disinformation and propaganda. It can affect the privacy and security of individuals. For this reason, the use of digital media requires a conscious and critical understanding of media from their users and consumers.

By fostering digital media literacy through education, collaboration and public awareness, we can mitigate the negative effects of online disinformation and build a more resilient and informed society. It is necessary to create a culture of critical thinking and social dialogue at every level, in the educational system, in relations with institutions and stakeholders, at the family and individual level. Collaboration between different actors, including educators, policy makers, technology companies, researchers, fact checkers, civil society organizations and individuals themselves is vital. Together they can develop comprehensive approaches to combat online disinformation, share best practices and leverage the collective expertise of diverse perspectives. By doing so, we can promote responsible digital citizenship, preserve information integrity and ensure a more informed and engaged citizenry. The spread of disinformation online poses significant challenges to our society, affecting trust, democratic processes and social cohesion.

Digital media literacy emerges as a key solution to empowering individuals to effectively navigate the complexities of the digital landscape. By equipping individuals with the skills to critically evaluate information, identify false narratives and engage responsibly, we can mitigate the impact of misinformation online.

Addressing online misinformation requires a collective effort. By supporting research and innovation, fostering collaboration, increasing transparency and promoting responsible information sharing, we can collectively fight online disinformation and create a more resilient society. As online misinformation continues to proliferate, it is imperative that we recognize the importance of digital media literacy to combat its negative impact. By equipping individuals with the skills to navigate the complexities of the digital landscape, we can foster a more informed society.

This article serves as a call to action for policymakers, educators, and individuals to prioritize digital media literacy, as it is essential to maintaining information integrity, promoting democratic values, and fostering a healthier online environment. The prevalence of disinformation online continues to be a pressing social issue. To effectively combat this problem, it is essential to continue to advance research in the field of digital media education. By exploring the long-term effects of online disinformation, developing targeted interventions, studying the role of algorithms and artificial intelligence, considering cross-cultural perspectives, and addressing ethical implications, we can improve our understanding and develop more effective strategies to tackle disinformation online.

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Diplomacy in the Context of Contemporary Security Issues: Strategies and Challenges

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Abstract

Diplomacy, the art and practice of conducting negotiations between representatives of states or organizations, has been a cornerstone of international relations for centuries. Traditionally, diplomacy has been employed to manage interstate relations, negotiate treaties, and resolve conflicts peacefully. However, the nature of security threats has drastically evolved in the 21st century, necessitating a corresponding evolution in diplomatic strategies. Contemporary security issues are multifaceted and transnational, encompassing a wide range of threats such as terrorism, cyber attacks, climate change, and global pandemics. These issues do not respect national borders and often require coordinated international responses. In this context, the role of diplomacy is more critical than ever. As states and international organizations grapple with these complex and interconnected challenges, effective diplomacy becomes indispensable in fostering cooperation, building trust, and devising comprehensive strategies to mitigate security threats.

This essay argues that diplomacy plays a crucial role in addressing contemporary security issues by facilitating international cooperation, promoting conflict resolution, and enhancing global governance. In an era where security threats are increasingly transnational and multifaceted, diplomacy serves as a vital tool for navigating the complexities of the modern security landscape, ensuring peace and stability in an interconnected world.

Key wards: *Diplomacy, security, Cyberspace, Governments, International Organizations, Actors in Diplomacy*

Introduction

Section 1: Defining Contemporary Security Issues

Contemporary security issues have expanded beyond traditional military threats to encompass a wide range of non-traditional challenges that threaten the stability and safety of nations and the international community. These issues are often characterized by their transnational nature, complexity, and the need for comprehensive and coordinated responses. The following are some of the most pressing contemporary security issues:

Diplomacy and Traditional Security Threats. Diplomacy plays a crucial role in addressing traditional security threats, which encompass military aggression, territorial disputes, and interstate conflicts. Historically, diplomacy has been instrumental in averting war and managing crises between states by facilitating dialogue, negotiation, and the establishment of treaties and alliances (Hamilton & Langhorne, 2011). For instance, during the Cold War, diplomatic efforts such as arms control agreements between the United States and the Soviet Union helped mitigate the risk of nuclear confrontation, demonstrating the efficacy of diplomatic engagement in managing high-stakes security challenges (Gaddis, 2005).

Moreover, diplomacy fosters confidence-building measures and conflict resolution mechanisms that promote stability and reduce the likelihood of armed conflict. Through diplomatic channels, states engage in dialogue to clarify intentions, address grievances, and find mutually acceptable solutions to disputes over resources, borders, and sovereignty (Kissinger, 1994). These diplomatic engagements are underpinned by principles of international law and norms, emphasizing the peaceful settlement of disputes and the preservation of territorial integrity, which are foundational to maintaining global security (Berridge, 2015).

In contemporary international relations, traditional security threats persist alongside emerging challenges, reinforcing the enduring relevance of diplomatic strategies in safeguarding national and global security interests. Diplomatic efforts

continue to evolve to address modern security dynamics, including asymmetric warfare, terrorism, and regional conflicts fueled by geopolitical rivalries. By adapting diplomatic practices to respond to evolving threats, policymakers and diplomats can effectively mitigate risks, build cooperative relationships, and promote peace in an interconnected global landscape (Rittberger, 2012).

Terrorism. Terrorism remains a significant global security threat, characterized by the use of violence and intimidation to achieve political, ideological, or religious objectives. Terrorist groups operate across borders, exploiting global communication networks and financial systems to recruit members, plan attacks, and spread propaganda (Cronin, 2019). The rise of extremist ideologies and the proliferation of small arms have exacerbated this threat, making it a persistent and evolving challenge.

Cyber Threats. Cyber threats encompass a range of malicious activities conducted through digital means, including hacking, data breaches, and cyber espionage. These threats target critical infrastructure, government systems, and private sector entities, aiming to steal sensitive information, disrupt services, or cause economic damage (Libicki, 2017). The increasing dependence on digital technologies has amplified the potential impact of cyber attacks, making cybersecurity a paramount concern for states and organizations.

Climate Change. Climate change represents a long-term, existential threat to global security. It contributes to environmental degradation, resource scarcity, and extreme weather events, which in turn can exacerbate social tensions, migration, and conflicts (Gleditsch, 2012). The security implications of climate change are far-reaching, affecting food and water security, public health, and economic stability, necessitating international cooperation and comprehensive policy responses.

Pandemics. The outbreak of global pandemics, such as COVID-19, has highlighted the profound security risks posed by infectious diseases. Pandemics can overwhelm healthcare systems, disrupt economies, and strain social and political systems (Gostin & Wiley, 2020). The rapid spread of diseases across borders underscores the need for robust international health governance and cooperation to manage and mitigate these threats effectively. These contemporary security issues illustrate the complex and interconnected nature of modern security threats. Addressing these challenges requires not only traditional security measures but also innovative diplomatic strategies and international collaboration.

Evolution of Security Threats in the 21st Century. The nature of security threats has undergone significant transformation in the 21st century, shifting from traditional state-centric conflicts to more complex and multifaceted challenges. This evolution reflects changes in global dynamics, technological advancements, and the increasing interconnectedness of the world.

Shift from Traditional to Non-Traditional Threats. In the 20th century, security threats were predominantly characterized by interstate conflicts and the threat of nuclear war. The Cold War era, for instance, was marked by the fear of superpower confrontation and arms races (Gaddis, 2005). However, with the end of the Cold War, the nature of security threats began to diversify. Traditional military conflicts have become less common, giving way to non-traditional threats such as terrorism, cyber attacks, and transnational organized crime (Kaldor, 2013).

Technological Advancements. The rapid pace of technological advancement has introduced new dimensions to security threats. Cybersecurity has emerged as a critical area of concern as states, organizations, and individuals increasingly rely on digital technologies. Cyber attacks can disrupt critical infrastructure, steal sensitive information, and influence political processes, posing significant challenges to national and international security (Singer & Friedman, 2014). Additionally, the proliferation of advanced weaponry and the potential misuse of artificial intelligence further complicate the security landscape (Altmann & Sauer, 2017).

Globalization and Interconnectedness Globalization has intensified the interconnectedness of states and societies, leading to both opportunities and vulnerabilities. The ease of global travel and communication has facilitated the spread of ideas, goods, and services, but it has also enabled the rapid transmission of threats such as infectious diseases and terrorism (Held & McGrew, 2007). The COVID-19 pandemic is a stark reminder of how quickly a localized health issue can escalate into a global security crisis, affecting economies, public health systems, and social stability (Kluge et al., 2020).

Environmental degradation and climate change have emerged as significant security threats in the 21st century. These issues contribute to resource scarcity, forced migration, and social unrest, which can destabilize regions and exacerbate existing conflicts (Homer-Dixon, 2010). Moreover, societal challenges such as inequality, political instability, and demographic shifts add layers of complexity to the security environment, requiring holistic and multidimensional approaches to address them effectively.

Hybrid Threats and Warfare. The concept of hybrid threats has gained prominence, referring to the blend of conventional and unconventional tactics used by state and non-state actors to achieve strategic objectives. These tactics include propaganda, cyber operations, economic pressure, and irregular warfare, making it difficult to identify and counteract threats effectively (Hoffman, 2007). Hybrid warfare challenges traditional notions of conflict and necessitates adaptive and innovative responses from the international community. The evolution of security threats in the 21st century underscores the need for adaptive strategies and international cooperation. Addressing these complex challenges requires a comprehensive understanding of the changing security landscape and the development of innovative diplomatic and policy responses.

Key Characteristics of Contemporary Security Issues. Contemporary security issues are defined by a set of distinguishing features that reflect the complexities and nuances of the modern global landscape. These characteristics highlight the multifaceted nature of current security threats and the challenges they pose to international stability and peace.

Transnational Nature. One of the most defining features of contemporary security issues is their transnational nature. Unlike traditional security threats, which were often confined within national borders, modern security challenges such as

terrorism, cyber threats, and pandemics transcend geographical boundaries. These threats require coordinated international responses and collaborative efforts among states, international organizations, and non-state actors (Kaldor, 2013).

Complexity and Interconnectedness. Contemporary security threats are characterized by their complexity and interconnectedness. Issues such as climate change, cyber security, and global health crises are interlinked, with each threat influencing and exacerbating others. For instance, climate change can lead to resource scarcity, which in turn may drive migration and conflict (Homer-Dixon, 2010). The interconnected nature of these threats necessitates comprehensive and multifaceted approaches to security.

Non-State Actors. The rise of non-state actors is another key characteristic of modern security issues. Terrorist groups, transnational criminal organizations, and cyber hackers operate beyond the control of any single state, posing significant challenges to traditional security frameworks. These actors can leverage global networks to carry out their activities, making it difficult for states to counter their threats effectively (Cronin, 2019).

Technological Influence. Technological advancements have dramatically altered the security landscape. The proliferation of digital technologies has introduced new vulnerabilities, particularly in the realm of cyber security. Cyber attacks can target critical infrastructure, steal sensitive data, and disrupt economic activities, posing significant risks to national and international security (Libicki, 2017). Additionally, the potential misuse of emerging technologies such as artificial intelligence and biotechnology further complicates the security environment (Altmann & Sauer, 2017).

Asymmetry. Contemporary security threats often involve asymmetric tactics, where non-state actors or smaller states use unconventional methods to challenge more powerful adversaries. This asymmetry is evident in the tactics employed by terrorist groups and cyber attackers, who exploit vulnerabilities in open societies and technological systems to achieve their objectives (Hoffman, 2007). Asymmetric threats require innovative and adaptable responses from the international community.

Rapid and Unpredictable Changes. The rapid pace of change in the global environment is a hallmark of contemporary security issues. The speed at which threats can emerge and evolve, such as the rapid spread of infectious diseases or the sudden escalation of cyber attacks, requires states to be agile and responsive in their security strategies (Kluge et al., 2020). This unpredictability challenges traditional security planning and necessitates a proactive and flexible approach.

Multidimensional Impact. Modern security threats have multidimensional impacts, affecting not only military and political domains but also economic, environmental, and societal spheres. For example, climate change poses risks to food and water security, public health, and economic stability (Gleditsch, 2012). Addressing these threats requires an integrated approach that considers the broader implications for human security and development.

These key characteristics underscore the need for innovative and comprehensive strategies to address contemporary security issues. Diplomacy plays a crucial role in fostering international cooperation, building resilience, and developing effective responses to these complex challenges.

The Role of Diplomacy

Diplomacy is the practice of managing international relations through negotiation, communication, and representation. It involves the conduct of relationships between sovereign states, as well as between states and other international actors, including international organizations, non-governmental organizations (NGOs), and multinational corporations. Diplomacy aims to promote national interests, resolve conflicts, and foster cooperation among states and other global actors (Berridge, 2015). Diplomacy can be broadly categorized into several forms, each with distinct methods and objectives:

Traditional Diplomacy. Traditional diplomacy, also known as classical or bilateral diplomacy, involves direct interactions between official representatives of states, usually conducted through embassies, consulates, and formal negotiations. This form of diplomacy focuses on state-to-state relations and often takes place behind closed doors, where diplomats engage in negotiations, treaties, and alliances to manage conflicts and advance their national interests (Barston, 2014). Traditional diplomacy has been the cornerstone of international relations for centuries, emphasizing the importance of confidentiality and strategic negotiation.

Public Diplomacy. Public diplomacy refers to the practice of engaging and influencing foreign publics and opinion leaders to shape the international environment in favor of a country's national interests. Unlike traditional diplomacy, which operates primarily through government channels, public diplomacy involves a broader range of actors, including cultural exchanges, international broadcasting, and social media campaigns. It aims to build mutual understanding, foster goodwill, and promote a positive image of a country abroad (Nye, 2008). Public diplomacy is essential in the modern era, where public opinion and media influence can significantly impact international relations.

Digital Diplomacy. Digital diplomacy, also known as e-diplomacy or cyber diplomacy, utilizes digital technologies and social media platforms to conduct diplomatic activities. This form of diplomacy leverages the internet to enhance communication, transparency, and engagement with global audiences. Digital diplomacy includes activities such as online campaigns, virtual meetings, and the use of social media to convey messages and gather support for diplomatic initiatives (Manor, 2019). The rise of digital diplomacy reflects the increasing importance of technology in global communication and the need for states to adapt to the digital age.

Multilateral Diplomacy. Multilateral diplomacy involves multiple countries working together within international organizations or frameworks to address global issues and promote collective interests. This form of diplomacy is conducted through institutions such as the United Nations (UN), the European Union (EU), and the World Trade Organization (WTO), where states collaborate on issues ranging from peace and security to trade and human rights (Rittberger, 2012). Multilateral diplomacy emphasizes the importance of international cooperation and collective decision-making in addressing complex global challenges. Each form of diplomacy plays a vital role in the contemporary international system, contributing to the maintenance of global order, the resolution of conflicts, and the promotion of international cooperation.

Historical Context. Evolution of Diplomacy in Response to Changing Security Landscapes

Early Diplomacy. The practice of diplomacy dates back to ancient civilizations, where envoys and messengers were dispatched to negotiate peace treaties, trade agreements, and alliances. Early examples include the diplomatic practices of Mesopotamian, Egyptian, Greek, and Roman civilizations, which established protocols and norms for conducting international relations (Hamilton & Langhorne, 2011).

Renaissance and Early Modern Period. The Renaissance era marked a significant evolution in diplomacy, with the establishment of permanent diplomatic missions and the formalization of diplomatic practices. Italian city-states, such as Venice and Florence, pioneered the use of resident ambassadors to maintain continuous diplomatic relations with other states. This period also saw the development of diplomatic immunity and protocols, as outlined in works like "The Art of Diplomacy" by François de Callières (De Callières, 2000). 19th Century: Congress of Vienna and Balance of Power. The 19th century was characterized by the balance of power system, epitomized by the Congress of Vienna in 1815. This congress aimed to restore stability in Europe after the Napoleonic Wars by establishing a framework for diplomatic negotiations and conflict resolution. Diplomacy during this period focused on maintaining equilibrium among great powers to prevent the outbreak of major wars (Kissinger, 1994). 20th Century: World Wars and the League of Nations. The two World Wars in the first half of the 20th century highlighted the limitations of traditional diplomacy and the need for more structured international cooperation. The establishment of the League of Nations after World War I represented an early attempt at multilateral diplomacy aimed at collective security and conflict prevention. Despite its shortcomings, the League set the stage for more comprehensive international organizations (Mazower, 2009).

Post-World War II: United Nations and Cold War Diplomacy. The end of World War II ushered in a new era of diplomacy with the creation of the United Nations (UN) in 1945. The UN aimed to promote peace, security, and cooperation among states through multilateral diplomacy. The Cold War period (1947-1991) saw intense diplomatic activities characterized by ideological rivalry between the United States and the Soviet Union. Diplomacy during this time included a mix of confrontation and negotiation, exemplified by events such as the Cuban Missile Crisis and arms control agreements (Gaddis, 2005). Late 20th and Early 21st Century: Globalization and New Security Challenges. The late 20th and early 21st centuries have seen a transformation in the nature of security threats and the corresponding evolution of diplomacy. The end of the Cold War and the rise of globalization have introduced new challenges such as terrorism, cyber threats, climate change, and pandemics. Diplomacy has adapted to these changes by incorporating new strategies and tools:

Counterterrorism Diplomacy: Post-9/11, diplomacy has played a critical role in international efforts to combat terrorism through intelligence sharing, joint operations, and multilateral agreements (Cronin, 2011). Cyber Diplomacy: The increasing prevalence of cyber threats has necessitated the development of cyber diplomacy, focusing on establishing norms and agreements for cybersecurity and cyber conflict prevention (Singer & Friedman, 2014). Climate Diplomacy: Global environmental issues have led to the emergence of climate diplomacy, with international agreements like the Kyoto Protocol and the Paris Agreement aiming to address climate change through cooperative efforts (Bodansky, 2016). Health Diplomacy: The COVID-19 pandemic underscored the importance of health diplomacy in coordinating global responses to health crises, promoting vaccine distribution, and strengthening international health regulations (Kickbusch, 2020). The evolution of diplomacy in response to changing security landscapes highlights its adaptability and essential role in managing international relations. As security threats continue to evolve, diplomacy remains a crucial instrument for fostering cooperation, resolving conflicts, and addressing global challenges.

Key Actors in Diplomacy

Diplomacy involves a diverse array of actors, each playing critical roles in shaping international relations, negotiating agreements, and addressing global challenges. These actors can be broadly categorized into states, international organizations, and non-state actors, each contributing uniquely to the diplomatic process.

States. States are the primary actors in diplomacy, representing sovereign entities with defined territories and populations. Diplomatic activities between states are conducted through formal channels such as embassies, consulates, and diplomatic missions. States engage in diplomacy to pursue national interests, negotiate treaties, resolve disputes, and build alliances. Examples of key diplomatic actors among states include:

- Great Powers: Nations like the United States, China, Russia, and European Union member states play significant roles in shaping global diplomacy due to their economic, military, and political influence.
- Regional Powers: Countries like Brazil, India, and South Africa exert influence within their respective regions and participate in regional diplomacy initiatives.
- Small States: Even smaller states with limited resources engage in diplomacy to protect their interests and promote stability in their regions.

International Organizations. International Organizations serve as platforms for multilateral diplomacy, enabling states to collaborate on global issues and coordinate collective actions. These organizations play essential roles in setting international norms, providing humanitarian aid, mediating conflicts, and promoting global cooperation. Key international organizations involved in diplomacy include:

United Nations (UN): The UN serves as the primary global forum for diplomacy, promoting peace, security, human rights, and sustainable development through its specialized agencies and peacekeeping operations.

European Union (EU): As a supranational organization, the EU engages in diplomatic activities to advance economic integration, promote democracy, and address regional and global challenges.

North Atlantic Treaty Organization (NATO): NATO facilitates collective defense and security cooperation among member states, conducting diplomacy to manage security threats and promote stability in Europe and beyond.

Non-State Actors. Non-State Actors encompass a wide range of entities that influence diplomatic processes and outcomes without being sovereign states. These actors include: Non-Governmental Organizations (NGOs): NGOs such as Amnesty International and Greenpeace participate in diplomacy to advocate for human rights, environmental protection, and humanitarian aid. Multinational Corporations (MNCs): MNCs engage in economic diplomacy to promote trade and investment, negotiate business agreements, and influence international policies affecting their operations.

Civil Society Organizations: Grassroots movements, advocacy groups, and social media influencers play roles in shaping public opinion, mobilizing support for diplomatic initiatives, and holding governments and international organizations accountable.

Transnational Criminal Organizations: Criminal networks involved in illicit activities such as drug trafficking, human trafficking, and cybercrime challenge state sovereignty and security, necessitating diplomatic responses to combat transnational crime. The diverse array of diplomatic actors reflects the complex and interconnected nature of contemporary international relations. Effective diplomacy requires collaboration and engagement among states, international organizations, and non-state actors to address global challenges, promote peace and stability, and foster sustainable development worldwide.

Diplomacy and Security Nexus

Interdependence. Diplomacy and security issues are intricately interconnected, with diplomacy serving as a crucial tool for managing and mitigating security challenges in the international arena. At its core, diplomacy facilitates communication, negotiation, and cooperation among states and other actors to address common security threats. Diplomatic engagements enable the establishment of mutual understandings, agreements, and frameworks that contribute to stability and conflict prevention on a global scale (Berridge, 2015). Effective diplomacy fosters trust-building and confidence-building measures, which are essential for reducing tensions and promoting peaceful resolutions to disputes. By facilitating dialogue and negotiation, diplomacy helps states navigate complex security landscapes characterized by diverse threats such as terrorism, cyber warfare, climate change-induced conflicts, and pandemics. The interdependence between diplomacy and security underscores their complementary roles in promoting international peace and stability.

Challenges. Despite its importance, utilizing diplomacy to address security issues faces several challenges that hinder its effectiveness. One significant challenge is the divergence of national interests among states, which can complicate efforts to reach consensus on security-related matters. States prioritize their own security concerns, sometimes at the expense of collective efforts towards international cooperation and conflict resolution (Hamilton & Langhorne, 2011). Trust deficits among states also pose a critical challenge to effective diplomacy in security affairs. Historical rivalries, ideological differences, and perceptions of threat can erode trust and hinder diplomatic efforts to build consensus or negotiate agreements. Additionally, resource constraints, both financial and diplomatic, limit the capacity of states and international organizations to engage in comprehensive diplomatic initiatives to address complex security challenges (Gaddis, 2005).

Opportunities

Despite these challenges, diplomacy presents significant opportunities to enhance security through proactive and cooperative approaches:

Conflict Resolution: Diplomatic efforts play a pivotal role in facilitating dialogue and mediation processes to resolve conflicts peacefully. Through negotiation and dialogue, diplomats can help parties find common ground, de-escalate tensions, and prevent conflicts from escalating into violence (Kissinger, 1994).

International Cooperation: Diplomacy promotes international cooperation and collaboration among states, international organizations, and non-state actors to address shared security threats. Multilateral initiatives and agreements, such as arms control treaties and joint military operations, exemplify how diplomacy can foster collective responses to transnational security challenges (Rittberger, 2012).

Preventive Diplomacy: Diplomacy can serve as a preventive tool to anticipate and mitigate security risks before they escalate. Early engagement through preventive diplomacy involves proactive measures to address underlying causes of instability, strengthen governance capacities, and build resilience against potential security threats (United Nations, n.d.). By leveraging diplomatic channels and mechanisms, states can enhance their capacity to manage security risks, promote peacebuilding efforts, and advance global security objectives collaboratively. The interplay between diplomacy and security underscores their symbiotic relationship in addressing contemporary global challenges. While challenges such as differing national interests, trust deficits, and resource constraints persist, diplomacy offers vital opportunities for conflict resolution, international cooperation, and preventive action. By enhancing diplomatic strategies and engagements, states can strengthen their collective capacity to navigate complex security landscapes and promote global peace and stability.

Policy Recommendations

Enhancing the effectiveness of diplomacy in addressing security issues requires strategic initiatives aimed at overcoming existing challenges and leveraging diplomatic strengths:

- Enhanced Dialogue and Communication: Promote regular and structured dialogue among states and stakeholders to build trust, share information, and foster mutual understanding of security concerns (Hamilton & Langhorne, 2011).
- Conflict Prevention and Mediation: Prioritize preventive diplomacy by engaging early in potential conflict situations, facilitating mediation processes, and supporting peaceful resolution of disputes (United Nations, n.d.).
- Capacity Building and Training: Invest in diplomatic training programs and capacity-building initiatives for diplomats and policymakers to enhance negotiation skills, cultural competence, and crisis management abilities (Berridge, 2015).
- Utilization of Digital Diplomacy: Embrace digital tools and platforms for diplomatic engagements to reach broader audiences, facilitate public diplomacy efforts, and enhance transparency in international relations (Manor, 2019).
- Promotion of Multilateral Approaches: Strengthen commitment to multilateralism by supporting international organizations, frameworks, and treaties that promote collective security, cooperation, and adherence to international norms (Rittberger, 2012).
- Effective management of contemporary security threats through diplomacy requires adherence to best practices that optimize diplomatic engagements:
- Evidence-Based Diplomacy: Base diplomatic strategies and decisions on comprehensive analysis of security threats, including intelligence assessments, risk evaluations, and impact assessments (Kissinger, 1994).
- Adaptability and Flexibility: Remain adaptable to rapidly changing security landscapes by adjusting diplomatic approaches, strategies, and priorities to address emerging threats and challenges (Gaddis, 2005).
- Inclusivity and Stakeholder Engagement: Foster inclusive diplomacy by engaging diverse stakeholders, including civil society organizations, private sector entities, and non-governmental actors, in collaborative efforts to address security issues (Berridge, 2015).
- Cultural Sensitivity and Contextual Understanding: Demonstrate cultural sensitivity and understanding of local contexts when engaging in diplomatic negotiations and interactions to build rapport and facilitate effective communication (Hamilton & Langhorne, 2011).

International Cooperation

Multilateralism and global governance play pivotal roles in addressing transnational security issues through coordinated diplomatic efforts:

- Shared Responsibility and Burden-Sharing: Promote burden-sharing among states and international organizations through collective security arrangements, joint initiatives, and mutual assistance frameworks (Rittberger, 2012).
- Normative Frameworks and Rule-Based Order: Uphold international law, norms, and agreements that govern state behavior in addressing security threats, thereby reinforcing global governance and promoting stability (United Nations, n.d.).
- Capacity-Building in Developing States: Support capacity-building initiatives in developing countries to enhance their ability to address security challenges, strengthen governance structures, and promote sustainable development (Gaddis, 2005).

By implementing these strategies and practices, policymakers and diplomats can enhance the efficacy of diplomacy in addressing contemporary security threats, promoting international cooperation, and fostering global peace and stability.

Conclusion

Throughout this essay, we have explored the dynamic relationship between diplomacy and contemporary security issues, highlighting their interdependence, challenges, opportunities, policy recommendations, and best practices. Diplomacy serves as a pivotal instrument for managing and mitigating security challenges on a global scale. It facilitates dialogue, negotiation, and cooperation among states, international organizations, and non-state actors to address diverse threats such as terrorism, cyber warfare, climate change-induced conflicts, and pandemics. The evolution of diplomacy from ancient civilizations to modern-day practices underscores its adaptive nature in responding to changing security landscapes. Looking ahead, the role of diplomacy in addressing evolving security challenges is poised to become even more critical. As global interconnectedness deepens and new threats emerge, such as cyber threats and environmental degradation, diplomacy must continue to innovate and adapt. Future diplomatic efforts will likely focus on enhancing preventive diplomacy, strengthening international cooperation through multilateral frameworks, and leveraging digital tools for effective communication and transparency. Moreover, as geopolitical dynamics evolve, the need for inclusive and collaborative diplomatic approaches will grow. Building trust, fostering dialogue, and promoting shared responsibility among nations will be essential in managing complex security issues and promoting sustainable peace.

Final Remarks

In conclusion, adaptive and proactive diplomatic strategies are indispensable in ensuring global security in the 21st century. By prioritizing conflict prevention, promoting multilateralism, and embracing technological advancements in diplomacy, policymakers and diplomats can navigate the complexities of contemporary security challenges effectively. Diplomacy remains a cornerstone of international relations, offering avenues for peaceful resolution of conflicts, collective action against threats, and sustainable development. As we confront the uncertainties of the future, investing in robust diplomatic capabilities and frameworks will be crucial for fostering a safer and more secure world for generations to come.

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Civil Protection and Integration Issues in the European Mechanism

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Abstract

This article Civil Protection and Integration Issues in the European Mechanism[1] addresses the important role of civil protection in Albania, placing it in the context of integration into the European Civil Protection Mechanism. At a time when the challenges of civil emergencies – such as natural disasters, cyberattacks, or pandemics – are on the rise, the strength of the state is tested from the prevention phase to recovery. The state structure in Albania has invested in new capacities, laws, and strategies, but it still faces significant limitations on the ground. In this context, the protection of critical infrastructure – such as energy networks, transportation, and information technology – remains a national security imperative. However, only an integrated plan that harmonizes national standards with European ones can provide the country with an effective shield against multiple risks. The discussion of contemporary challenges highlights the necessity of regional and international cooperation. In conclusion, the article argues that a modern civil emergency strategy, built on innovative principles and comprehensive coordination, is the key to sustainable civil protection, prepared to integrate into common European civil protection mechanisms.

***Key Words**: Civil Protection, European Civil Protection Mechanism, National Security, Critical Infrastructure, Emergency Strategy*

Introduction

Purpose of the Paper: The purpose of this study is to explore the role of civil protection in Albania, focusing on its integration into the European Civil Protection Mechanism. The paper aims to highlight how Albania can strengthen its national strategies to address civil emergencies, particularly through improved management of critical infrastructure and regional cooperation. This article aims to examine the role of civil protection in Albania and analyze its integration into the European Civil Protection Mechanism.

It emphasizes the importance of improving state capacities to handle civil emergencies, such as natural disasters, cyberattacks, and pandemics, with a focus on the potential assistance provided by regional and international cooperation. The article also discusses the necessity of protecting critical infrastructure and offers a strategic framework for managing these situations. The paper contributes to strengthening the understanding of the need for a modern and inclusive civil emergency strategy in Albania, integrating prevention, response, and recovery. It highlights the importance of protecting critical infrastructure and the potential support from European mechanisms for crisis management. Furthermore, it promotes interinstitutional and international cooperation, including training and human resource development, to create a sustainable and prepared system for future challenges.

Civil protection has gained special significance in Albania, reflecting the need to increase state capacities in preventing, responding to, and recovering from natural and man-made disasters (European Commission [EC], 2019). Historically, disasters such as earthquakes, floods, and wildfires have exposed the vulnerability of existing structures, while technological developments and cyber threats are adding another dimension of risk (National Civil Protection Agency [NCPA], 2020). In this

[1] The study approaching ASD is also linked to FloodNorthALBA, which is oriented and supported by the European Commission

context, Albania's integration into the European Civil Protection Mechanism offers a valuable opportunity to align with modern standards and strengthen regional and international cooperation. A key aspect is the protection of critical infrastructure, including energy, transport, information technology, and other strategic sectors. The importance of these systems becomes even more evident in emergency situations, where their damage can cause multifaceted crises and fundamentally undermine national security (NCPA, 2020). To address modern challenges, it is essential to design comprehensive strategies that include prevention, preparedness, response, and recovery, in line with the best practices of the European Union (EC, 2019). As a result, this study emphasizes increasing investments in civil emergency policies, the need for specialized training, and interinstitutional coordination, while analyzing Albania's potential to meet the requirements of the European Civil Protection Mechanism.

Another crucial element is raising awareness and public education, not only as a preventive tool but also as a means of building collective capacity (NCPA, 2020). In the Albanian context, where systematic education for emergency management is often lacking, involving communities in the planning and implementation of protective policies is of strategic importance. The role of local governance and non-governmental organizations is required to be strengthened to ensure a broad network of information, training, and volunteer recruitment, which can be activated in any crisis situation. An inclusive cooperation infrastructure, where civil and military participation is harmonized, will help minimize the consequences in emergency cases and speed up the recovery process. Equally important is the role of information and communication technology, which can serve as a key mechanism for coordination and rapid delivery of aid (EC, 2019). The implementation of early warning systems and the use of digital platforms for real-time reporting can make the difference between a successful response and a crisis that escalates (Shabani & Zeneli, 2021). In accordance with this, investments in critical infrastructure should be accompanied by specialized training for technical staff and emergency personnel, promoting a culture of cooperation with European and international institutions (NCPA, 2020). In this way, the country can build a solid and sustainable civil protection model that responds not only to existing challenges but also to those expected to emerge in the future.

Research Question: How can Albania enhance its civil protection strategies through integration into the European Civil Protection Mechanism, and what role does the protection of critical infrastructure play in strengthening national security?

Hypothesis: Integrating Albania into the European Civil Protection Mechanism, while focusing on the protection of critical infrastructure, will significantly improve its capacity to prevent, respond to, and recover from civil emergencies, thereby enhancing national security.

Objectives

1. To evaluate the current state of civil protection in Albania: Analyze Albania's existing capacity to handle civil emergencies such as natural disasters, pandemics, and cyberattacks.
2. To assess the benefits of Albania's integration into the European Civil Protection Mechanism: Understand how adopting EU standards and cooperation can improve civil protection strategies in Albania.
3. To explore the role of protecting critical infrastructure in national security: Examine how safeguarding infrastructure like energy, transportation, and IT systems contributes to national stability and resilience during emergencies.
4. To recommend improvements in institutional coordination and resource mobilization: Identify challenges in Albania's current emergency management and suggest strategies for interinstitutional collaboration.
5. To propose an integrated strategy for future civil emergency management in Albania: Develop a model that includes prevention, preparedness, response, and recovery, based on international best practices.

Methodology

For this study, a hybrid methodology will be employed, combining qualitative analysis and data collected through theoretical research and case study analysis. This methodology is suitable for analyzing various aspects of emergency management in Albania and the process of integrating European civil protection mechanisms. First of the research, a literature review will be conducted, which includes international reports, strategic documents from the European Union, and academic studies that examine civil protection and the safeguarding of critical infrastructure. This review will provide a theoretical and contextual foundation to understand the challenges and opportunities that Albania's integration into European civil protection mechanisms offers. Then it will involve conducting **case study analysis**. Instead of interviews, specific civil emergencies, such as the 2019 earthquake, the COVID-19 pandemic, and recent floods or wildfires in Albania, will be analyzed. These case studies will help assess how Albania has responded to these crises, the strengths and weaknesses of the existing civil protection mechanisms, and the protection of critical infrastructure during these events. By comparing these case studies with best practices from European civil protection mechanisms, the study will offer insights into Albania's integration process and areas needing improvement.

Later, qualitative data analysis will be used to interpret the information gathered from the case studies. This will include identifying patterns and lessons learned from these emergencies and evaluating how Albania can enhance its civil protection capabilities in line with European standards. The analysis will focus on critical areas such as coordination, capacity building, and technological advancements for better disaster preparedness, response, and recovery. This methodology will enable an in-depth assessment of the situation and provide practical recommendations for policies and strategies that could improve civil protection in Albania

Literature Review

The importance of civil protection has significantly increased in recent years due to the rising frequency and intensity of natural and man-made disasters, such as earthquakes, floods, wildfires, pandemics, and cyberattacks. These events test the resilience of national institutions, economies, and societies at large. In the context of Albania, civil protection is particularly crucial as the country faces various emergency challenges, including natural hazards, technological risks, and societal vulnerabilities. This literature review explores the key concepts and frameworks surrounding civil protection, its importance in Albania, and the potential benefits of integrating Albania into the European Civil Protection Mechanism.

Civil Protection Framework and Best Practices. Civil protection refers to the organized efforts and measures taken by governments to safeguard the lives, property, and environment of citizens during emergencies. According to Boin (2019), the goal of civil protection is to minimize the damage from disasters and provide a coordinated response to mitigate their impacts. It involves a range of activities, including prevention, preparedness, response, and recovery. In the European context, civil protection is seen as a shared responsibility between EU member states and neighboring countries, with significant focus placed on cooperation, resource sharing, and mutual support (European Commission [EC], 2020). The European Civil Protection Mechanism (ECPM) is an institutional framework designed to facilitate coordinated responses to crises. It enables EU countries to assist each other in times of disaster by sharing resources, technical expertise, and logistical support (EC, 2019). The mechanism's strength lies in its ability to mobilize resources quickly and integrate various national systems into a unified response. Several EU member states, including Greece, Italy, and France, have successfully utilized the ECPM during large-scale crises, such as floods, wildfires, and earthquakes (Shabani & Zeneli, 2021). These experiences provide valuable lessons for Albania in terms of improving national capabilities and aligning with European standards.

The Role of Critical Infrastructure Protection. Critical infrastructure, such as energy systems, transport networks, telecommunications, and water supply, forms the backbone of a nation's functioning. In the context of civil protection, the protection of critical infrastructure is crucial, as its failure can lead to widespread disruption, economic losses, and threats to national security. According to the EC (2019), protecting infrastructure from both natural disasters and malicious human threats, such as cyberattacks, is a central element of modern emergency management strategies. Albania, in particular, faces considerable challenges in this regard. After decades of underdevelopment and instability following the collapse of its totalitarian regime, Albania's critical infrastructure remains vulnerable to both natural disasters and technological risks. The 2019 earthquake, which caused severe damage to transport and energy infrastructure, revealed these vulnerabilities and underscored the urgent need for modernization and greater resilience (INSTAT, 2020). Recent studies (NCPA, 2020) emphasize that effective protection of critical infrastructure requires not only technological investments but also clear protocols for coordination between government agencies, local authorities, and private sector actors. Cybersecurity, in particular, has become a key concern, as cyberattacks targeting infrastructure networks can cause long-lasting damage. The rise of cyber threats highlights the importance of integrating digital technologies into civil protection plans, including early warning systems and crisis management platforms (Boin, 2019). For Albania, protecting critical infrastructure is not only about ensuring continuity during emergencies but also about safeguarding national security and fostering long-term economic development.

Albania's Challenges in Civil Protection. Albania faces numerous challenges in terms of civil protection, which can be categorized into institutional, infrastructural, and societal barriers. According to Shabani & Zeneli (2021), Albania's civil protection system is still in its developmental stages. Although the country has made significant strides in recent years, particularly through the adoption of new legal frameworks, such as Law No. 45/2019 on civil protection, significant gaps remain in terms of implementation and resource allocation. The National Civil Protection Agency (NCPA) reports that many local authorities lack modern equipment and training, making it difficult for them to respond effectively to emergencies (NCPA, 2020). Furthermore, institutional coordination between national and local bodies often proves to be a bottleneck during crises, as seen during the 2019 earthquake and subsequent flooding events (INSTAT, 2020). The lack of systematic education and training for emergency management professionals is another barrier to improving civil protection capabilities in Albania. According to the NCPA (2020), while some progress has been made in training emergency responders, the need for specialized skills and knowledge remains unmet. Furthermore, public awareness campaigns on disaster preparedness are often insufficient, and citizens are not always fully informed about the actions they should take in the event of an emergency. The COVID-19 pandemic highlighted the critical role of public education and community involvement in managing crises effectively (WHO, 2021).

The Potential of EU Integration in Civil Protection. Albania's integration into the European Civil Protection Mechanism offers significant opportunities for improving the country's civil protection system. As a candidate country for EU membership, Albania is expected to align its emergency management policies with European standards. This alignment can improve national crisis response capacities, enhance interinstitutional cooperation, and provide access to EU resources, including funding and technical support (EC, 2019). According to the EC (2020), Albania can benefit from participating in joint training programs, sharing best practices, and gaining access to advanced technologies, such as early warning systems and crisis communication tools. Additionally, EU integration will foster greater regional cooperation, which is essential for managing cross-border emergencies, such as floods, wildfires, and pandemics. The experience of other countries, such as Greece, which has successfully integrated into the EU civil protection framework, serves as a useful model for Albania (Shabani & Zeneli, 2021). The literature reveals that civil protection is a multifaceted and dynamic field that requires a coordinated, comprehensive approach to address the growing challenges posed by natural disasters, technological threats, and complex societal risks. For Albania, improving civil protection is crucial for ensuring national security and resilience in the face of multiple threats. Integrating into the European Civil Protection Mechanism offers Albania a valuable opportunity to strengthen its emergency management capacities and improve the protection of critical infrastructure. However, this integration requires substantial investments in training, technological advancements, and interinstitutional coordination. By leveraging EU support and sharing best practices with neighboring countries, Albania can develop a robust civil protection system that is prepared to handle the emergencies of the future.

Civil Emergencies: From Prevention to Recovery

In recent years, the world has experienced deep shocks from a series of crises that have tested the strength and resilience of humanity. The COVID-19 pandemic hit unexpectedly, turning daily routines into anxiety and uncertainty, while thousands of families lost their loved ones, and healthcare systems reached their limits (Ministry of Health, 2021; WHO, 2021). On the other hand, hurricanes destroyed entire neighborhoods in the United States, leaving hundreds homeless (Boin, 2019). Massive floods in Pakistan and uncontrolled fires in Australia and California turned green areas into scorched and flooded wastelands, while every day we saw horrifying scenes of people losing everything. These phenomena are not merely tragic news on television screens; they are tangible wounds in our collective conscience, reminding us how nature's forces and unforeseen disasters can change our lives forever in an instant (UNDP, 2016).

Albania is a country that has been severely affected by civil emergencies multiple times. On November 26, 2019, a 6.4 magnitude earthquake struck Albania, leaving behind a painful scene: 51 lives lost, hundreds injured, and thousands who lost everything they had built throughout their lives (INSTAT, 2020). Children embraced by parents in emergency tents, tears in their eyes, and a question that remained suspended: "Can we face this as a state?" Over the past decade, Albania has faced numerous challenges – from periodic floods to the global COVID-19 pandemic (Shabani & Zeneli, 2021). But how has our state responded to these crises, and what can we assess about our capacities as a state and society?

What are Civil Emergencies? Civil emergencies are unexpected and often extraordinary situations that require immediate intervention to protect life, property, and the environment from significant risks (Boin, 2019). These emergencies can be natural, such as earthquakes, floods, and wildfires, or man-made, such as industrial accidents, health crises, or social conflicts (Shabani & Zeneli, 2021). They challenge the capacity of state institutions and society in general, testing the ability to prevent, manage, and recover from their consequences. In order to minimize damage, civil emergencies require a coordinated response, sufficient resources, and clear action plans for rapid response (National Civil Protection Agency [NCPA], 2021). Civil emergencies not only test the institutional power of a state but also require broad societal cooperation from prevention to recovery (EC, 2019). In the prevention phase, it is essential to develop strategic plans and invest in infrastructure to reduce risks and the consequences of disasters (UNDP, 2016). However, when a crisis strikes, the rapid mobilization of authorities, emergency services, and citizens becomes crucial for saving lives and maintaining public order. The recovery process then involves not only rebuilding affected areas but also strengthening administrative and societal capacities to handle future disasters (Boin, 2019). Thus, each emergency situation becomes a real test of the state's strength and, at the same time, an opportunity to improve existing mechanisms with the goal of protecting the lives and well-being of citizens. When the Earth Moves: The 2019 Earthquake**?** The 2019 earthquake is one of the most painful events in recent Albanian history. Material damages are estimated to be over 1 billion euros, while more than 17,000 Albanians were forced to leave their homes (INSTAT, 2020). But beyond the numbers, what remains in people's minds are the individual stories: a father who lost two children, an elderly woman who refused to leave the ruins of her house whispering, "this is my life." The state's engagement, with all its structures, and international aid, such as that from the European Union or long-term friendly countries, was irreplaceable for Albania (EC, 2019). However, internal institutional coordination was often faced with serious challenges, from the lack of rescue equipment to the speed of response for families in need.

*Flooding: A Recurrent Threat***.** Albania regularly faces floods, especially in the western plains. In 2015, floods affected over 42,000 hectares of agricultural land, destroying the local economy of thousands of families (UNDP, 2016). However, the

problem is not just with nature. Unlicensed constructions and lack of maintenance of drainage channels emerge as ticking time bombs, repeating year after year (NCPA, 2021). In many cases, these constructions have been placed in flood-prone areas, blocking the natural flow of waters and worsening the situation during heavy rains. Meanwhile, climate change has brought stronger and more unpredictable rainfall, increasing the intensity and frequency of floods (IPCC, 2020). In addition to agricultural damage, floods cause property loss, worsen public infrastructure, and damage water and energy supply systems. The need for a long-term plan for managing water basins and reinforcing embankments will continue to be one of the main challenges (UNDP, 2016).

COVID-19: An Invisible War. The global COVID-19 pandemic revealed another fragile face of our system. By the end of 2021, Albania had recorded over 200,000 confirmed cases and more than 3,000 deaths (Ministry of Health, 2021). Initially, strict lockdowns and social distancing measures seemed effective. However, as months passed, pressures on the healthcare system, lack of resources, and delays in vaccine supplies exposed our weaknesses (WHO, 2021). Beyond the health crisis, the pandemic was also accompanied by a major social and economic shock, resulting in a 3.5% shrinkage of GDP in 2020 (IMF, 2021). While vaccination gradually improved the situation, the pandemic left an important lesson: the need for a stronger, more prepared, and equitable healthcare system for all citizens (Ministry of Health, 2021).

Fires: An Emergency in Hot Times. Fires across the country, especially in forests, are a recurring challenge in Albania during the summer months, fueled by high temperatures, prolonged droughts, and often by careless or deliberate actions (Boin, 2019). Only during the summer of 2021, over 200 fires were reported in forests and rural areas, destroying thousands of hectares of forest and vegetation (NCPA, 2021). The response to these emergencies has tested the state's weaknesses in equipment and resources for firefighting, with a large portion of operations still relying on local firefighters with outdated equipment. Air intervention is also limited, while the mountainous terrain makes controlling the flames even more difficult (Shabani & Zeneli, 2021). Although some measures have been taken to raise public awareness and improve cooperation with international partners, the country continues to face significant challenges in managing fires and protecting natural resources (NCPA, 2021).

Are We Ready for Tomorrow? - Every crisis we've faced has been a lesson, but have we learned the lessons we needed to? Experts say that the country has made progress, especially in reconstruction plans after the earthquake, in renewing technology, and in international cooperation (EC, 2019). However, weaknesses in coordination, still insufficient infrastructure, and the involvement of local communities remain major challenges (Shabani & Zeneli, 2021). Plans on paper are not enough; a deep citizen and cultural change is required, where residents and institutions cooperate to build a sustainable and reliable system (UNDP, 2016). Despite everything, one thing is clear: the morale and solidarity of Albanians in emergencies are unparalleled. From residents opening their doors to those who lost their homes, to doctors working tirelessly during the pandemic, to the selflessness of the army in firefighting efforts, and the volunteer youth groups (NCPA, 2021). Civil emergencies will be a test of the state's strength, but also a reflection of the spiritual humanity of a nation. And despite the challenges, there is always hope, trust, and the possibility for a better tomorrow (Shabani & Zeneli, 2021).

Protection of 'Critical Infrastructure' as a Guarantee for National Security

Imagine a city plunged into darkness, where streets are silent and communications are suddenly interrupted. All activities, from water supply to hospital treatments, come to a halt, leaving thousands of people helpless in the face of chaos. This is not a distant apocalyptic scenario, but a reality experienced daily in Gaza, Ukraine, and other conflict zones, and not only there. Recently, even in Kosovo, a drinking water artery was targeted, highlighting that attacks on critical infrastructure have become a strategic objective, simultaneously underscoring its vital role in maintaining national security and stability (Boin, 2019). Critical infrastructure is not merely a network of systems and services; it is the very pillar that sustains the dynamics of daily life (European Commission [EC], 2019). In an interconnected world sensitive to natural crises and human threats, protecting it is no longer a luxury but a vital necessity. From destructive earthquakes in Albania to the war in Ukraine, the last decades have taught us a bitter lesson: neglecting the security of these systems brings incalculable consequences (INSTAT, 2020; NCPA, 2021).

*Critical Infrastructure: A Delicate Moment in Human and National Security***.** After the 1990s, Albania experienced a profound transformation, where the efforts to build a new society following the collapse of the totalitarian regime faced a harsh reality. Weaknesses in critical infrastructure, once hidden by the centralized system, became evident in the form of power outages, destroyed roads, and unstable public services. The crisis of 1997, which left behind chaos and mass destruction, deeply impacted the pillars of the state, leading to the collapse of vital assets such as transport and energy. Floods in the following decade and the devastating earthquake of 2019 exposed these systems to insufficient protection, leaving the population vulnerable to the lack of basic services and revealing a bitter truth: critical infrastructure was the heart that was not beating strongly enough to keep national life alive (UNDP, 2016; INSTAT, 2020). All of this was exacerbated by the outbreak of the COVID-19 pandemic,

a crisis that revealed that threats do not only come from physical disasters (Ministry of Health, 2021; WHO, 2021). Hospitals were overcrowded, while shortages of medical supplies and pressure on global supply chains led to economic and social paralysis (IMF, 2021). In this chaos, cyberattacks in 2022 increased insecurity by disrupting public services and damaging state databases at a time when technological support was more important than ever. Floods, landslides, and fires—all together—create the panorama of a country that constantly faces multiple challenges. In the face of these phenomena, a new vision and paradigm are reshaping strategies and doctrines, viewing 'critical infrastructure' not only as a functional system but also as a guarantee for the secure future of citizens and national security itself (NCPA, 2021; EC, 2019).

Modern Threats: The New War for Security. **I**n the last decade, threats to critical infrastructure have increased not only in number but also in sophistication (Boin, 2019; IPCC, 2020). Cyberattacks have emerged as a new weapon for destabilizing states, becoming a powerful tool for both state and non-state actors. Critical infrastructure is not just a functional component; it is an artery that can be targeted to paralyze a nation. Even in times of peace, states use energy, communication, and logistical networks as tools for strategic pressure (EC, 2019). It is not just conflict zones where infrastructure attacks aim to achieve war objectives. Even gas supplies are used as leverage, as shown by Russia against European countries, illustrating the power of critical infrastructure as a silent yet deadly weapon in political clashes. On the global stage, control over strategic technologies is taking on new dimensions. Cyberattacks in Albania during 2022 targeted government databases, creating a delicate situation for data management. Meanwhile, the race for domination of 5G networks among great powers has revealed another front where critical infrastructure is used as a tool of influence (NCPA, 2021). These examples show that even in peace, attacks on critical infrastructure are a new form of conflict, a silent war that establishes the supremacy of powers.

*War, Competition, and Reflections on Critical Infrastructure***.** The case of Ukraine, Gaza, Kosovo, or even Albania itself emphasizes the importance of proactive protection of critical infrastructure. Ongoing attacks on energy networks in these regions show that critical infrastructure is a strategic target in modern wars, with or without direct front lines (EC, 2019). These attacks created an energy crisis and also impacted energy supplies in other European countries, highlighting the regional interconnection of these systems. During the winter months of war, massive power outages paralyzed hospitals and industries, affecting the lives of millions of citizens. The lessons learned include the need for investments in cybersecurity, the construction of more resilient systems, and the creation of international coordination mechanisms (Boin, 2019; NCPA, 2021).

*A War That Must Be Won***.** In Albania, protecting critical infrastructure constitutes a major challenge, given the high vulnerability to natural disasters, cyber threats, and inherited structural weaknesses (INSTAT, 2020). To face these challenges, it is essential to improve technological capacities for monitoring and protecting energy and telecommunication networks, as well as to develop national emergency response plans that integrate intersectoral linkage and institutional coordination (Shabani & Zeneli, 2021). Albania must also strengthen international cooperation, drawing on the experiences of countries that have managed similar challenges, such as Ukraine and EU member states (EC, 2019). This inclusive approach is decisive for improving existing strategies and developing new resources, ensuring the resilience and security of critical infrastructure in service of citizens and national development.

National security is not an abstract idea; it consists not only of "hard" components (integrity, sovereignty, national values) but also of the fundamental parts of everyday life—lights that turn on in homes, water flowing from taps, and daily communication (Boin, 2019). Protecting these systems is a war that must be won, not simply to avoid catastrophes, but to guarantee stability and continuity of life. In an increasingly insecure world, critical infrastructure remains the artery that normalizes the life of a nation.

The Challenge for a Modern Strategy for Civil Emergencies

Natural disasters and civil emergencies are significant challenges for any state, requiring well-structured plans and strategies to minimize the impacts on life, property, and the economy (Boin, 2019). Albania, a country that faces powerful earthquakes, recurring floods, and an increasing number of forest fires during hot periods, has seen a growing need for integrated and sustainable strategies for civil emergencies (NCPA, 2022). In addition to natural disasters, the COVID-19 pandemic has demonstrated that health threats must also be part of this approach (Ministry of Health, 2021; WHO, 2021).

*Albania and Natural Disasters***.** Albania is among the most disaster-prone countries in Europe. The 2019 earthquake, which affected Durrës and Tirana, is one of the most severe examples, with 51 fatalities and approximately 1 billion euros in material damage (UNDP, 2020). Similarly, floods are an ongoing threat to lowland areas, affecting around 200,000 citizens in the last decade (NCPA, 2022). Reports from the Institute of Geosciences, Energy, Water, and Environment (IGJEUM) show that floods and earthquakes make up 70% of disasters in Albania. Additionally, extreme weather events such as wildfires and droughts are becoming more frequent due to climate change (IPCC, 2020). In 2022, Albania recorded 300 wildfires, which destroyed over 5,000 hectares of forest (NCPA, 2022). These data highlight the need for robust strategies and sustainable measures for managing these risks.

*The Concept of Civil Emergencies and Major Risks***.** Civil emergencies encompass all situations requiring an organized response to protect life, property, and the environment. These emergencies may be natural, such as earthquakes and floods, or human-induced, such as wildfires or technological incidents. An effective approach to civil emergencies is based on prevention, preparedness, response, and recovery (Boin, 2019). Albania faces a range of risks related to both nature and human activities. The 2019 earthquake and its significant damages are a vivid example of the ongoing threat from seismic activity. Floods, which regularly affect the western lowlands, have a substantial impact on communities and the country's economy (IGJEUM, 2022). Wildfires, triggered by hot periods and frequent droughts, are becoming increasingly concerning, with 300 cases recorded in 2022 (NCPA, 2022). These risks are closely linked to climate change, which is influencing the intensity and frequency of extreme events (IPCC, 2020).

The Need for a Modern and Comprehensive Strategy. Addressing complex risks requires a modern strategy that integrates technology, education, and interinstitutional cooperation (EC, 2019). Albania has made significant progress through Law No. 45/2019 for civil protection, but its implementation has faced many challenges (NCPA, 2022). Due to insufficient financial and technological resources, many local units do not have up-to-date emergency plans. An effective strategy must go beyond reactive responses, including prevention and building capacities to manage crises in their early stages. Enhancing early warning systems is a key element. Currently, Albania does not have complete coverage for all areas at risk. Advanced technology, such as the use of sensors to monitor seismic movements and early fire detection through drones, should be part of strategic priorities. Another essential aspect is public education and awareness of risks. Only 30% of citizens are informed about the actions they should take during emergencies (NCPA, 2022). This highlights the need for broader and more effective awareness campaigns that include all societal groups.

*Lessons from Emergencies***.** Wildfires during the summer are a concrete example of the consequences of poor planning and lack of resources (NCPA, 2022). The absence of modern firefighting equipment and weak coordination between national and local structures exacerbates the situation. Similarly, the 2019 earthquake highlighted weaknesses in urban planning and the enforcement of building regulations (UNDP, 2020). The COVID-19 pandemic provided valuable lessons in interinstitutional coordination and the importance of quick and integrated responses (Ministry of Health, 2021). The lack of resources and delays in implementing measures showed that strategies must include detailed scenarios for different types of emergencies.

Improving Civil Emergency Strategy in Albania. For more effective management of civil emergencies, Albania needs to develop an integrated strategy that strengthens resilience and preparedness for future crises (EC, 2019). An important component of this approach is securing sustainable financial resources. By increasing the budget for civil protection, the state can invest in modern technology for early warning systems, improve infrastructure, and train emergency teams, helping reduce the impacts of risks (Boin, 2019; IPCC, 2020).

Public education and awareness are essential for building a culture of safety in the country. The active involvement of communities, civil society, and the private sector in the planning and implementation of civil emergency strategies can help better identify local needs and improve social preparedness. Another priority is building sustainable international partnerships (EC, 2019). Albania can benefit significantly from active involvement in regional and global crisis management networks, such as the EU's civil protection mechanisms. To ensure the success of a modern strategy, coordination between central and local institutions must also be improved. An integrated and decentralized approach will enable faster and more effective responses during emergencies, significantly strengthening local capacities to cope with complex challenges (NCPA, 2022). From earthquakes, floods, and wildfires to the COVID-19 pandemic, Albania has faced significant challenges that have revealed its weaknesses in managing civil emergencies. To build a modern and sustainable strategy, the country must invest in technology, increase public education, and strengthen institutional and international cooperation. By involving all actors and relying on an integrated approach, Albania can build a stronger and more resilient system for handling future risks.

Civil Protection and Integration into the European Mechanism

Civil protection in Albania has gained significant importance in the context of contemporary developments, where the challenges of civil emergencies are becoming increasingly complex. Earthquakes, floods, wildfires, and more recently cyber threats have tested the resilience of state institutions, highlighting the need for reforms and effective strategies (National Civil Protection Agency [NCPA], 2020). Albania's integration into the European Civil Protection Mechanism presents a crucial opportunity to align with the European Union's standards and best practices (European Commission [EC], 2019). This process requires not only the improvement of the national legal framework but also the enhancement of interinstitutional cooperation, the development of qualified human resources, and the strengthening of technological capacities at the national level. In this way, Albania can build a more efficient civil protection system, capable of responding to multiple risks and providing rapid recovery.

Historically, emergency management in Albania has been characterized by a lack of long-term planning, leading to ad-hoc and often delayed responses. The 2019 earthquake in the country made it clear that the existing infrastructure, especially at the local level, was not always prepared to cope with large-scale situations (NCPA, 2020). These shortcomings reflected the need for a coherent strategy that would combine elements of prevention, preparedness, response, and recovery. In this context, alignment with the European Union directives and the requirements of the European Civil Protection Mechanism takes on a new dimension. The main objectives include increasing regional cooperation, resource sharing, developing early warning systems, and coordinating search and rescue operations (EC, 2019). These elements create a solid foundation for improving the effectiveness of responses to any crisis, whether natural or man-made.

An important challenge remains the protection of critical infrastructure, which includes energy networks, transportation, communications, and other strategic sectors. These systems are often targeted by multiple risks, including not only natural phenomena but also cyber and terrorist attacks. Protecting them is considered a crucial factor in ensuring national security, as a failure in these sectors could paralyze the country's overall functioning. Investments in technology and the modernization of communication networks can help prevent or minimize the consequences in times of crisis. However, in addition to technical investments, it is essential to create clear protocols and standard operating procedures so that every actor—whether public or private—knows their role during emergencies. This coordinated infrastructure is naturally linked to the need for a stable and functional legal framework that responds to the dynamism of contemporary risks (NCPA, 2020).

Another key aspect is the role of local actors and the community in emergency management. The civil protection structure in Albania should empower local authorities and non-governmental organizations, creating a wide-reaching cooperation network on the ground. This implies systematic education and raising public awareness about first response and safety procedures, as well as their involvement in simulated exercises. International experiences show that well-informed and well-trained communities can play a crucial role in reducing the consequences of disasters. For example, knowing the location of evacuation points or the correct way to report an emergency reduces confusion and increases the efficiency of rapid response services. In this regard, cooperation with European partners offers opportunities for exchanging experiences and best practices, including joint training and pilot projects.

Albania's involvement in the European Civil Protection Mechanism also requires a deep understanding of operational standards and coordination requirements at the international level (EC, 2019). This mechanism aims to strengthen cooperation between member states and those aspiring to join, with the goal of responding more effectively to emergencies both inside and outside the European Union. Albania must meet a range of criteria, including developing a risk assessment system, an integrated communication network, and the establishment of multidisciplinary teams ready for intervention. In addition to receiving logistical and technical support, integration into this mechanism also enhances the country's international legitimacy and helps it position itself better in regional security initiatives.

Findings, Conclusions, and Recommendations

Findings

1. **Challenge of Civil Emergency Management:** Albania has faced a series of natural and human-made crises, including earthquakes, floods, wildfires, and the COVID-19 pandemic. These crises have exposed weaknesses in the existing emergency management structures, such as the lack of modern equipment and poor coordination between institutions.
2. **Critical Infrastructure Protection:** One of the key findings is the importance of protecting critical infrastructure, which includes energy, transportation, and information technology. Protecting these systems is essential for national security and effective crisis management.
3. **Integration into the European Civil Protection Mechanism:** Albania has the opportunity to align with European standards for emergency management and benefit from international resources and training, thereby enhancing its capacity to respond to crises.
4. **Challenges with Human Resources and Technical Capacities:** Albania faces significant challenges in developing human resources and technical capacities for civil emergency management. While some structures have improved, there is still a lack of specialization and proper training for staff managing emergency situations.
5. **Weaknesses in Planning and Interinstitutional Coordination:** Another finding is that the current emergency management plan in Albania is often inadequate and fragmented. Coordination between state institutions, local government, and non-governmental organizations remains a major challenge that hampers a swift and effective response during crises.

Conclusions

1. **Need for an Integrated Strategy:** To better handle civil emergencies, Albania needs an integrated and sustainable strategy that includes prevention, response, and recovery. The strategy should focus on the development of technological resources, public education, and strengthening interinstitutional capacities.

2. **Importance of International Cooperation:** Regional and international cooperation is key for Albania, as it can offer logistical and technical support, allowing the country to build a sustainable system for emergency management.
3. **Transformation of Critical Infrastructure:** Albania needs to invest in modernizing its critical infrastructure and create clear and standardized protocols for crisis response. This will help maintain the functionality of key services during emergency periods.
4. **Need for Strengthening Human and Technical Capacities:** In the face of ongoing risks, Albania should focus on further developing human resources and technical capacities for emergency management. This will include specialized training and investment in modern technology, ensuring that emergency personnel are equipped to respond effectively.
5. **Improvement of Emergency Coordination and Planning:** Albania should develop a comprehensive national emergency management plan that includes all levels of government and civil society actors. This plan should include clear protocols for resource sharing, coordination, and communication during crises, enabling a faster and more coordinated response.

Recommendations

1. **Increase Investments in Technology:** Albania should invest more in technology for risk monitoring and early warning systems, such as the use of sensors to detect fires and seismic activities. These investments will help ensure faster and more efficient responses to emergencies.
2. **Strengthen Public Education and Awareness:** It is essential for citizens to be better informed and prepared for emergencies, creating a safety culture that involves all societal groups. Awareness campaigns should be more widespread and effective.
3. **Involve the Community and Local Actors:** A more active participation of the community and local actors in emergency planning and management is necessary. This can be achieved through training and simulations that involve local groups and civil society.
4. **Enhance International Cooperation:** Albania should strengthen international partnerships and actively participate in European Union civil protection mechanisms, utilizing training and technical support opportunities available.

In conclusion, civil protection in Albania is at a critical stage of transformation, driven by the complex challenges characterizing our era. Whether due to natural disasters, cyber threats, or terrorist risks, the Albanian state's ability is distinguished by its swift response to recover, testing its institutional capacities. Furthermore, integration into the European Civil Protection Mechanism represents a significant opportunity to improve legislation, internal organization, and the culture of cooperation, leading to a more resilient and sustainable system (EC, 2019). If this process is supported by strategic investments in infrastructure, technology, and human resources, Albania can build an increasingly efficient model for civil protection, responding to contemporary realities. Such a commitment will undoubtedly pave the way for strengthening national security (NCPA, 2020).

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From Democracy to Neopatrimonialism: The Subversion of Institutional Rule in Post-Communist Albania

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Abstract

This paper analyzes the evolution of Albania's political regime toward a neopatrimonial configuration, wherein formal democratic institutions coexist with—and are increasingly subordinated to—informal, clientelist, and personalistic networks of power. Rather than consolidating as a liberal democracy, post-communist Albania has progressively assumed the characteristics of a hybrid regime, in which the rule of law, public administration, and democratic procedures are instrumentalized to preserve entrenched elite dominance. Political competition is supplanted by personalized leadership, electoral patronage, and the systemic marginalization of opposition forces. Drawing upon the theoretical framework of neopatrimonialism (Clapham, Médard, Erdmann & Engel) and supported by empirical data from institutional reports and political monitoring (ODIHR, BIRN), the study argues that Albania constitutes a formally democratic yet substantively neopatrimonial regime. Governance is anchored not in principles of equal citizenship and institutional accountability, but in loyalty-based redistribution, informal authority structures, and selective control over state resources. This diagnosis raises urgent concerns regarding the legitimacy, functionality, and long-term sustainability of democratic governance in Albania.

Introduction

Since the collapse of communist rule in 1991, Albania has undertaken an ambitious agenda of political liberalization and institutional reform, aiming to construct a modern democratic state. Successive governments have adopted constitutions, held multiparty elections, liberalized the economy, and embraced Euro-Atlantic integration as both a normative commitment and a strategic imperative. The country's formal institutional framework increasingly resembles that of a liberal democracy: it has regular elections, a separation of powers, a multiparty parliament, and a written constitution that enshrines civil and political rights (Elbasani, 2013; Bieber, 2020). From an external perspective, Albania appears to have followed the standard trajectory of post-communist democratization.

Yet beneath this institutional façade, deeper structural problems persist. Political power in Albania remains highly concentrated, opposition parties are frequently marginalized, public administration is politicized, and the judiciary has historically been subject to informal interference. Most crucially, the functioning of democratic institutions is often subordinated to informal practices of patronage, personal loyalty, and elite collusion . These dynamics call into question the nature of Albania's democracy, suggesting that while democratic in form, it is substantively captured by neopatrimonial logics of rule.

This paper argues that Albania has gradually evolved into a neopatrimonial regime, in which the outward architecture of democratic governance masks the entrenchment of informal, personalized, and clientelist networks. Neopatrimonialism is characterized by the fusion of legal-rational authority with patrimonial power structures, whereby formal institutions are routinely undermined or instrumentalized to serve private, factional, or personalistic interests (Erdmann & Engel, 2007; Médard, 1991). Under neopatrimonial rule, public offices become tools for resource extraction, clientelist exchange, and political control, while accountability mechanisms are neutralized or rendered symbolic.

Although the concept of neopatrimonialism originated in African studies (Clapham, 1985), its application has broadened to include a wide array of post-authoritarian and post-communist settings. In these contexts, the persistence of informal governance practices has often hollowed out formal democratization, creating what scholars describe as hybrid regimes—

political systems that combine the formal institutions of democracy with the informal practices of authoritarianism . These regimes conduct elections and maintain constitutions, but systematically violate the norms of democratic accountability, rule of law, and political pluralism.

In Albania, the consolidation of neopatrimonialism has been shaped by several interrelated factors. First, the legacies of communist authoritarianism—centralized state control, the absence of autonomous civil society, and the personalization of power—created a fertile environment for informalism to persist under new democratic guises. Second, weak party institutionalization and the dominance of charismatic leadership have fostered a politics of loyalty over ideology, in which political parties operate as vehicles for distributing rents and protecting elite interests. Third, the electoral system has failed to incentivize accountability or genuine competition, instead reinforcing the dominance of entrenched political actors through patron-client networks, vote-buying, and the politicization of state resources (OSCE/ODIHR, 2021).

This regime logic is visible across multiple dimensions of Albania's political system. Electoral campaigns are often characterized less by ideological contestation than by promises of employment, access to services, and loyalty-based redistribution. Key state institutions, including the judiciary, civil service, and regulatory agencies, have frequently operated as instruments of political leverage rather than independent arbiters of the law. Investigative reports and monitoring by both domestic and international bodies have consistently highlighted the entanglement of state institutions with clientelist networks, organized crime, and informal centers of power (BIRN, 2021; Transparency International, 2023).

Conceptual Framework: Neopatrimonialism and Hybrid Regimes

The analysis of Albania's political trajectory necessitates a conceptual framework that accounts for the disjuncture between formal institutional design and informal political practice. Two interrelated theoretical constructs—neopatrimonialism and hybrid regimes—offer valuable tools for understanding this divergence.

Neopatrimonialism, as conceptualized by Clapham (1985), Médard (1991), and further systematized by Erdmann and Engel (2006), refers to a regime type in which the formal-legal structures of the modern state are subverted by informal, personalistic modes of governance. Although such regimes retain the institutional apparatus of a Weberian bureaucracy—ministries, legislatures, courts—their operation is deeply shaped by clientelistic networks, personal loyalty, and patrimonial logic. Public resources are frequently treated as private assets, dispensed by political elites not through transparent institutional procedures, but through discretionary, informal arrangements. In such systems, political legitimacy and administrative appointments are not necessarily contingent on performance or legal criteria, but on proximity to power and loyalty to dominant figures.

This form of rule erodes the rational-legal authority foundational to democratic governance and transforms institutions into instruments of elite entrenchment (Erdmann & Engel, 2007). As Bratton and van de Walle (1997) emphasize in their analysis of African regimes, neopatrimonialism blurs the boundary between the public and the private, rendering the state a vehicle for maintaining personalized authority under the guise of legal-rational rule.

Closely linked to this is the notion of the hybrid regime—a political order that combines elements of electoral democracy with authoritarian practices. As theorized by Levitsky and Way (2010), hybrid regimes—or more precisely, *competitive authoritarian* regimes—are characterized by the existence of formal democratic institutions (e.g., regular elections, opposition parties, independent media) that are systematically undermined by incumbents through informal mechanisms of control. These regimes differ from full autocracies in that opposition actors are not outright banned, but their capacity to effectively challenge power is severely constrained through the manipulation of state institutions, coercion, and economic patronage.

Neopatrimonialism functions as a critical mechanism in sustaining such hybrid regimes. By fostering dependency through clientelism and distributing rents to loyalists, ruling elites consolidate informal networks that override institutional accountability. As van de Walle (2001) notes, the durability of hybrid regimes often hinges less on constitutional design and more on the capacity of ruling elites to mobilize and manage informal power structures—chief among them neopatrimonial patronage systems.

Thus, this framework positions neopatrimonialism not merely as a residue of pre-modern governance, but as a constitutive logic within post-authoritarian hybrid regimes. It is precisely the fusion of formal democratic procedures with informal authoritarian practices that makes such regimes resistant to full democratic consolidation. The Albanian case, as this study argues, exemplifies this fusion, where electoral pluralism and institutional reform coexist with entrenched clientelism, personalized power, and the erosion of accountability mechanisms.

Methodology and Sources

This study employs a qualitative case study methodology, selected for its ability to capture the complex, context-specific, and historically contingent nature of regime evolution in post-communist Albania. The case study approach allows for an in-depth exploration of how formal democratic institutions coexist with and are often subordinated to informal networks of power, a defining feature of neopatrimonial and hybrid regimes. Rather than testing hypotheses through large-N statistical analysis, this research emphasizes process-tracing, discourse analysis, and the interpretive reconstruction of political dynamics over time.

The analytical framework is twofold: on the one hand, it draws from the literature on neopatrimonialism (Clapham, 1985; Médard, 1991; Erdmann & Engel, 2006), which conceptualizes regimes where legal-rational institutions are hollowed out and replaced by personalized authority, clientelism, and informal rule. On the other hand, it is situated within the broader hybrid regime theory, especially the model of competitive authoritarianism proposed by Levitsky and Way (2010), which underscores how regimes combine electoral procedures with authoritarian practices to maintain power while preserving a democratic façade. The empirical dimension is constructed through a careful triangulation of primary sources, including:

- Election observation reports from the *OSCE Office for Democratic Institutions and Human Rights (ODIHR)*, which provide systematic assessments of Albania's electoral processes, administrative conduct, and the behavior of political actors.
- Investigative journalism and political analyses by the *Balkan Investigative Reporting Network (BIRN)*, which offer granular detail on corruption scandals, party financing, media capture, and judicial manipulation.
- Annual assessments from Freedom House, particularly the *Nations in Transit* reports, which trace changes in democratic governance, judicial independence, and the rule of law.
- Reports and indexes from Transparency International, especially the *Corruption Perceptions Index (CPI)*, which measure the perceived extent of corruption in Albania's public sector.

In addition to these, the study incorporates parliamentary records, legislative reforms, and judicial documents to track institutional developments and their implementation. Media monitoring and civil society reports further illuminate the informal mechanisms through which power is exercised, and dissent is contained.

The theoretical analysis is complemented by a review of secondary literature from the fields of comparative politics, transitology, and democratic backsliding.

Methodologically, the paper also engages in discourse analysis of elite narratives, campaign rhetoric, and official statements to assess the symbolic and legitimizing role of democratic language in what is, substantively, a neopatrimonial context. Special attention is paid to the strategic use of EU integration discourse, the instrumentalization of anti-corruption rhetoric, and the recurrent marginalization of opposition forces, which are all symptoms of a regime where informal loyalty networks dominate over rule-bound institutionalism.

Ultimately, the chosen methodological strategy—interweaving theoretical frameworks with grounded empirical analysis—seeks to reveal the substantive character of Albania's political regime: one where the formal trappings of democracy mask a system of entrenched personalism, clientelism, and elite reproduction.

The Albanian Transition: Between Formal Democratization and Informal Capture

Albania's political transformation after 1991 has often been narrated through the lens of formal democratization. Following the collapse of its Stalinist regime—one of the most repressive in Eastern Europe—Albania undertook a series of reforms aimed at building the foundations of a liberal democratic state. These included the legalization of political pluralism, the adoption of a new constitution in 1998, the liberalization of the economy, and sustained efforts to join Euro-Atlantic institutions. Albania joined NATO in 2009 and has been a candidate for European Union membership since 2014. On paper, these steps positioned Albania within the normative trajectory of the so-called "third wave of democratization" (Huntington, 1991).

Yet, more than three decades after the transition began, Albania's political system exhibits characteristics that are difficult to reconcile with the ideals of liberal democracy. Recurrent political crises, chronic polarization, weak institutional checks and balances, and public distrust in the judiciary and parliament reveal a profound discrepancy between formal democratic structures and actual political practice.

In the case of Albania, the formal architecture of democracy coexists with what scholars have termed *informal governance* or *neopatrimonial rule* (Erdmann & Engel, 2007; Grzymala-Busse, 2007). Although competitive elections are regularly held, they are frequently marred by irregularities, vote buying, and politicized election administration (OSCE/ODIHR, 2017, 2021). Power remains heavily concentrated in the hands of party leaders, and the ruling party often exercises control over key oversight institutions, such as the judiciary, electoral bodies, and the media regulatory authority. These patterns reflect a broader trend in which informal practices—clientelism, patronage, personalism, and the capture of public institutions—undermine the autonomy and accountability of the state.

This phenomenon is not merely anecdotal or circumstantial. It is rooted in structural features of the Albanian transition. First, the collapse of communism left behind a weak civil society, a fragmented political culture, and a state apparatus that was both underdeveloped and deeply politicized. In the absence of strong intermediary institutions or a professional bureaucracy, political elites were able to consolidate power through informal networks of loyalty and personal dependence. Rather than fostering a culture of constitutionalism and legal rationality, post-communist governance in Albania was shaped by what Pierre Bourdieu might call the "habitus" of authoritarian statecraft—where the private appropriation of public resources becomes a normalized mode of rule.

Second, party competition in Albania has evolved into a zero-sum struggle for control over the state, rather than a mechanism of democratic accountability. As a result, elections serve less as a "mandate from below" and more as a *mechanism for elite rotation* within a closed system. Political parties in Albania, especially the two main ones (Partia Socialiste and Partia Demokratike), function not as programmatic vehicles of ideological representation, but as patronage machines that distribute access to public employment, contracts, and favors in exchange for loyalty. This has contributed to the erosion of horizontal accountability and the delegitimation of representative institutions (Cianetti & Hanley, 2021).

Third, the dynamics of Europeanization—while important—have often reinforced a shallow, formal compliance with democratic norms without fundamentally altering the informal logics of power. Although EU conditionality has led to some important reforms (e.g., the vetting of judges and prosecutors), it has not prevented the instrumentalization of anti-corruption processes for political purposes or the use of legal reforms to entrench ruling party control. In fact, the external incentives for reform have, at times, enabled ruling elites to centralize power under the pretext of fulfilling international standards, thereby producing what Börzel and Pamuk (2012) call *"Europeanization in name only."*

The persistence of informal capture in the Albanian political system thus reflects a structural hybridization: a regime that is neither fully democratic nor openly authoritarian, but somewhere in between.

Understanding Albania's post-communist trajectory thus requires a shift from a procedural to a substantive conception of democracy. While formal criteria—such as constitutional provisions, the existence of elections, and EU integration benchmarks—are important, they are insufficient to capture the realities of political power. Instead, analytical attention must focus on the informal mechanisms through which power is exercised, loyalty is secured, and dissent is managed. Only by examining this dual structure of formal democratization and informal capture can we begin to assess the depth and sustainability of Albania's democratic transition.

Characteristics of Neopatrimonial Rule in Albania

Personalized Leadership and Clientelism in Albania

Since the early years of Albania's post-communist transition, political leadership has increasingly taken on a personalized character, with power concentrated in the hands of dominant individuals rather than institutionalized party structures. Both the centre-right Democratic Party (PD) and the centre-left Socialist Party (PS) have been shaped by charismatic leaders who exert tight control over internal dynamics. Prominent figures such as Sali Berisha, who led the PD for decades, and Edi Rama, the current Prime Minister and long-time leader of the PS, exemplify this trend of leader-centered governance. Their leadership styles have prioritized loyalty over deliberation, often sidelining intra-party dissent and reducing space for ideological debate or collective decision-making.

This personalization has eroded the foundational principles of internal party democracy. Decision-making is frequently top-down, with key political and policy choices made by the leader and a narrow circle of loyalists. As a result, party congresses, forums, and grassroots consultation processes have become increasingly symbolic rather than substantive. This centralization of power has had broader consequences for Albania's political system, contributing to a model of governance where political parties operate less as vehicles of democratic representation and more as clientelist networks for resource allocation and political loyalty.

In this context, clientelism becomes both a consequence and a tool of personalized leadership. Political appointments, public sector jobs, and government contracts are often distributed based on political allegiance rather than merit, reinforcing the leader's dominance and discouraging accountability. Electoral campaigns, too, are structured around the persona of the leader rather than party programs, further deepening the personalization of politics. This dynamic has hollowed out political institutions and undermined democratic consolidation, contributing to Albania's classification as a hybrid regime by numerous international observers (Freedom House, 2023)

Electoral Patronage and Vote Buying in Albania

Electoral competition in Albania is consistently undermined by systemic patronage networks and pervasive practices of vote buying, which distort the democratic process and weaken political accountability. International monitoring bodies such as the OSCE/ODIHR have repeatedly documented the misuse of administrative resources during election cycles, including the coercion of public sector employees, partisan distribution of state benefits, and abuse of state functions for electoral gain (OSCE/ODIHR, 2021, 2023). These practices are not isolated incidents but reflect entrenched clientelist structures that blur the line between state and party.

Vote buying, in particular, has become a normalized feature of Albania's electoral landscape, facilitated by informal networks and the lack of effective enforcement mechanisms. Political parties, especially those in power, exploit their control over employment, welfare programs, and licensing processes to cultivate electoral loyalty and suppress dissent. As such, elections function less as instruments of democratic accountability and more as ritualized affirmations of elite dominance—a phenomenon consistent with what Levitsky and Way (2010) describe as "competitive authoritarianism."

Instead of enabling citizen control over leaders, elections in Albania have become tools of symbolic legitimation for governing elites, reproducing a cycle of dependency and disempowerment. This dynamic severely limits the corrective function of elections envisioned by democratic theory (Powell, 2000), as voters are often incentivized or pressured to prioritize immediate material benefits over long-term political reform.

Subordination of Institutions

The formal architecture of democratic institutions in Albania has been persistently undermined by informal mechanisms of political control. State institutions that are supposed to function as neutral arbiters—such as the judiciary, electoral commissions, and regulatory agencies—have often been co-opted by political actors and repurposed to serve partisan interests. Although Albania has implemented major legal reforms in recent years, including the judicial vetting process supported by the European Union, the outcomes have been mixed. While the vetting initiative aimed to cleanse the judiciary of corruption and enhance professional standards, its implementation has been selective, lacking transparency and consistency, and has been perceived by some observers as a tool for political maneuvering rather than a neutral reform instrument (Freedom House, 2024; BIRN, 2023).

Moreover, the public administration remains deeply entangled with party politics. Rather than functioning as a professional, merit-based bureaucracy, it often operates as an extension of the ruling party's apparatus. Recruitment and promotion within civil service structures are frequently influenced by political affiliation, kinship, or electoral loyalty, contributing to a broader culture of clientelism. This undermines the autonomy and credibility of institutions and erodes public trust in democratic governance.

The resulting institutional subordination reflects a neopatrimonial logic, in which formal rules are hollowed out and subordinated to informal networks of control. This dynamic impedes genuine accountability, weakens the rule of law, and contributes to the reproduction of a hybrid regime structure, wherein democratic procedures exist in form but are void of substantive autonomy.

Marginalization of the Opposition in Albania

In recent years, Albania's political system has exhibited a persistent tendency to marginalize opposition forces through a combination of legal, procedural, and informal mechanisms. The formal architecture of multi-party democracy remains intact, yet the capacity of opposition parties to function as effective counterweights to governmental power has been systematically weakened. One notable feature of this process has been the use of *delegitimization tactics* by ruling elites, whereby opposition figures are portrayed as obstructive, anti-reformist, or even anti-national, thereby undermining their credibility in the public sphere (Freedom House, 2023).

Procedural tools such as changes to electoral laws without consensus, parliamentary boycotts, and the instrumentalization of independent institutions (including the judiciary and electoral commissions) have also contributed to diminishing the operational space for the opposition. The 2019 local elections, which were boycotted by the opposition and held without political competition in most municipalities, serve as a paradigmatic example of a formally legal process that lacked democratic legitimacy (OSCE/ODIHR, 2019). Furthermore, media monopolization and economic pressures on critical outlets have sharply curtailed pluralistic discourse, making it difficult for opposition narratives to reach the broader public (BIRN, 2021).

These developments have transformed political pluralism in Albania into a largely nominal principle. While opposition parties continue to exist and participate in electoral rituals, their ability to shape policy, hold the executive accountable, or mobilize societal discontent is severely constrained. The result is a de facto erosion of democratic competition, whereby elections serve more as instruments of regime affirmation than as genuine mechanisms of alternation or accountability (Levitsky & Way, 2010). This dynamic raises serious concerns about the consolidation of a hybrid regime in which formal democratic procedures coexist with an authoritarian style of governance

Implications for Democratic Legitimacy and Sustainability

The entrenchment of neopatrimonial practices in Albania has profound implications for the legitimacy and long-term sustainability of its democratic system. At the heart of democratic governance lie principles such as accountability, the rule of law, meritocratic access to public goods, and the recognition of equal citizenship. However, when state institutions are systematically instrumentalized to serve partisan interests, and when access to public resources becomes contingent on political loyalty rather than civic entitlement, these foundational norms are fundamentally compromised.

The erosion of institutional neutrality and the subordination of bureaucratic structures to informal power networks undermine public confidence in democratic processes. In such an environment, elections cease to function as genuine mechanisms of accountability and instead become ritualistic affirmations of entrenched elites. Moreover, the concentration of decision-making authority within informal, clientelist circles impedes the development of autonomous institutions capable of checking executive power or representing diverse social interests.

Albania's experience thus exemplifies a broader trend observable in many hybrid regimes, where formal democratic structures—parliaments, courts, electoral bodies—are maintained, but their substantive democratic functions are hollowed out. As Levitsky and Way (2010) argue, such regimes operate under a façade of constitutionalism, while real political power is exercised through informal mechanisms that escape public scrutiny and legal accountability. This dynamic creates a dangerous paradox: while elections are held and constitutions are observed in form, the democratic ideal of popular sovereignty is effectively displaced by elite dominance and patron-client relations.

If left unaddressed, this neopatrimonial logic risks pushing the system into further democratic stagnation or even authoritarian backsliding. Without meaningful institutional reform, the consolidation of democracy in Albania remains unlikely, and its legitimacy in the eyes of citizens continues to deteriorate.

Conclusion

Albania represents a paradigmatic case of a hybrid regime where the façade of formal democracy conceals the persistence of neopatrimonial governance. While constitutional norms, regular elections, and institutional frameworks are maintained, the actual exercise of power is mediated through informal networks, entrenched clientelism, and the personalization of authority. This disjuncture between formal democratic procedures and the substantive logic of neopatrimonialism undermines key principles such as accountability, the rule of law, and equal citizenship.

The Albanian case illustrates that democratic erosion does not necessarily entail the collapse of institutions, but rather their gradual instrumentalization in service of elite reproduction and partisan consolidation. Such a regime is resilient not because of institutional strength, but due to its ability to co-opt and neutralize institutional autonomy.

Overcoming this pattern requires more than surface-level legal reforms. It necessitates a deep reconfiguration of the relationship between political actors and institutions, the depoliticization of the state apparatus, and the restoration of meritocratic and rule-based governance. Without addressing the informal structures that underlie formal politics, any attempt at democratic consolidation risks being symbolic at best and counterproductive at worst.

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G2G Albania–Kosovo: A Format for Deepening Cooperation and Signing Bilateral Agreements. Is Everything Grounded in International Law?

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Abstract

Agreements are a fundamental instrument for regulating relations between subjects of international law. This study seeks to analyze whether the agreements signed during intergovernmental meetings between the Republic of Albania and the Republic of Kosovo over the past decade are in compliance with international legal standards and whether they have effectively contributed to the advancement of political and economic cooperation between the two countries. The proper implementation of the agreement-signing process—in line with established diplomatic practices, the provisions of the Vienna Convention on the Law of Treaties, and the broader framework of international law—is essential for ensuring sustainable inter-state cooperation. The central argument of this study is that the increasing number of bilateral agreements has not necessarily translated into improved public services or sustainable national development grounded in the human and natural potential of the two countries. Many of these agreements are either overlapping in scope or remain unimplemented. To test this hypothesis, the study adopts a theoretical framework grounded in the normative principles of international law and the best practices of diplomacy, which underpin the continuity and stability of inter-state relations. Despite the numerous opportunities to intensify cooperation across various sectors, the prevailing view is that bilateral relations have been largely symbolic and emotionally driven, rather than substantive or citizen-oriented (Demjaha & Peci, 2020, p. 7) The methodology employed involves a mixed-methods approach, including document analysis, cross-referencing of institutional data and official reports, assessment of the legal conformity of the agreements with international standards, as well as expert interviews.

***Keywords**: state, international law, cooperation, agreements, sustainability*

Introduction

The bilateral relationship between Albania and Kosovo has historically been characterized by a fraternal nature, shaped by deep-rooted historical, cultural, and political factors that form the basis of their mutual understanding. These relations trace back to the very origins of the Albanian people, whose history transcends modern political borders. In this context, the history of Albania is, by extension, the history of Albanians on both sides of the border—within the territories of both Kosovo and Albania. Our common language, shared cultural heritage, a unified historical narrative, and a collective identity are all powerful indicators of the profound and enduring connection between the two nations.

These intrinsic ties continue to serve as the cornerstone for fostering stronger cultural and political cooperation. Through joint initiatives and collaborative activities, both states contribute to the cultivation of a unified national consciousness and solidarity among Albanians across the region and in the diaspora.

The strength of such communal bonds plays a key role in the consolidation of bilateral relations, contributing not only to the preservation and promotion of Albanian cultural identity but also to the long-term sustainable development of both nations. To offer a quantitative perspective: the years 2023 and 2024—marked by record levels of foreign tourism in Albania—

registered 10 million and 11.4 million international visitors, respectively. Remarkably, nearly half of these visitors were from Kosovo, with 4.4 million in 2023 (INSTAT, 2023) and 4.7 million in 2024 (Instat, 2024).

This study also aims to investigate the legal and institutional dimensions of the Albania–Kosovo relationship, specifically by examining their bilateral cooperation as sovereign subjects of international law. Particular focus is given to the last decade, a period during which the number of bilateral agreements has increased significantly. This proliferation is largely attributed to the tradition of annual intergovernmental summits, initiated in 2014 in Prizren, as well as heightened public expectations for deeper cooperation through formal agreements. However, such processes have often resulted in superficial rather than substantive outcomes—frequently marked by overlaps, poor coordination, and a consumerist approach.

It must be emphasized that international agreements are not symbolic instruments; they are a primary source of international law, which prevails over domestic legal provisions. Therefore, interstate relations extend beyond mere governmental interactions. The legal path that an international agreement must follow within a state involves a broad spectrum of institutional actors and engages with the balance of powers and constitutional structures. This reflects the principle of state continuity, a foundational concept of the post-World War II international order, as institutionalized through the UN Charter and subsequent international conventions.

It is also important to recognize a fundamental distinction between Albania and Kosovo. Albania is primarily oriented toward socio-economic consolidation and national security, whereas Kosovo remains focused on consolidating its international subjectivity and ensuring its political survival.

Literature review

Agreements are an essential tool for regulating relations between subjects of international law. Their process involves negotiation, signing, ratification, and entry into force, ensuring that the parties involved—namely states or international organizations—are committed and capable of fulfilling their obligations, which extend beyond governments or changing majorities. In the context of relations between Albania and Kosovo, these agreements have played a significant role in deepening cooperation and developing a strategic partnership.

This paper addresses both primary and secondary sources. Throughout the research, we examined literature concerning the theoretical and normative framework on international agreements and international law, the situation in Kosovo, the International Court of Justice's decision on Kosovo's international subjectivity, official reports and documents on various governmental meetings, signed agreements, their progress, as well as reports from national institutions supported by the right to information and interviews.

After a multi-year transition and international protectorate, Kosovo declared independence on February 17, 2008. Many states recognized the new Republic of Kosovo, with Albania being among the first to recognize Kosovo as an independent and sovereign state.

Beyond the fact that relations between Albania and Kosovo have been and should be built on historical, cultural, and ethnic bases, following the declaration of independence, the formalization of this cooperation has been carried out through a series of intergovernmental agreements aimed at strategic cooperation in foreign policy, economic integration, facilitation of free movement, cooperation in education, energy, health, defense, and justice. These agreements are vital for the sustainable development of both states, as well as for the consolidation of Kosovo's international subjectivity (Berisha & Krasniqi, 2021).

The entry-into-force process of an international agreement is described in the Vienna Convention on the Law of Treaties (1969). Generally, it includes the following steps:

- **Negotiation** – parties agree on the content of the agreement.
- **Signing** – a political act, but not legally binding.
- **Ratification** – each state follows internal constitutional procedures (e.g., parliamentary approval).
- **Deposit of ratification instruments** – usually at an international organization or representative office.
- **Entry into force** – after the conditions stipulated in the agreement are fulfilled.

The creation of an international agreement begins with negotiations between interested parties. These negotiations usually take place at the diplomatic level and involve a series of discussions where parties express their interests and objectives and strive to reach a consensus on terms and conditions. In this phase, delegations from both countries play a crucial role in drafting a mutually acceptable document. It is often unclear and difficult to find information from official sources, working groups, or the Technical Secretariat regarding this early stage of agreement consensus.

After negotiations conclude, the agreement is signed by authorized representatives of the involved states or organizations, who must have plenipotentiary powers typically granted by the Head of State or the responsible institution. Signing does not automatically make the agreement binding but indicates the parties' consent to the content and their intention to ratify it. At this point, the document is recognized as an official act between states, i.e., an "international agreement" or "treaty."

Ratification is the formal process by which a state expresses its consent to be legally bound by an international agreement. This typically involves approval by national legislative bodies, such as the parliament or senate. In many countries, the president

or prime minister must also sign a decree or act to ratify the agreement. After ratification, the state deposits the instrument of ratification with the agreement's depositary (usually an international organization or host state), confirming that internal procedures for the agreement's entry into force have been completed.

International agreements enter into force according to conditions specified in the agreement's text. These conditions may include a minimum number of ratifications by participating parties or a specific date. Once these conditions are met, the agreement becomes legally binding for the parties and begins to produce legal effects. In some cases, agreements may require special procedures for entry into force at the national level.

After entry into force, the parties are obliged to implement the provisions of the agreement in accordance with international and national law. Implementation may be monitored by international organizations or special commissions established for this purpose. If a state fails to meet its obligations, it may face legal consequences, including international sanctions or litigation in international courts.

A meaningful example of bilateral international agreements includes the intergovernmental agreements between the Republic of Albania and the Republic of Kosovo, which cover cooperation in various fields such as the economy, infrastructure, education, and security. These agreements are signed and ratified by the governments of both countries and enter into force according to the procedures described above. But has this actually happened? This question is precisely the object of this study. Has the dialectic, time, professionals, or institutions adhered to the constraints of international law that guide sustainable cooperation between states?

In Albania, according to Article 121 of the Constitution, important international agreements are ratified by law by the Assembly, while in Kosovo, Article 18 of the Constitution requires ratification by a two-thirds majority for agreements with significant international impact (Constitution of Albania, 2008; Constitution of Kosovo, 2008).

Theoretically, international agreements are instruments for institutionalizing cooperation and reducing uncertainty in relations between states (Keohane, 1984). The theory of institutional liberalism argues that agreements create common norms, rules of the game, and help predictability, reducing transaction costs and the risk of conflict (Axelrod & Keohane, 1985).

According to regime theory, agreements are part of a broader network of practices, beliefs, and rules structuring state behavior in specific fields such as trade, security, or the environment (Krasner, 1983). For example, the Albania-Kosovo agreements form part of a bilateral regime aimed at creating a common economic market and an integrated public service sphere.

From a normative perspective, international agreements are not only legal documents but also political instruments expressing the will of two states to build mutual trust and sustainability in bilateral relations (Abbott et al., 2000). In the Albania-Kosovo context, agreements on mutual recognition of diplomas, removal of border controls for goods, and cooperation in energy systems exemplify this commitment.

A key element is the monitoring of implementation, which often remains insufficient in the Balkans. For example, some agreements have remained only on paper due to the lack of enforcement mechanisms, budgeting, or institutional coordination (Rukiqi, 2022). This underlines the importance of including enforcement and reporting mechanisms in every agreement to maintain its effectiveness and sustainability.

Literature on Albania-Kosovo agreements and the theoretical framework of interstate relations shows that agreements are strategic instruments that not only formalize cooperation but also help build sustainable and institutionalized relationships. However, political will and administrative capacity are essential for the long-term success of these engagements.

The first intergovernmental meeting between Albania and Kosovo was held on January 11, 2014, in Prizren. This historic meeting marked an important moment in the relations between the two countries, emphasizing the commitment to close cooperation. Several important agreements were signed during this meeting aimed at facilitating economic and trade cooperation, improving road and railway infrastructure, and coordinating energy and natural resource management.

Following this initial meeting, intergovernmental meetings became an annual tradition, with many agreements signed—approximately 100; however, none of the ministries responsible for depositing these agreements holds an exact or consistent record. Agreements have been signed in all executive responsibility areas:

- Foreign Policy (11)
- Economy and Trade (22)
- Tourism and Culture (14)
- Order, Security, and Defense (28)
- Justice (3)
- Education, Health, and Social Protection (8)
- Mobility and Technical Cooperation (8)
- Transport (8)

Source: Albania-Kosovo Coordinating Secretariat

This paper also aims to describe the main steps followed by an international agreement from signing to entry into force, analyzing examples from Albanian and Kosovar practice.

Signing implies political consent but does not make the agreement legally binding (except when signing is accompanied by immediate entry into force per the treaty text). Each state follows its internal procedure for ratification:

- In Albania, ratification is by law through the Assembly (Article 121 of the Constitution of Albania, 2008).
- In Kosovo, international agreements with general or broad impact require approval by two-thirds of the Assembly (Article 18 of the Constitution of Kosovo, 2008).
- Exchange of ratification instruments or deposit

If the agreement is bilateral, the parties exchange respective documents. In the case of multilateral agreements, instruments are usually deposited with an international organization.

An agreement enters into force according to its provisions (e.g., a specific date, after a certain number of ratifications, or immediately upon exchange of instruments).

Of course, based on all the literature reviewed, implementing agreements remains highly challenging due to overlaps of agreements and legal and administrative responsibilities, which ultimately burden the individuals charged with their enforcement.

Metodology

The methodology I have selected encompasses a mixed-method approach involving document analysis, cross-referencing information and institutional reports, assessing the compatibility of agreements with the provisions of international law, as well as conducting interviews with subject-matter experts.

International agreements constitute legally binding instruments that regulate relations between states and international organizations. To acquire binding force, such agreements must undergo a rigorously defined legal process to enter into effect.

In order to examine this process both academically and practically, I have deemed a qualitative methodology grounded in legal and documentary analysis to be the most appropriate. Specifically, this entails:

- Doctrinal Legal Analysis: A critical examination of international treaties, constitutional laws, and official documents to elucidate the procedures and criteria underpinning their entry into force.
- Case Study: An in-depth exploration of the overlapping international agreements within the domain of foreign policy, with particular emphasis on the legal process surrounding the "Strategic Cooperation Agreement in Foreign Policy" of 2019.
- Expert Interviews: Engaging with international law specialists to gain insight into the practical challenges that hinder the implementation of these agreements.

This combined methodological framework facilitates a comprehensive investigation of both the formal (legal) and substantive (practical) dimensions that characterize the operation of international agreements within a specific context.

Findings

The ratification and enforcement of international agreements is an inherently complex process, necessitating inter-institutional coordination and compliance with both domestic and international legal norms. An accurate understanding of this process is indispensable for comprehending how such agreements contribute to the construction of interstate relations and the implementation of joint policies.

Since the adoption of the Vienna Convention on Diplomatic Relations in 1969, international agreements have been firmly established as legal instruments that formulate and regulate interactions among states and international organizations. Above all, they represent objective norms binding on the parties, superseding domestic legislation and subjective volitions, while safeguarding the principle of state continuity. These agreements constitute a foundational pillar of international law, which generally prevails over domestic legal systems. Consequently, the legal processes governing their entry into force incorporate several additional safeguards designed to preserve the integrity of state interests.

Currently, official data obtained from the Technical Secretariat between the Republic of Albania and the Republic of Kosovo indicate the existence of approximately 116 agreements currently in force. Although 185 agreements have been signed between the parties, verification of the deposited agreements within the respective Ministries of Foreign Affairs reveals that only 116 are recognized as in force under international legal standards. The remaining 69 agreements have either lapsed due to expiration or were abrogated due to duplication.

A significant number of these agreements remain overlapping in thematic scope and subject matter. Moreover, discrepancies exist between the Ministries of Foreign Affairs of Albania and Kosovo regarding the number of agreements deposited, which effectively nullifies the validity of some agreements under international law.

Intergovernmental meetings between Albania and Kosovo have marked a critical milestone in deepening bilateral relations and strategic cooperation. These forums have played a supportive role in advancing the shared European integration agenda, targeting positive impacts across sectors such as the economy, tourism, identity, culture, education, security, and infrastructure. The agreements signed mirror these strategic objectives.

Nonetheless, despite these laudable aims, the implementation trajectory appears insufficiently aligned with international legal obligations. The tangible effects of commitments and improvements in the conditions of ethnic Albanians on both sides of the border remain limited.

To address monitoring of agreement implementation, oversight of working groups, and the creation of a shared database, the two governments established the Joint Technical Secretariat.

The Cooperation Protocol between the Council of Ministers of the Republic of Albania and the Government of the Republic of Kosovo for the establishment of the Intergovernmental Coordinating Secretariat was signed on 26 November 2021, and subsequently ratified by Decision No. 733 dated 03 December 2021.

The Secretariat, reporting directly to the two Prime Ministers, became operational on 8 February 2022 with the appointment of the Intergovernmental Coordinator, Mr. Gent Sala, while staff appointments were finalized over subsequent months.

The creation of the Technical Secretariat represented a significant institutional advancement in bilateral cooperation. Its primary purpose was to enhance coordination. Intergovernmental agreements and joint projects frequently necessitate close coordination and effective management; the Secretariat was thus designed to facilitate these functions by providing a permanent platform for communication and collaboration. Furthermore, the Secretariat aims to increase transparency and accountability. Its principal functions include:

- Monitoring and Evaluation: Systematic collection and analysis of data related to the implementation of agreements and joint projects, coupled with regular reporting to both governments.
- Project Coordination: Provision of logistical support, planning, and resource management to ensure timely and efficient project execution aligned with stated objectives.
- Administrative Support: Organization of meetings, preparation of documentation, and coordination of inter-ministerial and agency communications.
- Enhancement of Interinstitutional Cooperation: Facilitation of communication and collaborative efforts across various institutions in both countries, including organizing workshops and capacity-building initiatives.

The Secretariat is structured into functional units encompassing:

- The Monitoring and Evaluation Unit, responsible for data gathering and analysis.
- The Project Coordination Unit, overseeing the planning and implementation of joint initiatives.
- The Administrative Unit, delivering logistical and administrative support.
- The Interinstitutional Cooperation Unit, fostering interagency communication and collaboration.

In an interview, former Secretary-General and Director of the Directorate of Treaties, Mr. Armand Skapi—widely regarded as a leading expert in international law in Albania—emphasized:

"The Technical Secretariat is an entity established by mutual agreement of the two parties. Naturally, the Ministry responsible for foreign affairs manages and deposits agreements; for greater effectiveness and conformity with international law and domestic legislation, this instrument must operate in close cooperation with these ministries."

A 2020 Performance Report by the Supreme State Audit (KLSH) identifies insufficient interinstitutional coordination as a principal obstacle hindering effective implementation. Additionally, inadequate or delayed funding has impeded progress in joint projects. Variances in the legal and regulatory frameworks of the two countries have further complicated procedural harmonization and implementation efforts.

KLSH recommends the establishment of stronger coordination and communication mechanisms between institutions to facilitate more effective agreement implementation. Harmonization of legal and regulatory frameworks is also advised to remove administrative barriers. Ensuring sustainable funding and timely disbursement is critical for project success. Regular monitoring and evaluation mechanisms should be instituted to track progress and address issues promptly.

Case study: agreement on foreign affairs

The central theme of this study, and the case on which we base our hypothesis regarding the consumerist tendency in the signing of agreements, their overlap, the lack of ministerial coordination, and the debate surrounding their conformity with best practices and international legal norms, is the cooperation between the Republic of Albania and the Republic of Kosovo in the realm of foreign policy.

The **Strategic Cooperation Agreement on Foreign Policy** between Albania and Kosovo constitutes a critical juncture in the evolution of bilateral relations. This agreement, signed with the explicit objective of coordinating and harmonizing the

foreign policies of both states, aims to amplify their joint influence and representation in the international arena. This paper examines the trajectory of this agreement from its inception to the present, scrutinizing its accomplishments, challenges, and effects on the foreign policy frameworks of both countries.

The initial Strategic Cooperation Agreement on Foreign Policy was executed on November 27, 2016. Subsequently, it underwent ratification by the parliaments of both nations and entered into force on January 1, 2017. The agreement's objectives included enhancing coordination of foreign and security policies, bolstering cooperation within international and regional organizations, and promoting shared interests internationally. Moreover, it sought to extend diplomatic representation through the establishment of joint consulates and embassies, improve institutional capacities, and support the consolidation of Kosovo's international legal personality.

However, comprehensive data regarding the implementation of this agreement remains limited, whether through online sources, artificial intelligence tools, or involved stakeholders. Notwithstanding this, the opening of a joint consulate in Munich can be regarded as a notable positive development.

On July 2, 2019, the then-Minister for Europe and Foreign Affairs of Albania, Gent Cakaj, alongside his Kosovar counterpart Behgjet Pacolli, signed in Tirana a renewed Strategic Cooperation Agreement on Foreign Policy, which was ratified following its promulgation by President Hashim Thaçi of Kosovo. This subsequent state-level agreement entailed significant commitments and largely overlaps with the 2016 agreement. A comparative textual analysis reveals near-identical provisions; however, unlike its predecessor, it delineates explicit objectives and establishes concrete mechanisms to facilitate and monitor the adaptation of agreements. These mechanisms include:

- **Joint Committee on Foreign Policy:** Convening regularly to deliberate and coordinate issues of mutual foreign policy interest (Republic of Albania & Republic of Kosovo, 2019).
- **Regular Meetings of Foreign Ministers:** Facilitating alignment of positions on global and regional developments in international forums (Republic of Albania & Republic of Kosovo, 2019).
- **Joint Embassies and Consulates:** Instituted in countries where one party lacks diplomatic representation, thereby enhancing efficiency and reducing costs (Republic of Albania & Republic of Kosovo, 2019).

While information about the ratification process of the first agreement is sparse, interviews with members of the drafting working groups of the second reveal that procedural deadlines and best practices were circumvented, including the failure to establish mandated negotiation teams and complete obligatory phases prior to signing. Such actions represent a breach of the Vienna Convention on the Law of Treaties (United Nations, 1969).

Agreements between sovereign states cannot merely reflect the will of a single ministry or government; rather, the balancing of sovereign wills underpins the very existence of international law (Shaw, 2017). Empirical evidence suggests that despite the formal entry into force, the agreement's practical results fall significantly short of the expectations set forth in its text. Cooperation has not consistently been harmonious or synchronous across ministries.

"Cooperation in foreign policy and diplomacy has lacked a unified vision or harmonized strategy. There is a persistent absence of adequate coordination, evidenced by both states maintaining embassies in some countries while neither has representation in others. The closure of Albania's embassies in India and Bosnia—countries where Kosovo lacks diplomatic representation due to non-recognition—stands as a stark indicator of this deficiency. Furthermore, the Ministries of Foreign Affairs of Kosovo and Albania possess fewer political-strategic and economic documents than expected, primarily due to the appointment of partisan and incompetent personnel rather than qualified experts." Kurti highlighted in 2020.

The limited international influence of Albania and Kosovo, due to their size and economic and political capacities, further constrains the efficacy of their bilateral cooperation.

Hasani (2019) asserts that diplomatic cooperation between the two countries has predominantly focused on shared infrastructure and consular personnel resources, rather than strategic coordination or unified foreign policy efforts.

These observations underscore the need for reform. Had these agreements been negotiated and implemented within a robust state framework, Albania's OSCE Chairmanship in 2020 and its non-permanent membership in the UN Security Council would have served to elevate international awareness of Kosovo's rights and enhance its international legal personality, as originally envisioned (Republic of Albania & Republic of Kosovo, 2019). Regrettably, this potential remains unrealized.

Discussions

Albania and Kosovo, as two sovereign states, have established and may continue to establish bilateral agreements encompassing strategic, cultural, economic cooperation, education, and other domains deemed essential by both parties. These agreements are grounded in the respective laws and constitutions of the two states and require adequate political will to be effective. When both governments enter into agreements with aligned goals and objectives, they may elect to regulate these arrangements bilaterally rather than under the framework of international law (Berridge, 2015).

Conversely, to ensure conformity with international legal standards, certain interstate or bilateral agreements must be concluded in the form of an international treaty. Pursuant to the Vienna Convention on the Law of Treaties (1969), a

treaty is defined as "an international agreement concluded between states in written form and governed by international law" (United Nations, 1969, Article 2(1)(a); Berridge, 2015, p. 69). In practice, states seeking that their agreements carry binding international legal obligations must formalize them in writing and deposit a copy with the United Nations Secretariat. Through this process, the agreement acquires the status of an international treaty, which subsequently requires ratification by the respective national parliaments to attain full international legal effect (Berridge, 2015, pp. 68–71).

A critical question pertains to whether such agreements have substantively contributed to fostering closeness and deepening cooperation between the Albanian and Kosovar peoples, or whether they have been utilized primarily for public relations purposes, capitalizing on strong nationalist sentiments to the detriment of genuine collaboration.

The establishment of the Technical Secretariat (TS) has, indisputably, exerted a positive influence. By creating a dedicated entity responsible for coordinating and implementing joint projects, the efficiency of bilateral cooperation has the potential to increase significantly. This institution has enhanced transparency and accountability, with its role as a super partes oversight mechanism incentivizing improved performance among the responsible parties.

Moreover, the Secretariat's initiatives to strengthen institutional capacities through training programs and the dissemination of best practices have facilitated more effective coordination. This, in turn, has simplified the identification and execution of new projects reflecting mutual interests (Republic of Albania & Republic of Kosovo, 2022).

Nevertheless, notwithstanding these positive developments, progress appears insufficient, especially in critical and emergent sectors such as diplomacy. The expansion of diplomatic representation and capacity building remain below the anticipated thresholds

Limitations

It is very difficult to obtain authoritative primary information on such a topic. Nevertheless, this study includes such information.

Conclusions

International agreements are not merely bureaucratic documents—they constitute the pillars of international law and vital instruments for ensuring long-term cooperation between states. In the context of Albania–Kosovo relations, the proper and institutionally guaranteed signing of these agreements holds particular significance not only for the efficiency of cooperation but also for preserving the principle of state continuity, a necessary norm within the international system. This essay analyzes, through an analogous approach, how this principle—when rigorously applied—strengthens relations between the two countries and maintains the sustainability of their shared orientation despite political changes. Agreements are contracts of the state, not of the government. In international law, agreements signed by states represent ongoing commitments that are not dependent on electoral cycles or government changes. This is the essence of the principle of state continuity, which guarantees that an agreement signed by a particular government remains in force even when that government changes. In the context of Albania and Kosovo, this is especially important, given that both states are young democracies with high political dynamism.

The Strategic Cooperation Agreement in Foreign Policy, signed in Tirana on July 2, 2019, was not the product of a particular political majority but a state act aiming for long-term coordination in international representation in accordance with the common national interests of both states. Therefore, regardless of subsequent changes in prime ministers or governments in Tirana or Pristina, the agreement continues to hold validity and serves as a basis for sustainable cooperation.

To better understand the importance of proper signing and the application of the principle of continuity, one may compare an international agreement to the construction of a bridge linking the two banks of a river. If the bridge is built on strong legal and technical foundations—with a stable structure, an approved design, and guaranteed materials—it can withstand storms, water currents, and the passage of time. Conversely, if a bridge is constructed without precise measurements or building guarantees, any disturbance in the flow may cause it to collapse. The same logic applies to agreements between states: only those built on clear legal foundations and respect for constitutional procedures have longevity.

In practice, Albania has a clear procedure for ratifying international agreements, regulated by Article 121 of its Constitution, which stipulates that important international agreements must be ratified by the Assembly. Similarly, the Constitution of Kosovo recognizes the competencies for signing and ratifying international agreements vested in the President and the Assembly.

In some cases, bilateral agreements between the two countries have not followed the full parliamentary ratification procedure, creating legal uncertainty and opening the possibility for these agreements to be undone or ignored by succeeding governments. This poses a risk not only to the content of the agreement but also to the international credibility of both states.

The importance of long-term partnership

Only consolidated and enforceable agreements through institutional continuity can guarantee:

- Predictability in international relations
- Credibility from third-party partners (EU, USA, etc.)
- Preservation of political will for cooperation despite governmental changes

In the case of Albania and Kosovo, this is essential for sensitive areas such as joint diplomatic representation, European integration, and cooperation in the field of security.

The principle of state continuity and the proper signing of international agreements are two indispensable pillars for building a long-term partnership between states. For Albania and Kosovo, these elements are crucial to transform a close cultural and historical cooperation into a functional, institutionalized, and enduring collaboration. By respecting laws and procedures, the two states can establish a sustainable framework of relations that withstands time and daily political fluctuations.

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PANEL III

COLLABORATIVE INNOVATIONS: ADVANCING EUROPEAN STANDARDS IN MEDIA, EDUCATION, AND CULTURE

Disinformation and Media Consumption in the Post-Truth Era: A Generational Perspective

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Abstract

In the post-truth era, information dissemination has become increasingly influenced by subjective beliefs, emotions, and narratives, often at the expense of objective facts and evidence. People tend to seek out media that aligns with their beliefs, creating echo chambers that reinforce their views while limiting exposure to different perspectives. Thus, the "truth" is being targeted with mistrust and is no longer simply defined. The same viewpoints are branching out into echo chambers, making the information environment limited in viewpoints and perspectives and resisting multiple, open, and constructive approaches. This study examines the perception of citizens regarding the sources of disinformation in comparison with the sources they primarily rely on for information. Additionally, it explores the influence generational differences, forming a framework we will call conditioned content consumption that resists objectivity for biases and subjective perspectives. By analyzing public attitudes toward disinformation sources and the media platforms they trust most, the research seeks to understand the role of digital literacy, media consumption habits, and socio-political influences in shaping public trust and skepticism. Addressing generational variations in the perception of disinformation sources, alongside their preferred information sources, is crucial for fostering a more informed society and strengthening resilience against manipulated narratives in the digital and information space.

Keywords: *Post-truth, information disorders, digital and information space, media consumption*

Introduction

In today's rapidly evolving media landscape, how individuals consume and interpret information has been a major element of defining the post-truth era. As it becomes increasingly challenging to distinguish trusted and untrusted sources of information, factors such as age, selective exposure, and media literacy play a significant role. Current information overload has shaped consumption habits, while seeking the truth is no longer a rational endeavor but rather an automatic action influenced by personal biases and source perceptions.

Further, the perception of truth has become more dependent on the source rather than on its content or validity, and therefore the media's role is continuously being reshaped. The cycle created is both self-perpetuating and difficult to break in that media; reacting to trends continuously reaffirms the consumer's role as arbiter of fact. In determining how to create strategies that can make citizens resilient to disinformation, we must first understand these conditions and the relationship between the media and its audience. Some of the challenges are that disinformation, when linked to personal biases and source exposure, has become so skeptical that civic engagement efforts to educate the public are often overlooked. While there is little debate that disinformation is a problem, particularly during political events, public perception of the extent of its impact varies.

Information dissemination and communication of ideas in the pre-digital age was limited in scope and reach. From print news to the internet, media systems have evolved, making consumers of information more powerful and media more reactive. The rapid rise of technology ushered in a new era of media consumption that produced an environment where citizens could engage with news in any number of ways. Data now has the ability to reach billions of individuals within seconds, fostering a culture where the speed at which a story becomes viral is prioritized over being the first to provide a substantive, and even accurate, report. In other words, content is no longer an important aspect and efforts are placed only on sensational headlines that draw in audiences. This study explores the habits citizens develop around the current media landscape and theorizes that such habits are heavily influenced by their generational conditioning. For instance, can an individual's susceptibility to disinformation be determined by their primary source of information and news, and do these choices result in a resistance to accurate or factual information? What is the perception of the citizens about the source of disinformation? Additionally, is the perception of citizens about the source of disinformation consistent across different generations, and can this perception be specifically linked to age differences?

Country Context: North Macedonia

North Macedonia has a total population of 2.06 million, with 1.67 million internet users and 1 million active social media users (Kemp, 2025). Despite the increasing presence of digital media, television remains the primary source of information (61.5%), followed closely by social media (58%) (Metamorphosis, 2024). Younger generations primarily rely on social media for political news and events, while older generations continue to depend on television (IRI, 2023). Among various media types—including newspapers, news agencies, television, and internet portals—internet portals receive the most complaints regarding ethical violations at the national level. 54% of these complaints fall under Article 1 of the Code of Ethics, citing incorrect and unchecked information, the absence of a second source, and the lack of at least two independent sources (SEMM, 2025). Public trust in institutions and media in North Macedonia remains low. 41% of citizens do not trust online media, and 47% distrust social networks (SEENPM, 2021). The primary reasons for this

distrust include perceived political influence and the spread of disinformation. However, personal contact remains the most trusted source of information, followed by television (Metamorphosis, 2024). Additionally, the most-watched TV channels in North Macedonia (AAAMS, 2023) rank poorly on reliability indexes (Reporters Without Borders, 2024). This further emphasizes the challenge of ensuring accurate and unbiased information across major media platforms. The median age of the population in North Macedonia is 41 years. The largest age group in the country is 65+ (18.5%), followed by the 35-44 age group (13.8%) and the 45–54 age group (13.8%) (Kemp, 2025). The study revealed that the most susceptible age groups to disinformation in North Macedonia are the older population (46-59 and 60+), followed by the youngest age groups (<18 and 18-30). In contrast, individuals aged 31-45 demonstrate greater resilience to disinformation (Palloshi Disha & Rustemi, 2022). Additionally, the oldest age group (60+) exhibits the highest confidence in their ability to distinguish truth from false information, followed by the 46-59 age group (p. 172).

Literature Review

Each generation is conditioned to consume content in a specific way. Many factors, like age, gender and source availability, influence this type of habit formation. An analysis of each generational environment can provide insights into the framework within which certain demographics operate. This study theorizes that *conditioned content consumption* is a structure of habits regarding media and news while also considers an individual's age and access to media. Given the nature of this conditioning, the behavior is difficult to overcome in the digital era and is a challenge to media literacy and disinformation resistance. Moreover, it is likely a cause, if not the root cause, of the formed echo chambers produced by confirmation bias-seeking efforts.

To understand generational behaviors when it comes to media consumption, a break down the processes employed is needed. Confirmation bias, which manifests in the processing and interpretation of information that is encountered, looks for signs that align with a person's own belief system and weighs it more heavily than other data encountered (Strömbäck et al., 2022). Such internal processing habits are challenging to modify, even when there is substantial evidence to prove it is happening. This results in "knowledge resistance," a subconscious behavior that relies on habit and biases where the information consumed only reinforces belief systems, irrespective of the information it provides (Strömbäck et al., 2022).

Media in the digital age, both traditional and new, is in a seeming constant state of evolution. Technology spurred the growth of internet news, while user behavior boosted social media's influence. Younger generations, as the dominant users of media, in particular social media, are the driving force in how media outlets disseminate their news (Alzubi, 2023). With users' needs serving as a driving force, business models adjusted to meet the demands of preferences and social behaviors. All media, therefore, must move towards adapting to the social media model, in whatever way it is defined, or risk losing its audience. In other words, "journalism (like all institutions) is 'constantly in flux', home to a variety of actors with competing motivations" (Meese and Hurcombe, 2020). However, media, and journalism specifically, has long held the role of political watchdog or the arbiter of truth while also protecting the public interest and establishing "shared standards of professional practice" (Hallin and Mancini, 2004); all self-assigned obligations in a profession that has espoused journalistic integrity as an ideal since the dawn of the print era.

Methodology

Research Approach

This study employs a mixed-methods research approach, incorporating quantitative and qualitative techniques to analyze the foundations of media consumption and disinformation across different generations.

Desk Research

Desk research was conducted to analyze reports and research on citizens' media consumption habits in North Macedonia (NM) and sources they trust mostly. Reports from non-governmental organizations, relevant bodies, research institutes, and others serve as the basis for comparing media consumption habits with the article's quantitative research that revealed disinformation consumption habits based on the audience's perceptions. Both utilize generational differences as a variable for comparison. The desk research analysis is further supplemented and incorporated with the qualitative research part of the article. All of the reports taken into consideration were done by researchers and experts from the field of media and communication.

Qualitative Method: Semi-Structured Interviews:

Data collected from semi-structured interviews was analyzed for insight into the media industry's perspective on content consumption in North Macedonia. Interviews were conducted in person and over the course of several months

with journalists and editors from various journalistic disciplines, including print, television and online media sources. Information from each interview was analyzed for data relevant to the adaptability of traditional and new media in the post-truth era from the journalist's perspective. Factors like media platform and individual opinions on how to navigate the digital age and misinformation were considered. The overall theme of the interviews was a multi-pronged approach which included a discussion on the adaptability of media in the current digital age. Of the twenty interviews conducted, analysis of sixteen discussions provided the best insight into current mindsets of journalists in North Macedonia. They were studied for responses that addressed their roles, journalism adaptability, and strategies to address misinformation issues.

Quantitative Method: Public Survey

The quantitative method used a survey for a representative sample of n= 1,056 respondents out of a population of 1,817,312 citizens, who were randomly selected across different demographic groups to ensure diversity. The survey was administered to answer the citizen's perspective on the source of disinformation they usually encounter. Five options were given as possible sources of disinformation for a multiple selection, respectively: social media platforms, news websites, television, political parties, and influencers. As our research questions are based on generational differences, we used the demographic age group as a relevant category to our study. The survey used for this study was part of the larger terrain analysis survey that was implemented by the public opinion measurement agency INDAGO, with support from organizations such as The Institute for Democracy "Societas Civilis" Skopje (IDSCS), the Institute for Sociological, Political, and Juridical Research (ISPPI), and the International Foundation for Electoral Systems (IFES). The data collection process used the CAPI technique (Computer-Assisted Personal Interviewing). The research was conducted from the period of October to November 2024. The data collection of the survey results used the cross-tabulation method to test the hypothesis with the age variable through Microsoft Excel.

Ethical Considerations

This study strictly adheres to ethical research guidelines, ensuring confidentiality, voluntary participation, and informed consent. Participants are fully informed about the research purpose, and all survey data is anonymized to protect respondents' identities. Interviews with media representatives are conducted under rigorous ethical protocols, guaranteeing confidentiality unless explicit consent for disclosure is provided. All responses are securely stored and used exclusively for research purposes in compliance with data protection regulations. The study's findings are original and solely intended for this research, except where otherwise specified as part of the desk research.

Limitations of the study

The study analyzes a survey question and examines its implications with demographic factors such as age. Future research could explore the correlation between audience perceptions of disinformation sources, age, and other demographic factors that influence variations across age groups. The qualitative part might benefit if a focus group is added as a method to test the media consumption habits and perspectives on disinformation sources through different age groups. Future research may expand on these findings by incorporating longitudinal data, experimental methods, or additional quantitative and qualitative methods.

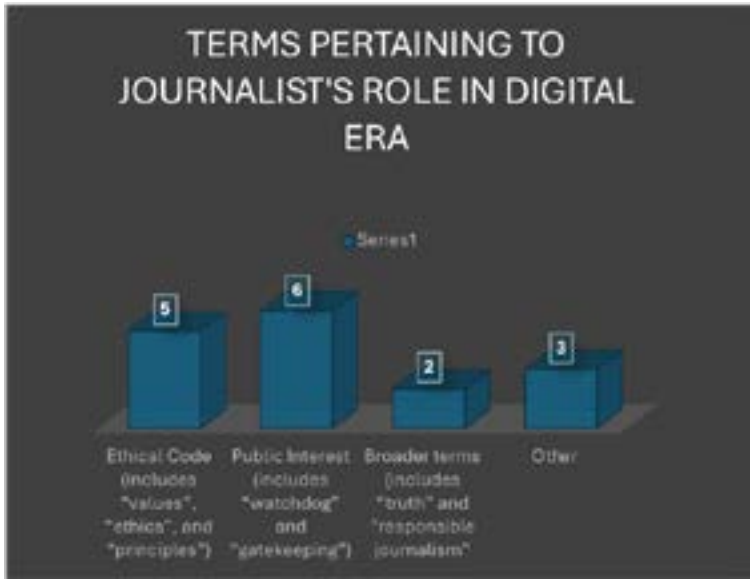
Findings and Analysis

Media Insights

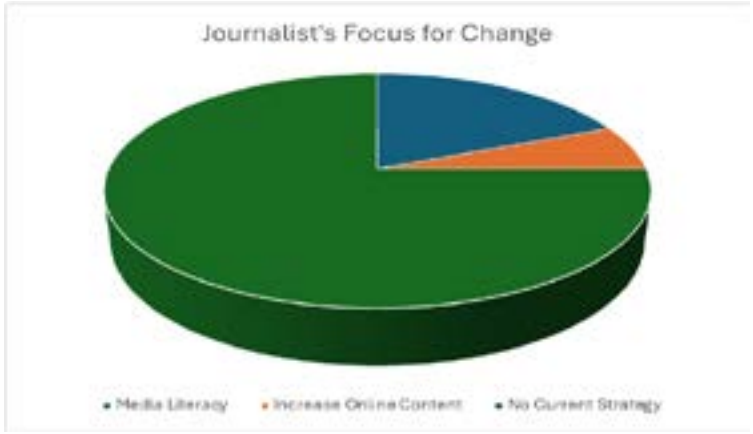
Exploring the relationship between media and media consumption habits is a complex venture that can be tackled from multiple directions. However, the relationship between media outlets and the consumers is perhaps the most tenuous. While traditional media, which includes television, radio and print journalism, pioneered the dissemination of information to the masses, its limitations also leveled the playing field for journalism as an industry and afforded all the time needed to fact-check, edit and otherwise present the news in the way they saw fit. In today's digital age, such time is no longer available to media outlets and the consumption habits of each newer generation has demanded quick information, whether it is factual or not. Journalism, as a result is placed in a position of adapt or lose audiences. Yet, many in traditional journalism, such as investigative journalists and news reporters, are resistant to the change that is being heralded by social media platforms.

In speaking with journalists from North Macedonia, there is some confusion within the profession as to what role they play in the post-truth era. While most of the journalists interviewed held strong beliefs in the ethics of their own work, there is a general acknowledgment that social media and the internet in general has "muddied the waters" with little or no suggestions towards how they might adapt. The case study included sixteen interviews with journalists on their current roles and what

their obligations as journalists lied. All sixteen interviewees indicated a higher calling in their professions which included a series of related terms (see table below) as the professional goal. Of the sixteen interviews analyzed, only a fraction had strong opinions on strategize for adjusting to the digital era. Terms that can be grouped under broader headings like "ethical code" and "public interest" were discussed in each interview as it related to the role of the journalist and included in the survey. There were specific roles raised by three interviewees which were included under the "Other" heading; 1) to provide balanced information; 2) to address corruption; and 3) to speak out against bad information/journalism.



Of the sixteen case studies, there was less consensus on strategies for adjusting to the current era of post-truth. Only a fraction indicated a need for strategies for change among their profession to account for the unchecked internet sphere. Three emphasized the need for media literacy to counter disinformation, while one suggested increasing good information on internet platforms.

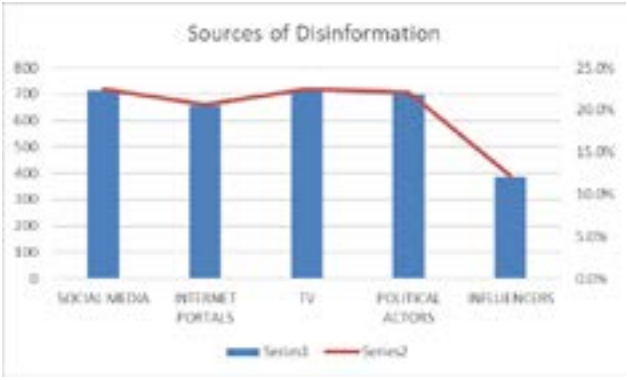


The majority of the interviewees had no specific strategy for adjusting to a digital era. However, there were strong opinions on the reliability of traditional journalism versus online media outlets. One interviewee indicated that the only reliable media source in today's environment is print media. He further elaborated that print media was reliable in its inherent necessity to be correct and factual at print without the ability to instantly edit as is the case with online sources (Anonymous, personal interview, October 23, 2024). This journalist's career spans multiple decades in print and television and corresponds to the preferences of his age demographic. It is also worth noting that although he claims a preference for print media, specifically newspapers, the outlet that he also owns has an online version available.

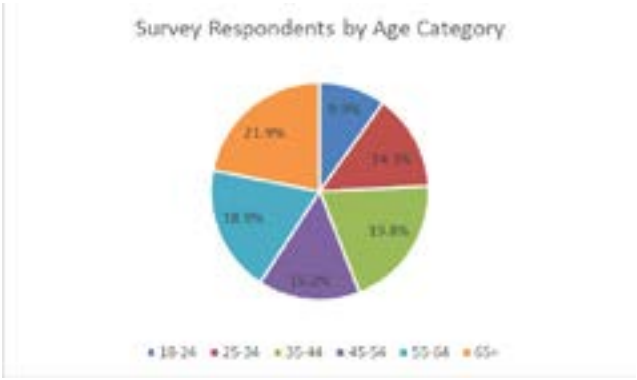
Alternatively, one journalist indicated that to focus on reliable media is unnecessary and that online media platforms can be effectively used if "good information" is promoted at the same rate as misinformation (Anonymous, personal interview, November 20, 2024). Her career as a journalist is shorter than that of the previous case study and currently uses online media platforms like YouTube and Instagram for dissemination of news. Moreover, in her thirties, her age group corresponds with the age demographic of audiences that prefer and rely on social media for news.

Citizens' perspective on the source of disinformation

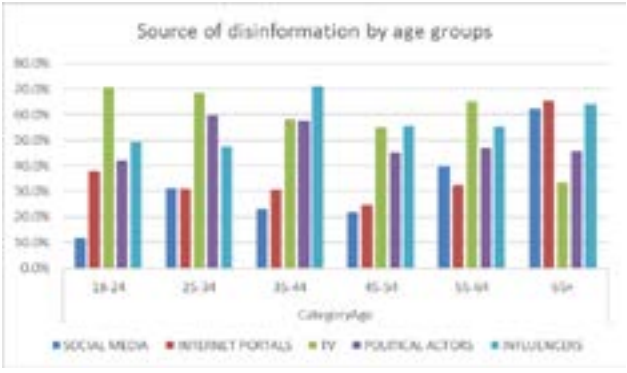
The survey question examined in this study contained five options for the sources of disinformation, including social media, internet portals, television, political actors, and influencers. The study aimed at revealing the perception of citizens of the source of disinformation they encounter. These results indirectly speak about their source of information preferences. As the study used multiple options to select, the results showed that the citizens of North Macedonia in general think that the primary source of disinformation that they encounter is social media (22.5%) and television (22.5%), followed by political actors (22.1%), internet portals (20.7%), and influencers (12.2%).



The results generally show little difference between the different categories, except for influencers, which are the least perceived source of disinformation. Nevertheless, we used cross-tabulation with the demographic age group to test how perception changes based on generational differences. We used six age group categories, shown in the following chart, including representative percentages of each age group.

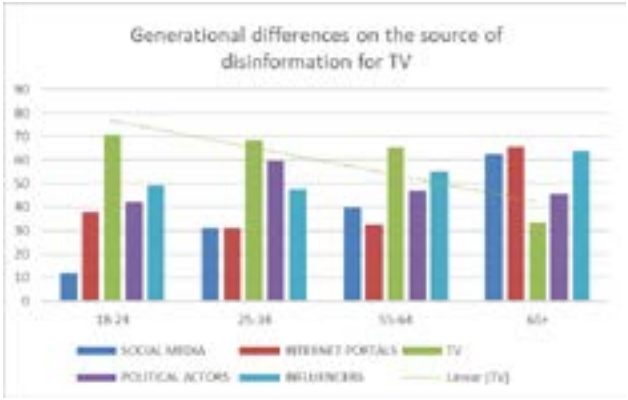


The perception of the citizens' based on age groups showed a high difference between categories. That said, it highlights the need to closer analyze the factors that might affect this difference between the age groups. The only unchangeable with slight differences is the category of political actors, which is perceived as a source of disinformation in a linear line (please see the chart below).

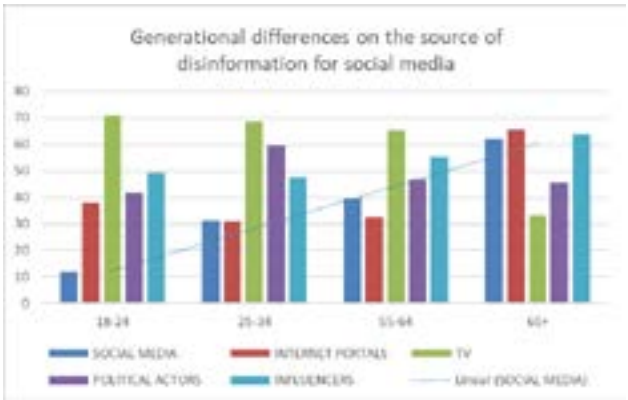


As mentioned above, perceiving information sources is emphasized clearly by the different age groups. Differences are obvious between the younger generations and the older ones. Therefore, we grouped the two youngest age group categories (18-24 and 25-34) and compared them to the oldest age groups (55-64 and 65+). This was done by comparing it for two most prominent categories (TV and social media), as our study revealed that these two options were selected similarly as a source of disinformation that the citizens encounter in NM.

As shown in the chart below, we can clearly see the trending line between the two major age groups and their differences in perceiving television as a source of disinformation. Respectively, the younger age groups assess television at a higher rate as a source of disinformation compared to the older age groups, who perceive it as a less encountering source of disinformation.



If we compare these two generations with social media as a source of disinformation, we would see the opposite trending line. The younger generation now perceives social media as a less encountered source of disinformation, compared to the older generations, who think that social media is a major source of disinformation. The trending line in the chart below highlights the identification of social media as a disinformation source, starting with the younger generation and increasing to a higher percentage among the older generations. Interestingly, it is worth highlighting that the oldest age group (65+) encounters internet portals at a significantly higher rate as a source of disinformation. As mentioned before, there is no significant difference across age groups in their perception of political actors and influencers as sources of disinformation.



Discussion

Generational Variations in Source Perception

The findings of this study reinforce existing literature while providing new insights into how different generations in North Macedonia perceive and respond to disinformation.

The study's conclusions highlight significant generational variations in North Macedonia's perceptions of disinformation sources. At the same time, previous research has revealed differences in vulnerability to disinformation among various age groups (Palloshi Disha & Rustemi, 2022). That said, generational differences are an important factor in the disinformation issue. Although television and social media are thought to be the most important sources of disinformation overall, age-group research reveals clear trends in how various generations evaluate these sources.

The study's main finding is that younger and older generations tend to perceive social media and television in the opposite ways. Younger individuals (18-34), who predominantly consume news online, are more likely to distrust television, viewing

it as a primary source of disinformation. In contrast, older individuals (55-64 and 65+), who primarily rely on television for news, perceive social media as the leading platform for spreading false information. This aligns with the research (IRI, 2023), where social media is the dominant news source for younger generations, while television remains the main source for older citizens.

Additionally, the study confirms the role of internet portals as a widely distrusted source of news, particularly among the oldest age group (65+). Previous research (SEMM, 2025) highlights that internet portals in North Macedonia receive the highest number of complaints regarding ethical violations, with 54% of cases linked to unchecked or misleading content. This suggests that older individuals may either be more exposed to unreliable online sources or have a heightened skepticism toward digital news portals. Another consistent finding across age groups is mistrust of political actors as sources of disinformation. This supports previous research (SEENPM, 2021), which found that 41% of citizens distrust online media and 47% distrust social networks, largely due to concerns about political influence and the spread of disinformation. The widespread skepticism of political communication further highlights the erosion of public trust in institutions and traditional media sources in North Macedonia, where the most watched TV channels aren't the most reliable sources of information (RwB, 2024).

These findings demonstrate the close connection between media consumption patterns, disinformation vulnerability, and disinformation perceptions. According to the generational divide, media literacy initiatives should be adapted differently for younger and older audiences. While elderly individuals may need assistance in effectively navigating digital news sources, younger people could benefit from critical engagement with online content, emphasizing the importance of evaluating different media channels and perspectives.

Conditioned Content Consumption

The quantitative data in this study indicates that conditioned content consumption is not only a contributing factor to the emergence of a post-truth era but also represents one of the most formidable challenges in fostering resilience against harmful narratives and biased reporting. What the data shows is that age is a primary factor in perceptions of media and their roles in the spread of disinformation. Accordingly, the younger generations are heavily reliant on internet portals and online media platforms for their news and social engagement. This creates an environment where it is easier to sustain echo-chambers and limited social spheres that align with personal and political beliefs. It is worth noting that the demographic most resistant to online media is aging which makes conditioned content consumption specific to the current point on the digital era timeline.

Media adaptability and Strategies

The case studies examined the evolving role of media in the digital era and its own part in the conditioning of audiences to consume content in a specific way. Originally the pioneers of how truth is perceived, its role has since been challenged by algorithms and tech-savvy audiences in an environment where media choices are plentiful. Audiences have become the primary drivers of how information is presented, and they are doing this based on their own generational conditioning with older audiences relying heavily on traditional modes of media like television and younger audiences moving towards internet sources and social media as the trusted source. This behavior conflicts with the long-established roles of the journalist, a perception that has historically been self-driven through their own code of ethics. Additionally, their inability to develop a coherent and industry-wide strategy for maintaining relevance in the digital era suggests a strong resistance to change. This study examines how their own media consumption is as conditioned and ingrained as that of its evolving audiences.

When asked about the role of journalism in North Macedonia, generally and also as it pertained to state-building, the responses were consistent with journalists who continue to view their role as the gatekeepers of truth and factually-based context. The extent to which their roles serve in the public interest is also a function of their own established ethical guidelines. The terms used to self-describe are notably specific and indicative of an almost conditioned response. Journalism in North Macedonia, as a part of the greater media landscape and in spite of its professed preferences and almost disdain for online media outlets, has made some attempt at adapting to the current digital era. Most of the print and even television outlets have an online presence. Yet a consensus exists that online media is unchecked and requires some regulatory effort to control its impact on disinformation spread.

Conclusion

Today, media institutions are struggling to maintain credibility and adapt to a rapidly changing digital landscape in which audience-driven media consumption dictates content trends rather than journalistic integrity. This study presents various perspectives through a qualitative and quantitative approach on information consumption and disinformation source perception from both the citizens' and journalists' viewpoints through the age-group lens. Findings suggest that conditioned content consumption plays a major role in shaping how different age groups perceive and interact with

media, contributing to the challenges of combating disinformation. The study further highlights the close relationship between media consumption habits, generational conditioning, and journalistic adaptation in the digital era with findings that suggest that *conditioned content consumption* plays a key role in shaping how different age groups perceive and interact with media, contributing to the challenges of combating disinformation. Younger generations, who are more reliant on internet portals and social media, are at greater risk of echo-chamber effects, reinforcing their personal and political beliefs. Meanwhile, older generations, despite their skepticism toward digital platforms, continue to rely on traditional media like television, reflecting their resistance to online sources and, at the same time, their susceptibility to disinformation and confirmation bias.

In comparing generational preferences in an environment that is high-choice in information options, the study sought to draw some parallels between the age factor and source of news preferences in a way that highlighted its complicated relationship with confirmation bias and knowledge resistance. Further, the study proposed that this type of habit-forming consumption is particular to the current state of generational preferences. The older demographic continues to rely on television as a primary source for news and information, having experienced the print era and grown up with television and newspaper media, both of which were thoroughly edited and fact checked. While no longer the case, as we now have entertainment media examples that are no less able to disseminate bad information than online media, this preference impacts political decision-making and lessens an individual's ability to discern truth.

In conclusion, these findings emphasize the urgent need for media literacy strategies that are tailored to address both generational differences and industry-wide challenges. While younger audiences require tools to critically engage with digital content, older audiences need support in navigating online media responsibly. Furthermore, journalistic institutions must adapt to the realities of digital consumption without compromising ethical standards and credibility. Addressing these issues will be crucial in fostering public resilience against disinformation and ensuring that media serves its role as a trusted source of information in North Macedonia.

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A Worldwide Comparative Analysis of ICT Development Index

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Abstract

The ICT Development Index is an important tool in measuring countries' technological capacity and articulating the differences between high-technology and less-developed countries. The following research paper will discuss the ICT Development Index as a concept, including its measurement framework and its use in identifying the trends and gaps of ICT development across the world. The research also highlights the increasingly important role that technology is playing in national development and the need to address the global divide in ICT capacity to make targeted investments and policy decisions that foster technological growth. Data for this study were obtained from the 2024 ICT Development Index Report, and a descriptive analysis approach was used to outline patterns and trends in ICT scores across different countries. The research showed pronounced inequalities in the development of ICT, where high-income countries were leading, while the greatest gaps in ICT development are concentrated

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in developing regions. These findings make the increasing urgency of targeted investment in ICT infrastructure and education, particularly in low-income countries, urgent to reduce the digital divide and achieve more equal technological progress around the world.

***Keywords**: ICT Development Index, digital divide, technological capacity, technological growth, ICT infrastructure, education.*

Introduction

Information and communication technologies (ICTs) are widely considered to be the building blocks of the modern knowledge-based economy. They act as a catalyst for innovation, efficiency and competitiveness in both developed and developing countries. In the broader context of national economic development, governments are increasingly prioritising the transformation towards an information-based economic model. This shift is seen as essential to sustaining industrial growth and improving economic productivity. As countries continue to advance in technology, their economic environments are becoming increasingly dependent on digital tools, platforms and infrastructure. However, the process of transition to an information-based economy is uneven and poses significant challenges. While technological progress provides a strong basis for economic development and modernisation, it also contributes to increasing inequalities in access to information and communication resources. These imbalances lead to an unequal distribution of benefits, resource inefficiency and a widening gap in global development.

A country's ability to compete globally, promote innovation and achieve sustainable development increasingly depends on the effectiveness with which it uses ICT. However, there are large differences in the ability of nations to exploit digital technologies, giving rise to a persistent "digital divide". This gap not only limits access to economic opportunities, but also limits individuals and communities' access to essential services such as education, healthcare and public support. The consequences of this gap are far-reaching and can perpetuate cycles of poverty, underdevelopment and social exclusion. One of the main tools used to assess this phenomenon is the Information and Communication (ICT) Development Index (ICDI), which adopted a standardized measurement framework, the Micro, Small and Medium Enterprises (MSME) approach based on the MIPS standard.

The IDI allows for international comparisons by analyzing critical indicators such as broadband internet access, mobile phone penetration, internet usage and digital literacy. This comprehensive assessment provides policymakers, researchers and stakeholders with valuable insights into where more investment and targeted strategies are needed. This paper delves into the methodology and meaning of the ICT Development Index, examining how its different components reflect the state of digital readiness and inclusion in different countries and regions. Based on the ICT Development Index Report 2024, this study provides a descriptive and comparative analysis of ICT trends at the global, national and subnational levels. The results illustrate the wide gap between high- and low-income countries, with developed economies continuing to lead in terms of access to ICT infrastructure, quality education in digital skills and innovative capacity. In contrast, many developing countries face systemic constraints, including aging infrastructure, high costs of digital access, and inadequate policy frameworks.

These systemic gaps not only hinder socio-economic development in advantaged regions, but also exacerbate global inequality. To address this challenge, a structured strategy is needed, which includes significant investments in ICT infrastructure, reform of the education system to promote digital literacy and policy innovation, to reduce costs, and to expand the reach of ICT services. Collaboration between governments and international organizations for private sector development will be essential for the effective implementation of this strategy. Key initiatives include expanding broadband coverage, launching a national digital literacy campaign, and ensuring affordable access to equipment and services for disadvantaged populations. Recognizing the urgency of this problem and taking proactive measures will help build a more inclusive digital future. By promoting equal access to all information and communication technologies (ICTs), the global community can maximize the potential of technology as an engine for human progress, economic growth, and sustainable development for all.

Literature review

ICT Development Index by Country 2024

The Information and Community Technology Limits Index (TIK) is an area of interest for the use and improvement of the level of technology and infrastructure available in the sale. I will have to learn to progress after visiting the TIK-ut in another button, I will indicate to identify the sale of what happened in the dixhitale transformation and what happened. I wait for you as a creative tool, so you are a strategic strategy for truth, political education and organization that deals with creating a global situation. Duke renditur kombet bazuar in treguesit kryesorë, the zbulon index contrasts with the strong technological investment and what may be needed for investments to be considered on flexible infrastructure and the future.

The other global economy has become more distinct, the trend and TIK in the form of innovation, abandonment of life, economic competition and social benefits can not be ambivalent. Selling my ability to work with TIK-ut, the tendency to lose weight could be, whatever you can do and your career understands you. Unfortunately, sell me the opportunity to do TIK-ut that challenges me to shop on the Internet, infrastructure and infrastructure, a digital work experience and spending on improving the global digital economy. The TIK-ut limit index (IDI) is a great critical and debated criticism and a catalyst for investment strategies in technology and communication.

Goals of the ICT Development Index

The ICT Development Index is designed with four main objectives, all aimed at promoting equitable and sustainable digital progress worldwide. First, it aims to determine the current state of ICT development in each country by assessing specific and measurable indicators. This provides a clear picture of where nations stand in terms of digital progress. Second, the index tracks the continued progress of developed and developing countries in improving ICT infrastructure, usage and literacy, providing valuable insights into global and regional trends over time.

Third, the IDI plays a crucial role in identifying and highlighting inequalities among nations. By focusing on lagging countries, it highlights the urgency of addressing inequalities in digital access and development. Finally, the index explores each country's future ICT growth potential based on existing infrastructure, policy context and human capital. Together, these objectives ensure that the IDI remains an important and strategic tool for shaping national and international digital agendas.

What Does the ICT Development Index Mean?

A country's IDI score is more than just a number: it is an indicator of that country's ability to participate in and benefit from the digital age. High scores typically reflect a strong broadband internet infrastructure, high internet and mobile penetration rates, and a digitally skilled population. For policymakers and stakeholders, this score serves as a diagnostic tool, enabling them to identify gaps in ICT access, use, and skills, and to formulate targeted interventions for improvement.

Furthermore, analyzing the evolution of IDI scores over time helps monitor a country's ICT trajectory, whether it is advancing, slowing down, or lagging behind in terms of digital development. Comparing a country's IDI score with others in similar economic or geographical contexts allows for benchmarking and sharing best practices. This comparison helps identify strategies that work elsewhere and what can be adapted to local contexts to achieve more effective policy outcomes.

Measurements Used to Calculate the ICT Development Index

The ICT Development Index is based on 11 key metrics, organized into three main categories: access to ICT, use of ICT and ICT skills. These categories do not have equal weight, reflecting the relative importance of each in contributing to overall ICT development.

- Access to ICT (40% of the total score): This component measures the availability and quality of infrastructure, such as fixed telephone lines, mobile phone subscriptions, international internet bandwidth, households with computers and households with internet access. It includes five separate metrics, each of which contributes equally to the access sub-score.
- Use of ICT (40%): This category focuses on how people actually use ICT tools and services. It includes indicators such as the percentage of individuals using the internet, fixed internet subscriptions and mobile internet. This section contains three metrics, each of which has equal weight.
- ICT skills (20%): The last component assesses the population's ability to use technology effectively. It includes metrics such as adult literacy rates, gross enrolment ratios in secondary and tertiary education, and the number of skilled ICT professionals. Its weight is lower because skills development, while essential, is often the result of investments in infrastructure and access. By placing greater emphasis on access and use, the IDI reflects the immediate impact of infrastructure and service availability on digital inclusion and development. Within each category, metrics are normalized and standardized to ensure comparability across countries with different population sizes, income levels, and socio-economic backgrounds.

Countries with High IDI Values

Countries with high IDI scores typically benefit from advanced infrastructure, widespread internet use, and strong digital education systems. In the 2024 ranking, Iceland remains the top country with the highest IDI score globally, thanks to near-universal internet coverage, access to high-speed broadband, and strong digital policies. South Korea and Switzerland follow closely behind, both known for their technologically advanced economies, highly connected populations, and strong government support for digital innovation. These countries illustrate what it means to build a mature information society where technology is seamlessly integrated into daily life, business, and governance.

Countries with Low IDI Values

At the other end of the spectrum, some countries still face serious challenges in achieving digital transformation. According to the latest IDI report, Eritrea maintains the lowest score among the 176 countries assessed. Contributing factors include limited internet access, weak telecommunications infrastructure, low ICT literacy levels, and limited technology investment. These challenges are compounded by economic constraints, political instability, and geographic isolation, which further hinder the country's ability to keep pace with global ICT trends. Other countries with lower scores also share similar obstacles, highlighting the critical need for global cooperation, financing, and strategic planning to help them progress toward a digital future.

Key issues in education

Education remains one of the most vital pillars of human progress, economic development and social well-being. Despite its recognized importance, the global education system continues to face a number of profound challenges. These problems vary in intensity and nature across regions and countries, but some are universally recognized. Among the most pressing and widely recognized challenges is educational inequality, which manifests itself in several interconnected forms, affecting millions of students worldwide. These problems have been documented and analyzed in a vast academic and policy literature, highlighting the urgent need for systemic reform and sustained international attention. Educational inequality does not exist in isolation: it is deeply intertwined with broader socio-economic, political and cultural inequalities. Children born into poverty, those affected by war and conflict, and marginalized communities often face significant obstacles in obtaining even a basic education. This inequality worsens over time, resulting in limited opportunities for employment, civic engagement, and personal growth. The following areas highlight key dimensions of the global education crisis:

- Access to education: One of the most persistent problems in global education is the lack of universal access. In many parts of the world, especially in low-income countries, conflict zones, or remote areas, children and youth are unable to attend school regularly, if at all. Barriers to education often include extreme poverty, which forces children to work instead of learning; gender discrimination, which disproportionately keeps girls out of the classroom; and armed conflict, which destroys infrastructure and displaces entire populations. Even when schools are available, they may be far from students' homes and there may not be reliable or safe transportation. In other cases, families cannot afford basic necessities such as uniforms, books, or school fees. These physical and economic barriers together contribute to high rates of school dropout and illiteracy, especially among marginalized groups.
- Quality of Education: Another critical issue is the quality of education provided to students, even in regions where schools are accessible. Unstable teaching standards, outdated textbooks, and overcrowded classrooms impact students' ability to learn effectively. In many developing countries, teachers may lack formal training or receive insufficient support from ministries of education, resulting in unprepared educators and poor classroom management. In addition, many school systems still rely on traditional, repetitive learning methods that fail to equip students with critical thinking, creativity, or practical problem-solving skills. Without modernized curricula and investment in innovative teaching methodologies, the quality of education stagnates or even deteriorates over time. This impacts students' learning outcomes, employability, and ability to participate fully in society.
- The Digital Divide: The rise of technology in education has created new opportunities, but it has also brought with it a new form of inequality: the digital divide. The COVID-19 pandemic has accelerated the global shift to online and hybrid learning, revealing how unprepared many regions were for this transition. Students in rural, low-income, or underserved urban areas often lack reliable access to the internet, computers, or even electricity. This lack of access has widened the educational gap between digitally connected students and those who are not. For example, students in developed countries may benefit from high-speed internet, online platforms, and digital libraries, while those in remote villages may rely on printed flyers or radio broadcasts if they have them. Without coordinated action to improve digital infrastructure and computer literacy, millions of students risk being left behind in an increasingly digital world.
- The Importance of the Curriculum-Skills Mismatch: A growing challenge in education today is the mismatch between curriculum content and labor market demands. Many education systems still teach outdated material, failing to equip students with the skills needed for the 21st century workforce. The rapid rise of fields such as computer science, healthcare, data science, and renewable energy require new skills—coding, communication, teamwork, analytical thinking—that many students are not being trained for. This curriculum gap means that even graduates with formal education may struggle to find work, contributing to high youth unemployment and underemployment in many countries. Closing this gap requires regular curriculum updates, increased collaboration between educational institutions and industry leaders, and increased investment in career and technical training programs.
- Mental Health and Well-Being: Recently, students' mental health and emotional well-being have become a growing concern in modern education systems. Around the world, students face enormous pressure to succeed academically, often without adequate psychological support. Issues such as anxiety, depression, bullying, family stress, and social

isolation can interfere with learning. In many schools, especially in under-resourced areas, mental health services are limited or nonexistent. Teachers may not be trained to recognize and respond to students' emotional needs, and stigma around mental health often prevents them from seeking help. Prolonged exposure to stress and trauma can lead to absenteeism, lower academic performance, and higher dropout rates. A more holistic approach to education, which promotes not only cognitive development, but also emotional intelligence, resilience, and self-care, is needed to support students' overall well-being.

Ultimately, addressing these educational challenges requires a multifaceted and coordinated global effort. Governments, NGOs, educators, and communities must work together to ensure inclusive, equitable, and quality education for all. Only by addressing issues of access, quality, relevance, digital inclusion, and student well-being can we build an education system that truly prepares individuals to thrive in an ever-changing world.

Some relevant global indexes and rankings in education worldwide

For a clearer picture of how different countries perform across these issues in education, below have been shared some examples based on well-known sources for:

- Access to Education
- Quality of Education
- Digital Divide
- Curriculum Relevance
- Mental Health and Well-being

1. Access to Education

- UNESCO's Education for All Global Monitoring Report and the World Bank publish data on the number of children not attending school.
- Global Education Monitoring Report (GEMR) highlights countries with limited access to education due to poverty, conflict, or gender discrimination.

Countries with low access:

- Chad (UNESCO, 2020)
- South Sudan (World Bank, 2022)
- Niger (UNESCO, 2020)
- Syria (UNICEF, 2021)

Countries with high access:

- Finland (OECD, 2021)
- Denmark (OECD, 2021)
- Norway (OECD, 2021)

2. Quality of Education

- OECD's Programme for International Student Assessment (PISA) evaluates student performance globally in reading, mathematics, and science.
- The World Bank Education Quality Index provides insights into the education quality in different countries.

Top-performing countries (PISA scores):

- Singapore (OECD, 2020)
- South Korea (OECD, 2020)
- Finland (OECD, 2020)
- Japan (OECD, 2020)

Countries with lower quality:

- India (World Bank, 2020)
- Nigeria (UNICEF, 2021)
- Indonesia (World Bank, 2020)
- Pakistan (UNICEF, 2021)

3. Digital Divide

- International Telecommunication Union (ITU) tracks global internet access and digital inclusion.
- World Economic Forum's Networked Readiness Index looks at digital access in education.

Countries with high digital divide:

- Ethiopia (ITU, 2021)
- Bangladesh (ITU, 2021)
- Afghanistan (ITU, 2021)
- Chad and Niger (ITU, 2021)

Countries with strong digital inclusion:

- Estonia (World Economic Forum, 2020)
- South Korea (OECD, 2021)
- Denmark (OECD, 2021)

4. Curriculum Relevance

- World Economic Forum's Global Competitiveness Report tracks the alignment of education systems with workforce needs.
- OECD's Skills Outlook looks at the adaptability of education systems to the modern job market.

Countries with strong curriculum relevance:

- Finland (OECD, 2020)
- Germany (OECD, 2020)
- Singapore (OECD, 2020)

Countries with curriculum challenges:

- India (World Economic Forum, 2020)
- Brazil (OECD, 2021)
- Nigeria (OECD, 2020)

5. Mental Health and Well-being

- OECD's Education Policy Outlook and World Health Organization (WHO) report on student well-being.
- UNICEF's State of the World's Children Report includes data on mental health and education.

Countries with better mental health support:

- Finland (OECD, 2021)
- Canada (OECD, 2021)
- Australia (OECD, 2021)

Countries with mental health challenges:

- South Korea (OECD, 2021)
- Japan (OECD, 2021)
- China (OECD, 2021)

Methodology

This study employs a descriptive statistical approach to analyze the global disparities in ICT development, based on data from the 2024 ICT Development Index Report. Descriptive statistics were used to summarize and interpret ICT Development Index (IDI) scores across different countries, providing insights into technological disparities between high-income and low-income regions.

Data Collection

The data for this study were obtained from the 2024 ICT Development Index Report, which provides a comprehensive assessment of ICT access, use, and skills in various countries. The report includes standardized ICT indicators that measure digital infrastructure, connectivity, and human capital related to technology adoption.

Data Analysis

A descriptive statistical approach was applied to examine trends and patterns in ICT development. The following statistical measures were used:

- Measures of Central Tendency (mean, median, and mode) to determine the average level of ICT development across different income groups.
- Measures of Dispersion (range, variance, and standard deviation) to assess the variability in ICT scores among countries.
- Frequency Distributions and Percentiles to categorize countries into different ICT development levels and identify outliers.
- Comparative Analysis to highlight gaps between high-income, middle-income, and low-income countries by grouping nations based on their ICT scores and analyzing their relative standings.
- Visual Representations such as bar charts, histograms, and box plots to illustrate disparities and trends in ICT development across different regions.

TABLE 1. ICT Index by country (ICT Development report 2024)

No	Country	ICI Dev Index 2024
1.	Kuwait	100
2.	Finland	98.1
3.	Estonia	97.9
4.	Singapore	97.8
5.	Qatar	97.8
6.	UAE	97.5
7.	Bahrain	97.5
8.	Hong Kong	97.4
9.	Denmark	97.1
10.	United States	96.7
11.	Iceland	95.9
12.	Poland	95.8
13.	Saudi Arabia	95.7
14.	Brunei	95.7
15.	Sweden	95.3
16.	Australia	95.1
17.	Malaysia	95
18.	South Korea	94.4
19.	Austria	94.3
20.	Latvia	94.3
21.	Lithuania	94.2
22.	Macau	94.1
23.	United Kingdom	93.6
24.	Malta	93.5
25.	Norway	93.4
26.	Japan	93.2
27.	San Marino	92.7
28.	Luxembourg	92.6
29.	Monaco	92.6
30.	Spain	92.5
31.	Netherlands	92.5
32.	Israel	92.5
33.	Switzerland	92.4
34.	Liechtenstein	92.3
35.	Chile	91.7
36.	Oman	91.7
37.	Thailand	91

38.	Slovenia	90.8
39.	Ireland	90.7
40.	Russia	90.6
41.	New Zealand	90.3
42.	Kazakhstan	90.1
43.	Uruguay	89.9
44.	France	89.8
45.	Croatia	89.6
46.	Belgium	89.3
47.	Bahamas	89.3
48.	Andorra	88.8
49.	Bulgaria	88.7
50.	Canada	88.6
51.	Cyprus	88.6
52.	Belarus	88.5
53.	Kyrgyzstan	88.3
54.	Libya	88.1
55.	Czech Republic	88
56.	Montenegro	87.9
57.	Germany	87.8
58.	Georgia	87.8
59.	Italy	87.7
60.	Serbia	87.7
61.	Romania	87.6
62.	Turkey	87.5
63.	Portugal	87.4
64.	Hungary	87.4
65.	Slovakia	87.1
66.	Mongolia	87
67.	Morocco	86.8
68.	Greece	86.5
69.	Armenia	86.4
70.	Bhutan	85.9
71.	China	85.8
72.	Vietnam	85
73.	Uzbekistan	84.9
74.	Jordan	84.9
75.	S. Kitts and Nevis	84.9
76.	Costa Rica	84.8
77.	Albania	84.7
78.	Seychelles	84.7
79.	Mauritius	84.2
80.	South Africa	83.6
81.	Argentina	83.4
82.	Indonesia	82.8
83.	Suriname	82.5
84.	Iran	82.2
85.	Brazil	82
86.	North Macedonia	82
87.	Maldives	81.5
88.	Ukraine	81
89.	Algeria	80.9
90.	Mexico	80.7
91.	Azerbaijan	80.4
92.	Trnd & Tbg	78.8
93.	Botswana	78.7
94.	B&H	78.6
95.	Grenada	78.6
96.	Dominica	78.4
97.	Moldova	78.3
98.	Panama	77.6
99.	Barbados	77.5
100.	Tunisia	77.2
101.	Jamaica	76.9
102.	Egypt	76.8
103.	Peru	76.4
104.	Dominican Rep.	75.4
105.	Gabon	74.7
106.	Philippines	74.4
107.	Paraguay	74.1
108.	Iraq	73.9
109.	Saint Lucia	73.9
110.	Colombia	73.2
111.	Cambodia	72.6
112.	Sri Lanka	71.3
113.	S, Vinct & Grend	70.7
114.	Eswatini	70.4
115.	Vanuatu	70.2
116.	Ecuador	70
117.	Bolivia	69.4
118.	Senegal	69.3
119.	Palestine	69.3
120.	Cape Verde	69.1
121.	Namibia	68.8
122.	Samoa	67.8
123.	Venezuela	67.7
124.	Ghana	66.2
125.	El Salvador	66.1
126.	Ivory Coast	65.3
127.	Laos	65.3
128.	Myanmar	63.8
129.	Bangladesh	62
130.	Nicaragua	61.6
131.	Djibouti	61.6
132.	Honduras	60.9
133.	Syria	59.6
134.	Kenya	58.5
135.	Tonga	58.2

136.	S. Tome & Prncp	55.9
137.	Pakistan	55.6
138.	Zambia	55.6
139.	Mauritania	55.5
140.	Kiribati	52.1
141.	Guatemala	51.7
142.	Angola	49.9
143.	Lesotho	48.8
144.	Zimbabwe	47.7
145.	Nigeria	46.9
146.	Rwanda	46.8
147.	Comoros	46.5
148.	Togo	46.2
149.	Benin	45.4
150.	Equatorial Guinea	44.8
151.	Cameroon	44.2
152.	Yemen	43.5
153.	Tanzania	43.1

154.	Uganda	40.4
155.	Mali	40.4
156.	Ethiopia	39.8
157.	Timor-Leste	39.2
158.	Liberia	37.1
159.	Guinea-Bissau	36.9
160.	Sierra Leone	34.3
161.	Afghanistan	33.1
162.	Malawi	33.1
163.	Mozambique	32
164.	DR Congo	31
165.	Congo Rep.	30.7
166.	Burkina Faso	30.1
167.	Madagascar	29.9
168.	Somalia	28.7
169.	Burundi	24.4
170.	Chad	21.3

Results

The descriptive statistical analysis of the 2024 ICT Development Index (IDI) scores reveals significant disparities in ICT development across different countries.

Central Tendency and Overall Distribution

- The mean IDI score is 74.83, indicating that, on average, countries exhibit a relatively high level of ICT development.
- The median score is 82, suggesting that more than half of the countries have an IDI score above this value, highlighting the influence of lower-scoring countries in dragging the mean downward.
- The mode of 92.5 shows that this score is the most frequently occurring among countries, suggesting a concentration of highly developed ICT nations around this value.

Dispersion and Variability

- The standard deviation (19.98) and variance (399.28) indicate a wide spread in ICT development scores, signifying that ICT capacity differs greatly among countries.
- The range of 78.7 between the minimum score (21.3) and maximum score (100) highlights the stark gap between the most and least technologically developed nations.
- The confidence interval (95%) of ±3.03 suggests that the true mean IDI score for all countries is likely within the range of 71.8 to 77.9, providing a reliable estimate of the global ICT development level.

Skewness and Kurtosis

- The negative skewness (-0.95) indicates that the distribution of IDI scores is left-skewed, meaning that a larger number of countries have higher ICT scores, while fewer countries are at the lower end of the spectrum.
- The kurtosis value (-0.19) suggests a slightly platykurtic distribution, meaning that the distribution is relatively flat with fewer extreme outliers compared to a normal distribution.

Key Observations and Implications

- The highest-scoring country has a perfect score of 100, indicating full ICT development, while the lowest-scoring country (21.3) reflects a severe lack of ICT infrastructure and digital accessibility.

- The high median (82) relative to the mean (74.83) suggests that a majority of countries have relatively strong ICT development, but the presence of low-scoring countries pulls the average down.
- The significant disparity between the top and bottom scorers reflects a global digital divide, where technologically advanced nations far outpace developing regions.
- The findings highlight the need for targeted investments in ICT infrastructure, digital literacy, and policy support in lower-income nations to reduce the digital gap and foster more balanced global technological progress.

TABLE 2. Descriptive statistics for ICI Development Index / IDI Score 2024

ICI Development Index IDI / Score 2024	
Mean	74.82882
Standard Error	1.532558
Median	82
Mode	92.5
Standard Deviation	19.98211
Sample Variance	399.2848
Kurtosis	-0.19576
Skewness	-0.94872
Range	78.7
Minimum	21.3
Maximum	100
Sum	12720.9
Count	170
Largest(1)	100
Smallest(1)	21.3
Confidence Level(95.0%)	3.025423

GRAPHIC 1. Map of ICT Index per country



Discussions (under a global and regional context)

The ICT Development Index (ICI) for Balkan countries reveals key insights into their digital infrastructure, accessibility, and technological advancements. Here's an analysis based on the provided data for:

- Leading Performers
- Mid-Level Performers
- Below-Median Performers
- Regional Trends & Implications
- Global Context

1. Leading Performers

Among Balkan nations, Slovenia (90.8) leads in ICT development, followed closely by Croatia (89.6) and Bulgaria (88.7). This suggests that these countries have strong digital infrastructure, better internet penetration, and advanced ICT policies that promote digital transformation.

2. Mid-Level Performers

Countries such as Montenegro (87.9), Serbia (87.7), Romania (87.6), and Turkey (87.5) are in a competitive range, with slight differences in their ICT index scores. Their positioning suggests they are making significant progress in digital connectivity but may still have room for improvement in areas like digital literacy, cybersecurity, or e-government services.

3. Below-Median Performers

Greece (86.5) and Albania (84.7) fall below this group but still have relatively high scores, indicating steady digital progress. However, North Macedonia (82) and Bosnia & Herzegovina (78.6) are positioned much lower, reflecting challenges in ICT penetration, investment in digital infrastructure, or policy implementation.

4. Regional Trends & Implications

- The median score (82) and mean score (74.8) suggest that while some countries have high digital performance, others still lag.
- Slovenia, Croatia, and Bulgaria outperform the regional average, likely due to their EU membership benefits, investment in digital economies, and strategic ICT policies.
- North Macedonia, Bosnia & Herzegovina, and Albania may need targeted strategies to bridge the digital divide, improve broadband access, and enhance ICT-related education and business integration.

5. Global Context

- Compared to Kuwait (100), the global leader, Balkan countries still have room for improvement.
- Compared to Chad (21.3), the lowest-ranking country, the region is significantly ahead in ICT development.

TABLE 3. ICT Balkan countries ranking.

No	Country	ICI Development Index/Score 2024
1.	Kuwait (Max)	100
2.	Mode	92.5
3.	Slovenia	90.8
4.	Croatia	89.6
5.	Bulgaria	88.7
6.	Montenegro	87.9
7.	Serbia	87.7
8.	Romania	87.6
9.	Turkey	87.5
10.	Greece	86.5
11.	Albania	84.7
12.	Median	82
13.	North Macedonia	82
14.	B&H	78.6
15.	Mean	74.82882
16.	Chad (Min)	21.3

Limitations

The study is limited to secondary data obtained from the 2024 ICT Development Index Report. As such, it does not include qualitative insights or primary data collection. Additionally, while the descriptive analysis effectively captures trends and disparities, it does not establish causal relationships between ICT development and economic or policy factors.

By using descriptive statistics, this study provides a comprehensive overview of global ICT development disparities, enabling policymakers to identify priority areas for investment and intervention to bridge the digital divide.

Conclusions

1. Top Readiness Countries according to ICT index – with Kuwait (100) ends up at the head of the global ICT index, with its world-class infrastructure and competitive digital ecosystem; followed by Finland (98.1), Estonia (97.9) and Singapore (97.8) following suit; demonstrating their strong commitment to ICT, high-tech industries, and digital governance.
2. Balkan Strong Performers are led by Slovenia, 90.8, the highest rated country of the Balkan Region, with a good results of ICT infrastructure and usage in the EU digital context, followed by Croatia 89.6, and Bulgaria 88.7, (benefits a lot from EU digitization programs) also performances well, while Montenegro 87.9 and Serbia 87.7 show good ICT results but are lagging in some areas from the leaders of the region.
3. Some countries, such as Romania (87.6), Turkey (87.5), and Greece (86.5), have decent ICT infrastructure and perform at an average level, with room for improvement, especially in rural broadband access and digital literacy. While these countries have made significant progress, challenges remain in fully achieving their ICT potential.
4. Low Performers. The Balkans' bottom performers are led by Albania (84.7), North Macedonia (82), and Bosnia & Herzegovina (78.6). This suggests that these could have less availability to high-speed internet, fewer ICT policies, and thus less digital inclusion. The lower rankings indicate gaps in digital infrastructure — especially in less-developed areas of the world — as well as in digital education and business integration.
5. This ICT divide is observed in the region, with Slovenia at the top and far ahead of Bosnia & Herzegovina and Albania. Such a digital divide calls for targeted policies, increased investments in ICT, and the development of strategic partnerships in order to foster digital inclusion in all the countries in the Balkans.
6. Data Used for International Comparisons Any international comparison is subject to the quality of available data, and the reported scores vary from country to country depending on when data were collected. Conversely, nations like Chad (21.3) and Burundi (24.4) represent examples of limitations in ICT growth, primarily because of limited or non-digital infrastructures, government, and accessibility to technology.
7. Investment in Digital Infrastructure The low scores of Balkan countries should serve as a wake-up call to increase investment in digital infrastructure, especially in rural and underserved areas. Digital resources in the region need to become more accessible and affordable to help boost the investments in the region's digital economy, whilst also improving digital literacy and cybersecurity frameworks to help instil more trust in digital services.
8. While several Balkan countries are attaining progress in ICT development, an apparent divide exists between those already at the top of the scale, notably Slovenia, and those at the lowest end, as in the case of Bosnia & Herzegovina. Massive broadband access, coupled with policies for digital education and innovation, will play a vital role in closing this gap.

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Reflections of Mental Health Issues in Social Media: Exposure, Intentional Searches and Their Psychological Impact

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Abstract

This article explores the correlation between social media engagement and the prevalence of depression, anxiety, and stress. A sample of 320 individuals (80% female) completed the DASS-21 questionnaire, assessing their psychological state and media habits. Results indicate that both frequent exposure to mental health-related content and intentional searches for such content on social media are significantly associated with elevated levels of depression, anxiety, and stress. Specifically, statistically significant relationships were found between frequency of exposure and depression ($\chi^2 = 49.319$, $p < .001$), anxiety ($\chi^2 = 44.553$, $p < .001$), and stress ($\chi^2 = 52.574$, $p < .001$), as well as between intentional searches and depression ($\chi^2 = 16.013$, $p = .003$), anxiety ($\chi^2 = 15.618$, $p = .004$), and stress ($\chi^2 = 17.099$, $p = .002$). Demographic factors such as age and gender also play a role, with younger individuals and females more vulnerable to psychological impact; however, no significant gender-depression or education-based differences were found. These findings suggest that policymakers in health and education should consider the mental health risks associated with digital exposure to psychological content, especially among vulnerable groups.

Keywords: *social media, mental health, depression, anxiety, stress, exposure, demographics*

Introduction

The increasing integration of social media into daily life has led to growing interest in its impact on mental health. While digital platforms offer communities support and awareness, they may also serve as sources of psychological strain. This study investigates the relationship between exposure to mental health-related content on social media and reported levels of depression, anxiety, and stress, with consideration of demographic influences. Given the rising presence of mental

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health discourse on platforms like Instagram, TikTok, and Facebook, the psychological implications of overexposure deserve focused attention.

Literature Review

Social Media Usage and Psychological Impact

The role of social media in shaping psychological well-being is increasingly prominent in contemporary mental health research. Social media usage is multidimensional and can be categorized into passive exposure (e.g., scrolling through content), emotional investment, and the psychological significance users assign to it. Brunborg and Andreas (2019) found that even passive exposure—such as the time spent browsing—can contribute to declines in mental health.

According to Self-Determination Theory (Przybylski et al., 2010), the psychological impact of social media varies depending on the role it plays in an individual's daily motivation. For some users, it is central to their sense of validation, whereas others engage with it casually. Neuropsychological research shows that the brain's reward systems are activated by self-disclosure on social platforms in the same way they are by fundamental rewards like food and sex (Tamir & Mitchell, 2012). Nadkarni and Hofmann (2012) highlight two core motives for social media use: the need for belonging and the need for self-presentation. Social media easily facilitates both, offering emotional and social connection, often via curated self-images. Pew Research Center (Smith, 2011) confirms these motives, noting that people use social media to maintain connections, form new relationships, follow public figures, and seek romantic partners.

Rosen et al. (2013) found that psychological conditions like depression, bipolar disorder, and compulsive behaviors were predicted by several variables related to Facebook usage, including time spent, number of contacts, and the use of the platform for image management. The Displaced Behavior Theory (Coyne et al., 2020) suggests that excessive screen time displaces face-to-face interactions, which are protective against mental disorders. Multiple studies confirm that prolonged exposure to social media content is associated with increased symptoms of depression, anxiety, and stress. This is intensified by the pressure to conform to online ideals and to constantly compare oneself to others.

Cyberchondria and Online Health Anxiety

Cyberchondria, defined as the compulsive searching of health information online accompanied by heightened anxiety, is another consequence of digital overexposure. Initial research by White and Horvitz (2009) and the subsequent development of the Cyberchondria Severity Scale (CSS) show how internet health information can overwhelm individuals, particularly those with a predisposition to anxiety (Abu Khait et al.).

In youth populations, the lack of media literacy exacerbates this effect, leading to unnecessary self-diagnosis and emotional distress. During the COVID-19 pandemic, Gao et al. (2020) found that individuals with greater exposure to pandemic-related content on social media reported significantly higher levels of anxiety. Asmundson and Taylor (2020) further demonstrated that repeated exposure to distressing medical content heightens public anxiety and encourages harmful coping mechanisms.

Gender Differences in Social Media Use

Twenge and Martin (2020) conducted a cross-sectional study identifying significant gender-based differences in social media usage. Women were more emotionally invested and spent more time on platforms like Instagram and Pinterest, which emphasize visual self-presentation. Men preferred platforms oriented toward information and entertainment. Women also tended to use social media for emotional support and social connection, engaging in more emotionally vulnerable content and sharing. These differences partly explain why females report higher rates of anxiety and stress associated with social media use, although this does not always translate into higher depression scores.

Representation of Anxiety and Depression Online

The portrayal of mental health on platforms like TikTok and Instagram is both informative and problematic. A study by the Health Action Research Group (2022–2023) examined hashtags like #depression and #anxiety, revealing a mix of accurate and romanticized portrayals. While professional accounts (e.g., therapists on Instagram) provide educational content, many posts trivialize or glamorize mental illness using poetic language, humor, or aesthetic visuals. These portrayals, especially among adolescents, risk normalizing or even incentivizing emotional suffering. Valkenburg et al. (2022) argue that while social media fosters openness, it can also make anxiety and depression seem "desirable" or trendy, especially when users receive validation for such posts.

Stress and Social Media

Stress is often misunderstood in everyday language. Koolhaas et al. suggest narrowing the definition to situations where environmental demands exceed the organism's coping capacity, especially under unpredictability or lack of control. Acute Stress Disorder (ASD), defined in DSM-V, captures early trauma responses within the first four weeks post-exposure.

Social media, as described by Wolfers and Utz (2022), may serve three functions in stress response: as a stressor, a coping mechanism, or a resource. The platform becomes a stressor when it fosters approval anxiety, fear of missing out (FOMO), or misinformation. It functions as a coping resource when it provides emotional support, community, or helpful content. However, most studies agree that social media predominantly acts as a stressor due to exposure to idealized images, unrealistic comparisons, and constant connectivity, leading to emotional exhaustion and "social media fatigue" (Roberts & David, 2017).

Anxiety Disorders and Online Behavior

Anxiety, in moderation, can be adaptive, but excessive anxiety disrupts daily functioning. DSM-V defines Generalized Anxiety Disorder (GAD) as persistent worry lasting six months or more, accompanied by symptoms like restlessness, muscle tension, and sleep disturbances.

Individuals with high levels of anxiety, particularly social anxiety, tend to use social media more frequently and intensely (Casale & Fioravanti, 2015; Dempsey et al., 2019). Emotional investment in social media has a strong positive correlation with anxiety and depression (Taibah University, $r = 0.71–0.72$). Additional studies show that media withdrawal (e.g., lack of access) causes physiological anxiety symptoms, including the so-called "phantom vibration syndrome" (Drouin et al., 2012).

Depression and Emotional Withdrawal

Depression is now classified under mood disorders in the DSM-V and affects 1 in 10 individuals annually. It is marked by persistent sadness, loss of interest (anhedonia), low energy, and physical symptoms like insomnia or appetite changes.

Vogel et al. (2014) found that continuous comparison with others on social media correlates strongly with decreased self-esteem and depressive symptoms. People with depression often report feeling unmotivated, disconnected, and unable to perform everyday tasks. DSM-V also emphasizes cognitive symptoms such as guilt, poor concentration, and suicidal ideation. Social media content analysis has even been used to detect early signs of depression, with tools analyzing user language and engagement patterns (De Choudhury et al., 2013).

Overexposure and Emotional Vulnerability

Overexposure to social media includes excessive screen time, constant connectivity, harmful comparisons, and persistent exposure to distressing content. Zendle and Bowden-Jones (2019) noted that problematic use mimics addiction patterns, even though it is not formally recognized as a disorder.

Global statistics indicate that users—especially women—spend over two hours daily on social platforms (SearchLogistics, 2023). This overuse is linked to negative mental health outcomes, including stress, anxiety, and depression. Constant interaction can lead to "social overload," while exposure to traumatic or violent news content increases the risk of "vicarious traumatization" (Silver & Holman, 2020). While social media offers awareness and peer support, it also poses risks. Misinformation, self-diagnosis, and emotional contagion can escalate psychological distress, particularly in young users lacking critical media literacy. Further research is needed to understand and mitigate these risks.

Gender and Age Differences

Research suggests that younger users, particularly women, tend to engage more frequently with emotionally charged content on social media (Twenge et al., 2018). This demographic exhibits greater susceptibility to anxiety and stress, potentially due to increased sensitivity to social comparison and online validation.

Mental Health Content and Overexposure

Repeated exposure to content focused on mental illness, while informative, can induce cognitive distortions or heightened health anxiety (cyberchondria) (Starcevic & Aboujaoude, 2015). Intentional searching for symptoms and diagnostic criteria without clinical guidance can lead to unnecessary self-diagnosis and emotional strain.

Methodology

Research Design and Instrumentation

A quantitative, cross-sectional design was employed. The DASS-21 scale (Lovibond & Lovibond, 1995) was utilized to measure levels of depression, anxiety, and stress. Participants also completed a custom survey that included questions about their social media usage, exposure to mental health content, and intentional searches related to mental health.

Participants

A total of 320 participants from various educational backgrounds were surveyed. 80% identified as female and 20% as male. The majority of participants were aged between 18 and 35. Participants were selected using convenience sampling and gave informed consent prior to participation.

Data Collection and Analysis

Data were collected via an online questionnaire and analyzed using SPSS software. Chi-Square tests examined the relationships between exposure, intentional searching, and DASS-21 scores. Regression analyses were used to determine the predictive power of demographic and behavioral variables.

Results

Descriptive Statistics

The average frequency of social media usage was high, with most participants reporting daily engagement. A significant portion of respondents reported encountering mental health-related content weekly, and many admitted to intentionally seeking such information.

Inferential Statistics

Statistically significant correlations were observed:

- Depression: $\chi^2 = 49.319$, df = 12, $p < .001$
- Anxiety: $\chi^2 = 44.553$, df = 12, $p < .001$
- Stress: $\chi^2 = 52.574$, df = 12, $p < .001$

Participants who were frequently exposed to or intentionally searched for mental health-related content reported significantly higher DASS-21 scores across all three subscales.

Age was a significant factor: younger participants had higher emotional response levels. Gender influenced anxiety and stress, but not depression. No significant association was found between education level and psychological outcomes.

Objectives

This study focuses on assessing:

- The prevalence and patterns of exposure to mental health-related content on social media across a diverse sample.
- The psychological effects—specifically levels of depression, anxiety, and stress—associated with both incidental exposure and deliberate searching of mental health content.

Variables

The key variables examined include:

- Exposure Frequency: How often individuals encounter mental health content on social media (categorized as occasional, rare, frequent, and very frequent).

- Intentionality: Whether individuals purposefully search for mental health-related information online.
- Psychological Measures: Levels of depression, anxiety, and stress, categorized into normal, mild, moderate, severe, and very severe, assessed via standardized scales.

Hypotheses

- H1: Exposure to mental health-related information on social media is associated with higher levels of depression, anxiety, and stress.
- H2: Purposeful searching for mental health content correlates with greater psychological distress.
- H3: Demographic factors (age, gender, education) influence the relationship between exposure and psychological outcomes.

Data Collection

A total of 320 respondents participated, representing varied demographics. Participants completed a detailed questionnaire capturing their social media habits concerning mental health content and self-reported measures of depression, anxiety, and stress.

Results and Analysis

Exposure to Mental Health Content and Depression

The relationship between exposure frequency and depression levels was examined via cross-tabulation and chi-square tests. Exposure was categorized as: "Occasionally," "Rarely," "Often," and "Very Often." Data shows that those exposed "often" and "very often" have higher counts in the "very severe" depression category (29 and 15 respectively), while those exposed "rarely" and "occasionally" generally have higher counts in the normal and mild categories. Chi-square test results confirmed the association between exposure and depression was highly significant ($\chi^2 = 49.319$, df = 12, $p < 0.001$). This suggests that frequent exposure to mental health content correlates with increased levels of depression.

Exposure to Mental Health Content and Anxiety

Similarly, the distribution of anxiety levels by exposure frequency was analyzed: Individuals exposed frequently exhibit higher counts in severe and very severe anxiety categories. The chi-square test similarly showed a significant association ($\chi^2 = 44.553$, df = 12, $p < 0.001$).

Exposure to Mental Health Content and Stress

Stress levels also demonstrated a significant relationship with exposure frequency: The chi-square test confirmed statistical significance ($\chi^2 = 52.574$, df = 12, $p < 0.001$), indicating a link between frequent exposure and higher stress levels.

Purposeful Searching of Mental Health Content and Psychological Outcomes

Participants who deliberately searched for mental health content were compared against those who did not, with respect to depression, anxiety, and stress.

Depression

Chi-square test showed significant association ($\chi^2 = 16.013$, df = 4, $p = 0.003$), suggesting purposeful searching is linked to higher depression levels.

Anxiety

This relationship was also significant ($\chi^2 = 15.618$, df = 4, $p = 0.004$), reinforcing that those who intentionally seek mental health content tend to report more severe anxiety.

Stress

The association remained significant for stress as well ($\chi^2 = 17.099$, df = 4, $p = 0.002$).

Influence of Demographics

Age and Psychological Distress

Younger age groups (18-24 and 25-34) showed higher levels of severe depression, anxiety, and stress compared to older groups. Chi-square tests confirmed significant associations between age and all psychological variables (p-values between 0.008 and 0.005), with younger participants more prone to higher distress levels.

Gender Differences

Females reported higher rates of depression, anxiety, and stress compared to males, although only anxiety and stress reached statistical significance.

Depression prevalence: 67.19% females vs. 50% males (non-significant, $p = 0.133$)
Anxiety prevalence: 76.56% females vs. 60.94% males (significant, $p = 0.018$)
Stress prevalence: 68.36% females vs. 53.13% males (significant, $p = 0.009$)

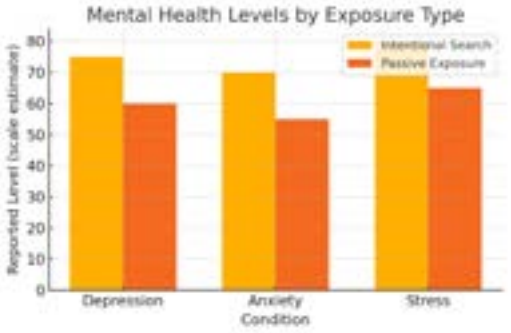
Education and Psychological Distress

No significant associations were found between education level and depression, anxiety, or stress (all $p > 0.3$). Participants across all education levels exhibited a range of psychological symptoms.

TABLE 1. Chi-Square Summary for Mental Health Conditions

Condition	Chi-square (χ^2)	df	p-value
Depression	49.319	12	< .001
Anxiety	44.553	12	< .001
Stress	52.574	12	< .001

FIGURE 1. Mental Health Levels by Exposure Type



Thematic Analysis

Identification of Recurring Themes from Focused Coding

This qualitative part of the study aimed to identify the main themes emerging from participants' responses regarding their experiences with mental health content on social media. The analysis revealed several key themes, reflecting both positive impacts and notable challenges.

Learning about Mental Health

This was the most significant theme identified in the study. Many participants reported that they had gained new knowledge about mental health issues such as anxiety, depression, and suicide prevention through social media. Several noted that social media had helped them learn about mental health problems they previously knew little or nothing about.

Participants also described acquiring practical coping strategies; breathing exercises, mindfulness, and various activities were frequently mentioned as methods for managing anxiety and depression. However, alongside these positive reports, concerns about misinformation also emerged. Examples included:

- "I learned that anxiety can be treated at home by releasing all the negative energy through household chores."
- "I intentionally use social media to learn about mental health because it feels like I'm discovering completely new things."
- "I happily follow people on Instagram who talk about these topics… only good vibes, zen music, the karma of life to handle anxiety."
- "Seeing how others cope with anxiety has taught me as well."
- "Most of the mental health information I have comes from social networks."
- "I learned how to manage anxiety through meditation."
- "Social media and posts from ordinary people about their experiences with mental health problems have helped me understand myself and my mood swings."

These examples illustrate that personal experiences shared on social media are a primary source of information about mental health for many users. While most participants expressed trust in the information they received, it was clear that much of it was neither scientific nor delivered by professionals.

Discussion

This study investigates the significant relationship between exposure to mental health-related content on social media and levels of depression, anxiety, and stress. The findings align with previous research, such as the meta-analysis by Dechene et al. (2010), which highlighted the increased perceived truthfulness that results from repeated exposure. Applied to our study, this suggests that the more frequently individuals encounter mental health information—accurate or not—the more likely they are to believe it. This was evidenced in the open-ended responses, where some participants expressed beliefs such as "zen music" or "faith in life's karma" helping with depression and anxiety, ideas they had absorbed from social media. The qualitative data also correspond with findings from the Health Action Research Group (2022), which examined the portrayal of depression and anxiety on platforms like Instagram and TikTok. Their research showed that these issues are often "romanticized," with frequent and stylized mentions transforming mental health struggles into trends, particularly among young people. Our study supports this notion: participants' descriptions in open responses often reflected poetic or idealized portrayals of anxiety and depression encountered on social media. By integrating quantitative and qualitative data, this study offers a clearer understanding of how exposure to mental health content on social media affects users. The qualitative data provide insight into individuals' personal experiences and perceptions, while the quantitative data quantify the extent to which these interactions relate to psychological states such as depression, anxiety, and stress.

Key points include:

- Qualitative findings reveal that although social media can serve as a valuable source of support, it simultaneously presents risks of misinformation and increased anxiety.
- Quantitative results support this by demonstrating a clear association between social media exposure and higher levels of mental health difficulties—specifically depression, anxiety, and stress—particularly among younger participants.

Depression, Anxiety, and Stress in the Context of Social Media

Numerous studies have framed depression and anxiety as "diseases of modernity" (Hidaka, 2012), exacerbated by increased social media use. Young people who frequently use social media report a 70% rise in self-reported depressive symptoms. This aligns with Brunborg and Andreas (2019), who found that increased time on social media correlates with higher depression and behavioral problems such as addiction. From a neuropsychological perspective, Tamir and Mitchell (2012) suggest that social media activates the brain's intrinsic reward system similarly to primary rewards like food and sex, which may explain its addictive qualities.

Increased Exposure to Mental Health Content on Social Media

Our first hypothesis—that exposure to mental health-related content on social media leads to higher levels of depression, anxiety, and stress—is supported by existing research (Hidaka, 2012; Brunborg & Andreas, 2019). Exposure to negative or distressing content, including mental health information, can contribute to psychological distress. The accessibility and pervasive nature of social media platforms amplify emotional responses to such content. Our findings show a significant correlation between greater exposure to mental health content and elevated levels of depression, anxiety, and stress.

Intentional Searching for Mental Health Information

The second hypothesis suggests that actively seeking mental health information on social media is associated with higher depression, anxiety, and stress. This relates to the concept of "cyberchondria," describing increased anxiety caused by online health information searches, which complicates individuals' mental health outlook (White & Hirvitz, 2009; Abu Khait et al., 2022). Our study supports this, showing that individuals who deliberately search for mental health content are more likely to experience psychological distress. The COVID-19 pandemic intensified this issue, as increased exposure to social media information about virus symptoms and issues was linked to worsening mental health problems (Gao et al., 2020; Asmundson & Taylor, 2020).

Demographic Influences on Mental Health

The third hypothesis explores how demographic factors such as gender, age, and education level influence exposure and engagement with mental health content on social media, thereby affecting levels of depression, anxiety, and stress.

Gender differences in social media use and well-being are notable. Twenge and Martin (2020) emphasize that females tend to be more dependent on social media than males and experience more negative emotions from social comparisons, as well as greater positive effects from emotional support. Our study corroborates these findings: females reported higher exposure to mental health content and higher levels of anxiety and stress. Interestingly, no correlation between gender and depression was found, which may be due to unmeasured variables influencing depression levels.

Age also showed a significant effect, with younger participants (18–24 years) reporting higher levels of depression, anxiety, and stress compared to older groups. This aligns with other research indicating younger people are more vulnerable to psychological distress (Twenge & Martin, 2020; Rasmussen et al., 2020). Education level, however, did not predict psychological state in our study, underscoring the complex, multidimensional impact of demographic variables on social media's mental health effects.

Summary

This study contributes to a deeper understanding of how exposure and intentional engagement with mental health-related social media content influence individuals' psychological well-being. By empirically validating the hypotheses and situating the findings within broader literature, the need for targeted interventions and educational initiatives on social media use becomes evident.

Limitations

This study is limited by its cross-sectional design, which prevents causality inference. The sample skewed heavily female and young, thus limiting generalizability. Self-reported data may also be influenced by social desirability or inaccurate recall.

Conclusions

This research confirms that social media use is intertwined with mental health outcomes. Policymakers and educators should consider regulating digital health information and promoting digital literacy. Interventions aimed at reducing overexposure and promoting mindful engagement may serve as preventive tools against digital-induced psychological distress. This study advances knowledge of social media's impact on mental health, emphasizing the urgent need for increased awareness and interventions to mitigate the negative effects of exposure to online mental health content.

Key conclusions include

Greater exposure to mental health content on social media is associated with higher levels of depression, anxiety, and stress. Intentional searching for mental health-related content similarly predicts increased depression, anxiety, and stress. Exposure and active searching are significant predictors of elevated depression levels. Age is negatively associated with depression, indicating younger participants report higher depression. Gender and education showed no significant link to depression. Both exposure and searching predict higher anxiety levels. Younger age correlates with greater anxiety. Gender also correlates significantly, with females more likely to experience elevated anxiety and stress. Exposure and searching likewise predict higher stress levels. Age negatively correlates with stress, while gender and education do not significantly predict stress.

Qualitative data demonstrate that, despite social media's value as a source of support, it also poses risks of misinformation and increased anxiety.

Additional observations

Age and exposure: Younger participants (18–24) comprised the largest segment of the study and exhibited the highest exposure to mental health content. Gender and exposure: Both males and females showed similar levels of exposure to mental health content on social media. Education and exposure: Participants with higher education levels exhibited greater social media exposure compared to those with lower education. While most participants were exposed to mental health content, many did not actively seek it, suggesting that exposure is often passive or incidental rather than intentional.

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Issues of Parental Negligence in the Emotional and Social Development of Children Aged 6–14 Years

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Abstract

Parental negligence constitutes one of the most common forms of child abuse and can have profound consequences on a child's physical, mental, and emotional development. This study examines the phenomenon of parental negligence among children aged 6–14 within the Albanian context, analyzing the contributing factors and its impact on children's well-being. Using a quantitative approach, the research was based on data collected from four schools in Tirana, involving 200 systematically selected students. The results show that parental negligence is primarily manifested in the form of emotional neglect, which affects children's self-esteem, social interactions, and academic performance. A lack of strong emotional bonding with parents, the presence of a third-party caregiver in the household, and insufficient paternal involvement in children's daily lives are identified as key contributing factors. Furthermore, the study reveals that a considerable percentage of parents attempt to compensate for their lack of time and attention through material gifts, without addressing their children's emotional needs. The analysis also highlights that children affected by neglect tend to develop feelings of isolation, insecurity, and an inability to share their emotions with their parents. Another significant aspect is the influence of economic and social factors, which often create an environment where parents are compelled to prioritize professional obligations over their children's emotional needs. The study underscores the importance of specialized interventions to support families and the development of strategies to raise parental awareness about the consequences of negligence. The findings of this research can serve as a basis for social policies and intervention programs in both the educational and social welfare systems, aiming to create a more supportive environment for children.

Keywords: *parental negligence; psychological development; academic performance; social support; institutional interventions; emotional consequences; cultural impact*

Introduction

Parental negligence is one of the most common forms of child maltreatment and represents a major concern in the field of child development and well-being. This phenomenon directly affects the physical, mental, and emotional health of children, often leaving long-term consequences. Children aged 6–14 are particularly sensitive to the lack of parental support, as this period includes key years for their social and academic development (Dubowitz, 2013). Beyond its impact on growth and development, parental negligence also emerges as a risk factor for various psychological and social difficulties (Gilbert et al., 2009). Contemporary theories analyze parental negligence from different perspectives, including the ecological and social models. According to Bronfenbrenner's ecological theory, the influencing factors include family relationships, the socio-economic context, and institutional support (Bronfenbrenner, 1979). On the other hand, the social theory of child maltreatment suggests that neglectful parents often face economic stress, lack of social support, or mental health problems, which impair their ability to provide adequate care for their children (Cicchetti & Valentino, 2006).

Parental negligence can take various forms, including emotional, educational, medical, and physical neglect (Hildyard & Wolfe, 2002). Emotional neglect, often the least visible but highly impactful form, includes the absence of emotional support, love, and parental involvement. This can lead to problems such as low self-esteem, difficulties in social relationships, and a higher risk of developing psychological disorders, including depression and anxiety (Spinazzola et al., 2014). Educational

neglect affects children's academic performance, reducing their opportunities for successful development in the future (Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2008). In the Albanian context, studies have confirmed that a lack of family cohesion, economic migration, and limited access to child protection services intensify the effects of parental negligence (Shahini, 2016). Moreover, research conducted by Nevila Tafa (2018) underlines that emotional detachment in parent-child relationships is becoming more common in urban areas due to overwork and shifting family dynamics. According to Bandilli (2020), children in neglected environments often internalize emotional pain, which manifests in school difficulties, withdrawal, or aggressive behaviors, emphasizing the need for educational and psychological intervention programs.

The Impact of Parental Negligence. Studies have shown that neglected children are more likely to develop behavioral problems and have difficulty forming social relationships (Trickett, Mennen, Kim, & Sang, 2009). This occurs because children who grow up in environments lacking parental support often lack healthy coping strategies for dealing with stress and everyday challenges. Furthermore, an insecure family environment can impair a child's cognitive and emotional development, affecting how they interact with others and experience life challenges (Shonkoff & Phillips, 2000). The impact of parental negligence extends beyond the individual child, with broader consequences for society. Neglected children are more likely to experience academic failure, engage in delinquent behaviors, and face difficulties integrating socially as adults (Norman et al., 2012). This makes early intervention and addressing the contributing factors of this phenomenon imperative.

Research Purpose, Questions, and Hypotheses. The purpose of this study is to assess the impact of parental negligence on the physical, mental, and emotional development of children by analyzing the factors that drive this phenomenon and identifying effective intervention methods. The study seeks to answer the main research question: *How does parental negligence affect the physical, mental, and emotional development of children, and to what extent is it possible to identify the factors leading to parental negligence? Research Hypothesis:* Parental negligence negatively affects the physical, mental, and emotional development of children, increasing the risk of physical health problems, cognitive development difficulties, and emotional and social disorders. Identifying the main factors leading to parental negligence is possible through an analysis of socio-economic conditions, psychological factors, and cultural challenges, which influence the ability of parents to provide adequate care.

Study Objectives. Based on the established hypotheses, the main objectives of the study include evaluating the impact of parental negligence on children's lives, identifying the contributing factors to this phenomenon, and proposing an effective strategy for intervention and prevention. These objectives are essential for better understanding the consequences of parental negligence on children's physical, mental, and emotional development and for determining appropriate measures to reduce this issue.

Literature Review and Methodology

Research on parental negligence highlights several effective strategies for preventing and addressing this phenomenon. One key intervention is the strengthening of social services and the support of families in difficulty through financial assistance and parental counseling (Gaudin, 1993). Such support can help parents enhance their caregiving skills and better manage daily challenges related to child care. Parental education also plays an essential role in helping caregivers understand their children's emotional and physical needs, creating a safer and healthier home environment (Lazenbatt, 2010). On the policy level, developing programs focused on early intervention and community-based support is considered vital (Stoltenborgh et al., 2013). Schools and educational institutions are central to identifying and reporting cases of neglect. Teachers and social workers can play an active role in assisting at-risk children and taking necessary steps toward protection (Gilbert et al., 2009).

In the Albanian context, several scholars have emphasized the importance of community and institutional engagement in combating parental negligence. Shahini (2016) underlines the lack of structural support for families in need, which often leads to persistent emotional neglect. Tafa (2018) points out that the fast pace of urbanization and shifting family roles have resulted in reduced parental presence and bonding time. Moreover, Bandilli (2020) identifies the education system as a potential ally in recognizing early signs of neglect and guiding parents toward more responsive parenting practices.

Parental negligence is a complex and multifaceted issue with deep repercussions for both children and society. This study aims to examine the impact of parental negligence on children's physical, emotional, and mental health, while identifying the key factors that contribute to it. Recognizing these factors is crucial in designing strategies that can improve child well-being and promote responsible parenting. The study advocates for a multidimensional approach involving social support, effective policy frameworks, and education programs for parents in order to reduce the negative effects of neglect and ensure a healthy childhood experience.

Methodology: This study adopts a quantitative approach to evaluate the impact of parental negligence on children aged 6 to 14. Quantitative research enables the collection of measurable data and statistical analysis, offering an objective assessment of the relationship between neglect and its consequences (Babbie, 2020). The use of this method was chosen for its ability to provide generalizable and reliable results on a population level (Creswell & Creswell, 2018). Systematic probability sampling was employed to select a representative sample of 200 students from four public schools in Tirana, with equal gender distribution. This sampling method ensures balanced subject inclusion, reduces bias, and increases the reliability of findings (Neuman, 2014).

Data collection was conducted through a structured questionnaire addressing different aspects of parent-child interaction and levels of support received in health, education, and emotional care. The questionnaire also gathered demographic data, including age, gender, family composition, and socio-economic status, allowing for detailed analysis of contributing factors (Patton, 2015). It included both open- and closed-ended questions to combine quantitative measurements with interpretive insights (Denzin & Lincoln, 2017). Statistical data were analyzed using percentage calculations, correlation tests, and ANOVA (Analysis of Variance). These methods allowed for identifying key variables and measuring differences between demographic groups in relation to their experiences of parental negligence (Field, 2018). Ethical research standards were strictly followed, ensuring anonymity and confidentiality for all participants. Approval was obtained from educational institutions, and informed consent was ensured in accordance with the American Psychological Association's ethical guidelines (APA, 2020).

Limitations: Despite the robust methodology, some limitations must be acknowledged. The study is confined to four schools in Tirana, which may limit the generalizability of findings across Albania. Data were collected through student self-reports, which may be subject to subjectivity and recall bias (Bryman, 2015). Additionally, the lack of a longitudinal component restricts the ability to assess long-term effects of parental neglect. Nevertheless, the study provides valuable insights into this underexplored phenomenon in the Albanian context and aims to inform future intervention strategies and social policies aimed at improving child welfare.

"Systematic Random Sampling in Studying Parental Negligence"

Probability sampling is one of the most rigorous approaches in quantitative research, offering a structured and reliable method for sample selection. Several types of probability sampling exist, but for this study, **systematic random sampling** was applied. This sampling technique ensures that sampling units are selected not only randomly but also evenly distributed across the entire target population. One of the key advantages of this method is the high degree of reliability and accurate representation of the study population.

In this method, sampling units are selected based on fractional intervals, calculated using the formula $k = N/n$, where N is the number of units in the target population, and n is the number of units in the final sample. In this study, the target population consisted of 3,924 students, and the calculated sample size was 200. As a result, the sampling fraction was 20 ($k = 3924/200 = 20$). A random starting number between 1 and 20 was selected, and then every 20th student on the sampling frame list was chosen. In this case, the first number selected was 3, meaning students numbered 3, 23, 43, and so on were included. If a selected student was unavailable for any reason, the next eligible student was chosen to maintain statistical balance.

The sample size was determined using standard statistical formulas, considering the acceptable margin of error and confidence level. An error margin of 5% would have required a much larger sample, which was not feasible for this study. On the other hand, a 10% margin would have produced a sample that was too small, potentially affecting the accuracy of the results. Therefore, a compromise was made with a 7% error margin, resulting in a sample of 200 students and a confidence level of 93%. These values fall within scientifically acceptable limits, ensuring that the data collected can be generalized to the broader population of 3,924 students. To maximize the validity of the sample, response distribution was maintained at 50%, as this proportion guarantees an optimal sample size. The schools were selected purposively, considering the researcher's access for study implementation and the need to include schools from different geographic zones of Tirana. This criterion ensured wide representation of children facing various socio-economic realities and challenges.

As this is a quantitative study, the most appropriate instrument for data collection was a **structured interview**, essentially in the form of a detailed questionnaire divided by analytical categories. This instrument ensures the standardization of the data collection process, minimizes interviewer bias, and increases the objectivity of the analysis. The questionnaires were distributed directly by the researcher within school premises, selecting participants from school registry lists.

The questionnaire used in this study contained 25 questions, divided into both closed- and open-ended formats. Closed-ended questions provided structured data suitable for statistical analysis, while open-ended questions offered deeper insights into the students' perceptions and experiences. The questionnaire was organized into four main sections:

- **Section 1** included demographic data such as age, gender, and school, aiming to identify the basic characteristics of the participants and ensure balanced distribution.
- **Section 2** comprised seven closed-ended questions to assess students' awareness of parental negligence and whether they had experienced such situations. These questions helped identify cases of neglect and measure the prevalence of the phenomenon in the studied age group.
- **Section 3** contained ten questions—five closed and five open-ended—designed to identify contributing factors to parental negligence and assess its impact on children's emotional and psychological well-being. The open-ended questions in this section provided valuable insights into students' lived experiences.
- **Section 4** included eight questions focusing on family relationships and the role of parental care in children's lives. This section aimed to explore how children perceive parental support and how they feel within their family environment. The questions were carefully formulated to reveal the links between family dynamics and student well-being, supporting the study's hypotheses.

This study seeks to provide a comprehensive perspective on the impact of parental negligence on children, using a scientific approach grounded in data collected through systematic random sampling. By ensuring a clear and structured methodology, the study's findings may contribute to the development of effective strategies for institutional and societal intervention in addressing parental negligence.

Participant Selection and Scope of Inference

This study was conducted with students from both public and private nine-year schools in Tirana, who participated voluntarily. The sample was selected with consideration for the distribution of students across schools of varying population sizes, ensuring a fair and balanced representation in the results. Specifically, four schools were included, with the sample size for each school determined based on the size of its student population. Consequently, schools with larger student bodies contributed more participants to the sample. The specific distribution of participants by school is shown below:

School	Kings Tirana	Faik Konica	Albanian College	Fan S. Noli
Sample Size	42 students	32 students	45 students	81 students

Students in the study came from various grade levels, including: 16 first graders, 18 second graders, 22 third graders, 21 fourth graders, 24 fifth graders, 24 sixth graders, 26 seventh graders, 25 eighth graders, and 24 ninth graders. The participants' ages ranged from 6 to 14 years. Regarding gender, random selection was applied, resulting in 102 boys (51%) and 98 girls (49%), ensuring an almost equal gender representation and reducing the potential influence of gender imbalance on the interpretation of results. The study was conducted during the final four weeks of the academic year, enabling an assessment of a full year of school experience in relation to parental negligence.

Generalization of Findings

One of the primary limitations of this study is the lack of prior research on parental negligence in Albania. This absence restricted the ability to compare findings with national studies and posed challenges in performing comparative analyses. Due to the limited availability of empirical data on the subject, the study relied heavily on international literature, which was translated and adapted to fit the Albanian context. This presented challenges in interpreting the results and aligning theoretical concepts with the country's social and cultural realities (Creswell & Creswell, 2018). Another limitation relates to the sensitivity of the topic, which may have influenced the sincerity of students' responses. Although the questionnaire was designed to minimize bias and maintain participant anonymity, social and psychological factors may still have affected the responses (Neuman, 2014). Moreover, the study was limited to a sample drawn from four schools in Tirana, which restricts the generalizability of findings to the broader student population in Albania. Socio-economic and cultural differences between Tirana and other regions may influence how parental negligence is experienced and perceived by children (Bryman, 2015).

The generalizability of the data can be considered from two main perspectives. First, the sample includes only four schools, which may not represent the broader school system across the country. This means the findings may not reflect the reality of schools in other urban or rural areas. Second, since the entire sample is drawn from Tirana, it is challenging to apply the results to the entire Albanian student population. Social, economic, and cultural differences between the capital and smaller towns can affect both the nature and intensity of parental negligence. For example, in poorer regions, economic factors may be the primary determinant of neglect, while in Tirana, parental unavailability due to professional obligations may play a larger role.

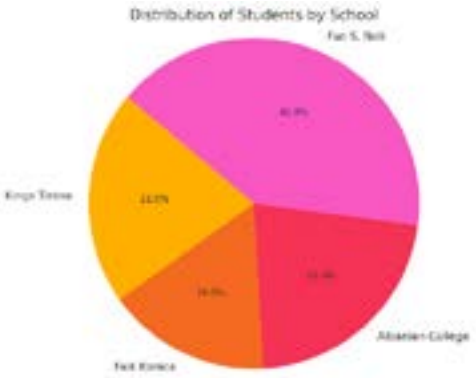
Another notable element is that three of the four schools included in the study are private institutions, which may have influenced the characteristics of the sample. Private schools generally serve students from higher socio-economic backgrounds, partially reducing the influence of poverty as a factor of neglect. However, this does not eliminate the presence of neglect; rather, it shifts the focus toward other forms such as emotional, physical, or academic neglect, which are more prevalent in families with high professional engagement. Additionally, the data revealed that a considerable portion of participating parents carry unresolved childhood traumas. These difficult experiences may affect their parenting abilities, creating emotional barriers and influencing the level of care and support they provide for their children. This underscores the importance of analyzing psychological and social factors in the assessment of parental negligence, beyond economic or educational dimensions. In conclusion, while the study offers a detailed analysis of parental negligence among students in Tirana, it presents several limitations that should be taken into account. The inclusion of only four schools, the focus on a single city, and the overrepresentation of private schools may impact the generalizability of the results. Nevertheless, the study provides a valuable foundation for further research on this topic and highlights the need for broader approaches to understanding the impact of parental negligence in a wider social context.

Data Analysis

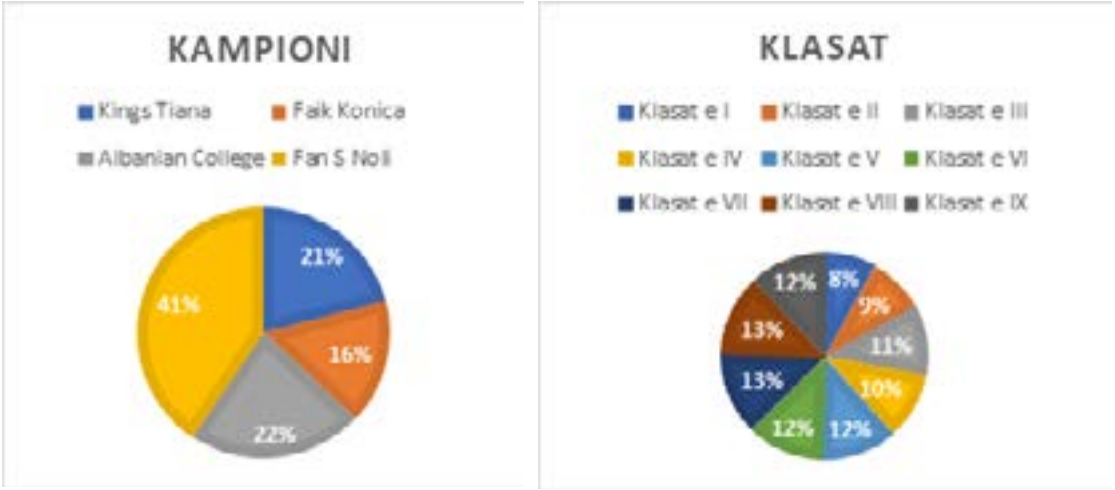
The collected data will be analyzed through statistical charts and tables that present the main findings of the study. For each closed-ended question, the results will be displayed according to the response alternatives, while for open-ended questions, the most frequent patterns of responses provided by the study participants will be examined. This method ensures a structured analysis of the phenomenon of parental negligence and allows the identification of key trends.

Regarding demographic data, out of 200 participants, 102 were boys and 98 were girls, ensuring a nearly equal gender distribution (Morrow, 2006; Johnson & Christensen, 2017).

FIGURE 1

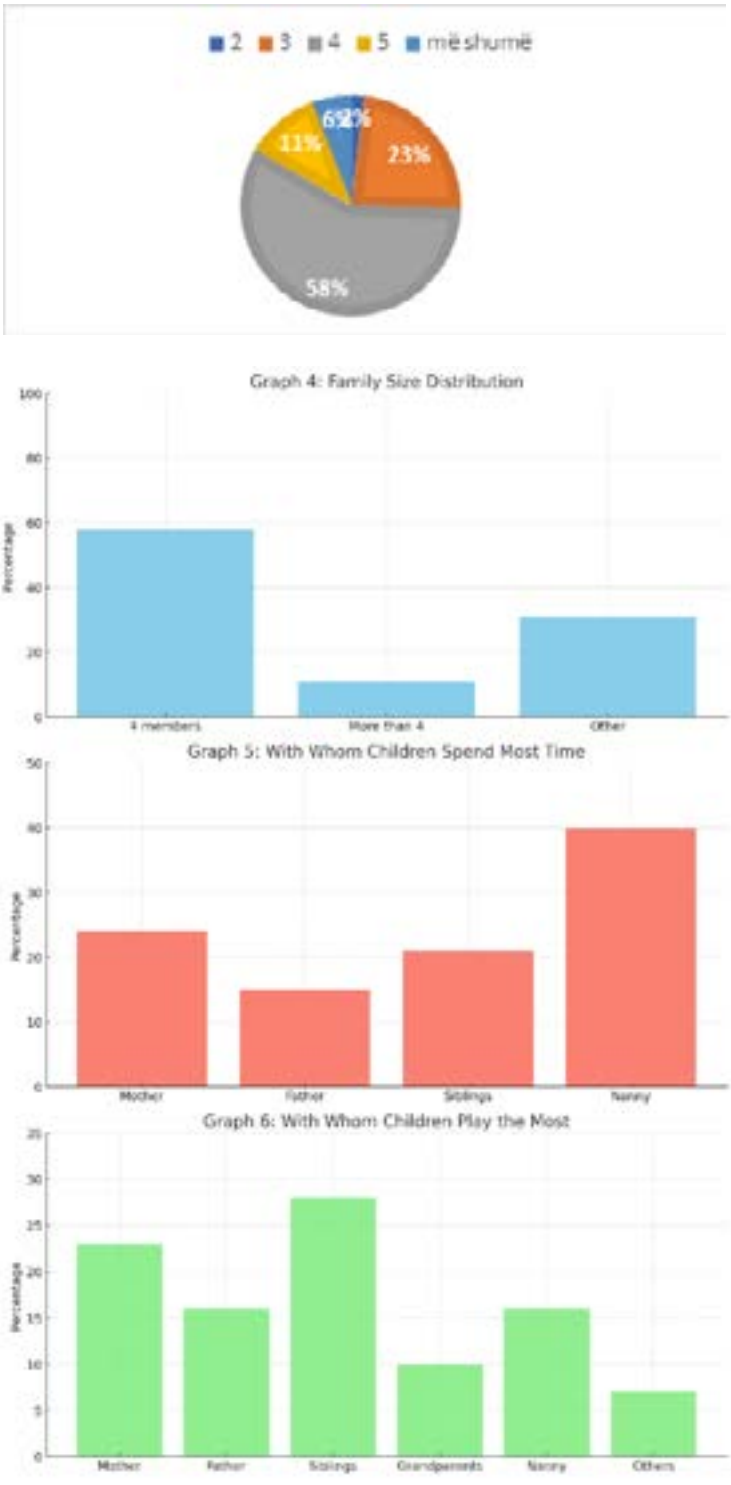


The sample was selected from four public and private nine-year schools in Tirana, covering students from first to ninth grade. Specifically, the distribution of students by school was as follows: Kings Tirana (21%), Faik Konica (16%), Albanian College (22%), and Fan S. Noli (41%). The distribution of respondents across grade levels was relatively balanced, although the highest number of participants came from sixth, seventh, eighth, and ninth grades. Nonetheless, lower cycle grades also constituted a significant portion of the sample. This distribution is beneficial for the current study, as it provides a broad overview of parental negligence across the target age group of 6–14 years.



Pyetjes se sa pjesëtarë ka familja e tyre i janë përgjigjur 200 nxënës, ku shpërndarja është si më poshtë. Nga përgjigjet, rezulton se përgjigjia më e shpeshtë është ajo me katër anëtarë, e cila përfaqëson 58% të rasteve. Gjithashtu, vërehet se ende ekzistojnë familje më të mëdha, me më shumë anëtarë, që përbëjnë 11% të rasteve.

GRAFIKU 4



A total of 200 students responded to the question regarding the number of members in their family. The distribution is as follows: the most frequent response was "four members", accounting for 58% of the cases. Additionally, larger families with more than four members still exist, comprising 11% of the sample. This indicates that the nuclear family model remains prevalent, although extended families continue to be present in a smaller proportion of cases.

In response to the question "With whom do children spend most of their time at home and outside?", 24% reported spending time with their mother, 15% with their father, 21% with siblings, and a significant percentage with the nanny. This chart highlights that in some families, children spend more time with a caregiver than with either parent. The limited time spent with fathers, in particular, reveals their reduced involvement in daily interactions with children (see Graph 5).

To the question "With whom do children play the most at home and outside?", 23% reported playing with their mother, 16% with their father, 28% with a brother or sister, 10% with grandparents, and 16% with the nanny. This distribution (Graph 6) shows that play is most frequent among siblings and with the mother. Notably, play with the nanny is more frequent than with the father, pointing once again to the limited paternal involvement in children's recreational and emotional life.

The data analysis confirms important trends regarding the social and emotional dynamics experienced by children within the family context. It suggests that parental negligence—particularly in emotional presence and engagement—may be more prevalent in families where external caregivers substitute for parental roles. Moreover, the reduced involvement of fathers, in both routine interaction and play, presents a notable pattern that warrants further investigation in policy and family support services.

Care and Emotional Support within the Family Context

Graph 8 illustrates responses to the question: *"Who takes care of you when you are sick?"* According to the data, 39% of students reported being cared for by their mother, 27% by their father, 16% by a nanny, and 12% by grandparents. The findings confirm the dominant role of mothers in caregiving, while a considerable share of care is also provided by grandparents and nannies. This highlights a partial substitution of parental roles within the household, especially in families where parents are less available.

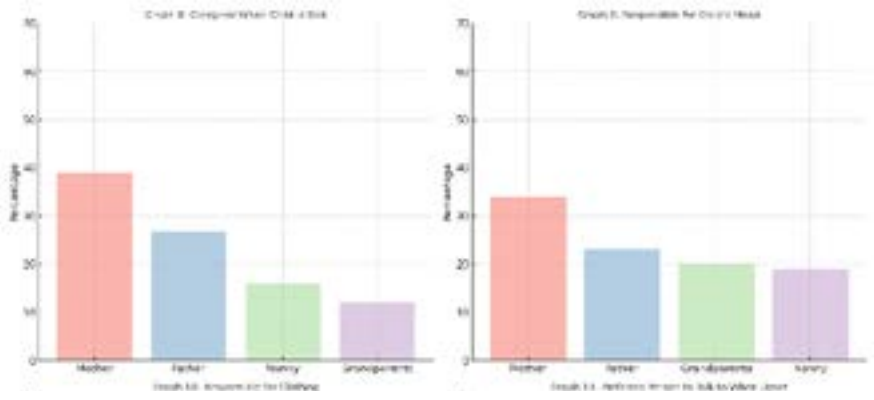
Graph 9 focuses on the question: *"Who is responsible for your meals?"* The responses were divided among mothers (34%), fathers (23%), grandparents (20%), and nannies (19%). The distribution suggests that responsibility for children's nutrition is shared relatively equally between parents and other caregivers. In some families, it appears that nannies and grandparents assume duties that traditionally fall under parental care, pointing to a shift in family dynamics.

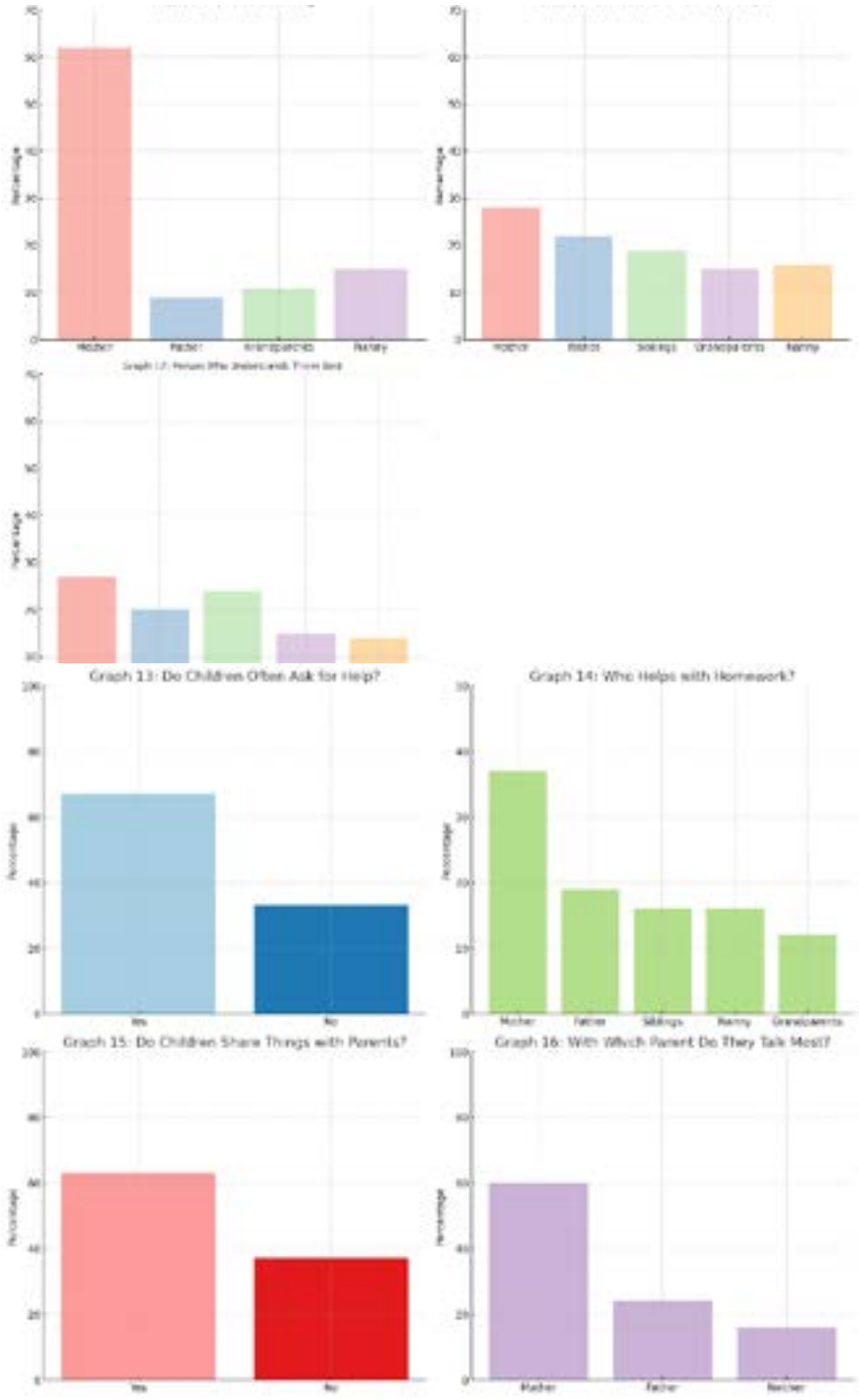
Graph 10 addresses the question: *"Who takes care of your clothing?"* The majority of children—62%—indicated their mother as the primary person responsible, while only 9% cited the father. Additionally, 15% mentioned the nanny, and 11% pointed to the grandparents. The results show that mothers overwhelmingly bear the burden of this aspect of caregiving, while fathers play a minor role. The presence of nannies and grandparents in these responsibilities further emphasizes the outsourcing of parental duties in some family settings.

Graph 11 explores emotional communication through the question: *"When you are upset, who do you prefer to talk to?"* Responses show a diverse pattern: 28% prefer to speak with their mother, 22% with their father, 19% with siblings, 16% with a nanny, and 15% with grandparents. While parents are still primary sources of emotional support, siblings and nannies play a crucial role in children's emotional lives, suggesting gaps in parental emotional availability.

Graph 12 presents responses to: *"Who understands you best when you are upset?"* Children identified siblings (24%), mothers (27%), fathers (20%), nannies (14%), and grandparents (15%). The data indicate that siblings are perceived as nearly equal to or even surpassing parents in understanding children's emotional states, pointing to the increasing emotional closeness among siblings and a possible emotional detachment from parents, especially fathers.

These findings, when viewed together, offer a comprehensive picture of how care and emotional support are distributed within families. Mothers remain central in practical caregiving, but the roles of fathers appear consistently limited across all domains—health care, nutrition, clothing, and emotional communication. The involvement of nannies and grandparents further reflects structural shifts in caregiving models, often driven by parents' professional commitments or emotional unavailability. These patterns underscore the complexity of parental negligence, not only as a lack of physical presence but also as an emotional and relational gap that may affect children's development and well-being.





Help-Seeking Behavior, Emotional Communication, and Parental Involvement

Graph 13 explores children's willingness to seek help. 67% of students reported that they often seek help, while 33% said they do not. Among those who do seek help, the most frequently mentioned individuals were the mother, grandparents, father, siblings, and friends. Conversely, students who reported not seeking help explained that they either did not want to ask, had been disappointed or misunderstood in the past, or preferred to solve problems independently. These responses reveal a significant level of emotional independence among children and highlight a potential lack of trust or communication with adults in the household.

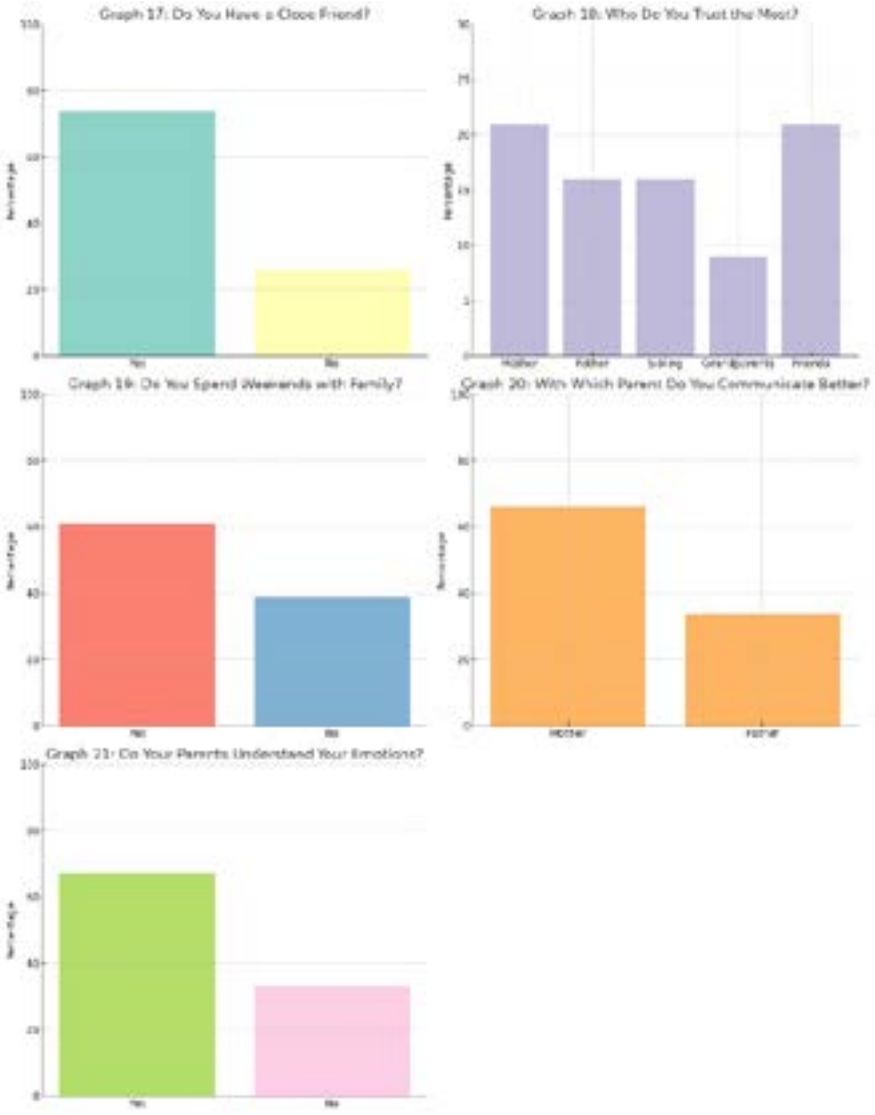
Graph 14 addresses who assists children with homework and school responsibilities. The mother was cited most frequently (37%), followed by the father (19%), while siblings and nannies were each cited by 16% of respondents. Grandparents also played a supportive role. The chart confirms that mothers remain the primary source of academic support, with fathers playing a notably less active role, reinforcing broader trends of limited paternal engagement in day-to-day caregiving.

Graph 15 focuses on whether children share personal matters with their parents. 63% responded affirmatively, while 37% said they do not. Among those who refrain from sharing, the reasons included fear of judgment, preference to keep matters among peers, or discomfort in opening up to their parents. On the other hand, those who share their thoughts with parents stated that their parents help them with fair judgments and provide emotional understanding. This graph highlights the presence of emotional barriers in a significant portion of families, especially when it comes to open communication between children and parents.

Graph 16 addresses the question: *"With which parent do you talk most about friendships or personal matters?"* The results show that 60% of children prefer to speak with their mother, 24% with their father, and 16% with neither. This emphasizes the dominant communicative and emotional role of the mother, while also revealing that a considerable group of children avoids discussing personal topics with either parent. This could reflect a lack of emotional safety or communication culture within the family.

These four charts collectively paint a nuanced picture of how children perceive and experience support, discipline, and communication within the family unit. Mothers emerge as the central figure in both practical and emotional aspects of child-rearing. Fathers, while present, appear to have a consistently lower level of involvement, particularly in emotional and academic domains. The involvement of nannies and grandparents remains notable, especially in cases where children feel emotionally neglected or misunderstood by their parents.

Additionally, children's responses to disciplinary practices (as gathered from open-ended responses) suggest a wide spectrum of experiences, ranging from verbal reprimands and emotional withdrawal to physical punishment or manipulative dynamics (e.g., being rewarded with gifts after scolding). Some children reported feeling isolated, unable to express themselves, or emotionally protected by alternative caregivers like nannies or grandparents. These insights point to the presence of inconsistent or inadequate emotional responses from parents, and further support the thesis that emotional neglect is a significant and underrecognized component of parental negligence.



Social Bonds, Trust, and Emotional Understanding in the Family Context

Graph 17 presents responses to the question: "Do you have a close friend?" A large majority—74%—answered yes, while 26% reported that they do not have such a relationship. This reveals that while most children successfully form strong peer attachments, over a quarter of them experience social isolation or difficulty building close friendships, which may reflect emotional insecurity or lack of support in their home environment.

Graph 18 illustrates trust dynamics within the family and with peers. When asked "Who do you trust the most?", children were divided between mother (21%) and friends (21%), followed by father (16%), siblings (16%), and grandparents (9%). These results show that trust in parents is not significantly higher than trust in peers, suggesting that external social circles play a crucial emotional role. The equal percentage for mother and peers points to a fragmented emotional attachment pattern in some families. Supporting this, Table III lists the main reasons why children trust particular figures. Many highlight loyalty, understanding, emotional closeness, and the ability to keep secrets—features associated both with parents and peers. The diversity of answers emphasizes that children's emotional needs are often met by non-parental figures, reflecting possible emotional neglect or poor communication with caregivers.

Graph 19 focuses on weekend routines. 61% of students said they spend weekends with their family, while 39% do not. Responses indicated that parental work commitments, fatigue, or a lack of family engagement often reduce shared weekend time. Some children described their weekends as boring or emotionally distant, while others reported joyful time with grandparents or siblings rather than parents. This suggests that weekend interactions—a key opportunity for emotional bonding—are not consistently optimized in all households.

Graph 20 explores communication quality with parents. The mother was preferred by 66% of respondents, compared to 34% for the father. This disparity supports earlier findings about the greater emotional involvement of mothers and the lesser communicative role of fathers, reinforcing the pattern of limited paternal presence in everyday emotional life.

Graph 21 investigates whether children feel emotionally understood by their parents. 67% responded positively, while 33% said they do not feel understood, pointing to emotional disconnects that may contribute to broader family dysfunction. These results reflect a damaged or incomplete emotional chain within the family system, where children may feel unheard, invalidated, or misunderstood.

Summary of Findings: Emotional Bonds, Trust, and Social Support

The analysis of graphs 17 through 21 offers a comprehensive understanding of how children aged 6–14 experience emotional support, trust, and social connectedness within and outside the family. While the majority of children (74%) report having a close friend (Graph 17), a notable minority (26%) lack such bonds, indicating potential issues with social attachment that may be rooted in emotional insecurity or family-based neglect. Trust is distributed nearly equally between mothers and friends (21%), suggesting that external social relationships often compensate for insufficient emotional trust in parents (Graph 18). Children frequently identify non-parental figures—including siblings, grandparents, and peers—as their primary sources of emotional connection, which reflects potential emotional gaps in the parent-child relationship.

Weekend time with family (Graph 19) and parent-child communication (Graph 20) further reinforce the emotional disparity, with many children citing limited shared time, especially with fathers, due to work overload or disengagement. While most children communicate better with their mother (66%), a considerable percentage (34%) still experience stronger ties with their father or none at all, revealing an uneven distribution of emotional engagement.

Finally, while 67% of children feel understood by their parents (Graph 21), the remaining 33% express emotional distance, misunderstanding, or lack of connection, suggesting a weakened emotional link within the family structure that can affect psychological well-being.

These findings support the hypothesis that parental negligence is not always visible through absence or abuse, but often manifests subtly through emotional unavailability, lack of communication, and insufficient involvement in children's everyday experiences. Addressing these gaps is essential for promoting healthier emotional development and more secure social bonds in childhood.

Comparative Analysis of Findings and Their Link to Psychological Theories

Emotional Neglect in Childhood and Its Consequences on the Psychosocial Development of Children

Emotional neglect during childhood has a profound impact on children's psychosocial development, often leading to long-term consequences in both emotional and social domains. When children do not receive adequate emotional support, they may develop low self-esteem, difficulties in forming healthy relationships, and challenges in regulating their emotions.

This type of neglect increases the risk of emotional disorders such as anxiety and depression and makes it more difficult for children to integrate into society and establish stable, meaningful connections throughout life.

The Impact of Emotional Neglect on Relationships and Emotional Development. Children raised in environments where their emotions are invalidated or ignored tend to develop defense mechanisms such as emotional suppression or emotional detachment (Crittenden, 2016). These mechanisms hinder their ability to express emotions later in life and impair the formation of healthy interpersonal relationships. Moreover, emotional neglect affects how children perceive others and the world around them, often leading to insecurity and a general mistrust in social interactions (Godbout et al., 2019). Over time, this can manifest as difficulty engaging in peer relationships and contribute to emotional disorders—particularly during adolescence—such as anxiety, depression, or withdrawal (Spinazzola et al., 2014).

The Role of Parents in Shaping Emotional Health. Parents play a central role in shaping a child's emotional world. When parents fail to provide adequate emotional support, children may grow up feeling emotionally invalidated and unable to communicate their emotional needs (Shonkoff & Phillips, 2000). Parental behaviors such as emotional distancing, minimization of feelings, or a general absence of emotional responsiveness create a climate in which emotions are perceived as unimportant or shameful. These dynamics can impair interpersonal skills and increase the likelihood of dysfunctional attachment styles (Egeland, Carlson, & Sroufe, 1993).

Connecting Empirical Findings with Theory. The findings of this study align with key psychological theories, including Attachment Theory, which suggests that secure emotional bonds formed in early childhood are fundamental for psychological health and future relationship patterns. Insecure attachment resulting from emotional neglect may lead to avoidance, ambivalence, or disorganized attachment styles in adolescence and adulthood. Additionally, Ecological Systems Theory (Bronfenbrenner) helps contextualize emotional neglect as a product of broader environmental systems—such as family stress, parental employment, or societal norms—that may reduce the time and emotional availability parents have for their children. This was evident in the responses of children who reported that their parents were frequently absent or preoccupied with work, contributing to weakened emotional communication and limited trust within the family.

Implications and Early Interventions. To address emotional neglect effectively, it is critical to promote emotional awareness and communication within families. Psychological counseling, parental education, and community-based interventions can help establish safer emotional environments where children feel validated and supported (Howe, 2005). Early interventions, particularly during sensitive developmental windows, are essential for preventing long-term damage and helping children build the emotional resilience needed for healthy personal and social functioning.

In conclusion, emotional neglect—though often less visible than physical neglect or abuse—has deep and lasting effects on children's ability to relate to themselves and others. The integration of theoretical frameworks with empirical findings confirms the urgent need to recognize, prevent, and address emotional neglect as a serious threat to child development.

Strategies for Preventing and Intervening in Cases of Emotional Neglect

Emotional neglect is a subtle but damaging form of child maltreatment that can have lasting consequences on children's emotional and social development (Spinazzola et al., 2014). Early identification of signs of emotional neglect is essential to prevent long-term effects. These signs often include emotional withdrawal, low self-esteem, and difficulty forming relationships (Godbout et al., 2019). The role of school psychologists, teachers, and social workers is pivotal in recognizing these indicators and providing tailored support interventions (Egeland, Carlson, & Sroufe, 1993). As Kerns and Brumariu (2014) suggest, teachers are in a key position to identify behavioral changes such as social isolation and reduced emotional responsiveness.

In the Albanian context, researchers like Dida (2017) and Gjipali (2020) emphasize the importance of strengthening parental awareness through psycho-educational programs and increasing the role of schools in early detection and referral of children at risk. They argue that the lack of systematic cooperation between educational and social institutions is one of the main barriers in responding to emotional neglect. Parenting support and community-based education are crucial strategies for helping children and families develop healthy emotional bonds. Educating parents about children's emotional needs and the impact of emotional communication on development is an essential step (Lavi et al., 2019). Parental education programs can improve the parent-child relationship by encouraging emotional validation and the creation of a safe, nurturing home environment (Shonkoff & Phillips, 2000).

Schools also play a vital role through the implementation of social-emotional learning (SEL) programs that help children develop self-expression, empathy, and conflict resolution skills (Crittenden, 2016). Moreover, community involvement and public awareness campaigns are necessary to reduce stigma and increase responsiveness to emotional neglect. Riggs and Jacobvitz (2002) advocate for the establishment of family-centered support networks, a recommendation echoed by Albanian scholars such as Dervishi and Gusia (2015), who underline the need for integrated psychosocial services accessible to vulnerable families. In conclusion, early intervention and a multi-layered approach that includes schools, mental health professionals, and community actors is essential for fostering emotionally healthy development and building secure and resilient relationships in childhood.

Conclusions and Recommendations

Emotional neglect in childhood has significant and long-lasting effects on emotional, social, and academic development. This study revealed that children affected by emotional neglect often struggle with expressing feelings, forming relationships, and building a positive self-concept. A lack of emotional support from parents—combined with socioeconomic stressors—contributes to increased behavioral problems, social isolation, and learning difficulties.

As shown by the findings, early identification and multidisciplinary intervention—especially from educators and mental health professionals—are crucial in mitigating these effects. This aligns with the observations of Albanian psychologist Bardhi (2019), who states that emotional neglect is often underreported in Albania due to limited training among frontline professionals.

To improve outcomes, parents should be sensitized to the importance of emotional expression and encouraged to support their children in developing empathy and self-worth. Educational institutions must integrate emotional literacy into curricula and promote the development of children's social skills. Additionally, the community and social institutions must work together to build support mechanisms for families in crisis, particularly those facing financial hardship or emotional disconnection. Through a coordinated and culturally responsive approach, the impact of emotional neglect can be reduced, and healthier development can be ensured for future generations.

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The Psychological Impact of Remote Work: A Study on Mental Health, Productivity, and Well-being

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Abstract

The rise of remote work, accelerated by the COVID-19 pandemic, has significantly altered global work dynamics. This qualitative study explores the psychological impact of remote work, with a focus on mental health, productivity, and overall well-being. Using semi-structured interviews with 17 participants from three companies in Germany and Albania, the study investigates how remote work affects emotional states, work-life boundaries, and professional performance. Thematic analysis revealed six core themes: Mental Health and Emotional Impact, Work-Life Balance, Productivity and Performance, Social Isolation and Relationships, Coping Mechanisms, and Organizational Support. While many participants appreciated the flexibility and autonomy of remote work, others reported increased stress, blurred boundaries, and emotional fatigue. Coping strategies included mindfulness routines, clear work rituals, and digital tools to manage time and stress. Participants also expressed a need for stronger organizational support through hybrid models, mental health initiatives, and improved IT resources. This research provides insight into the complex psychological landscape of remote work and offers practical recommendations for employers seeking to promote sustainable and supportive remote work environments.

Keywords: *remote work, mental health, employee well-being, productivity, hybrid work*

Introduction

The rise of remote work has reshaped traditional employment structures, introducing new opportunities and challenges for employees and organizations alike. While remote work has long existed in some form, its widespread adoption was rapidly accelerated by the COVID-19 pandemic, making it a defining feature of the modern workplace (Wang, Liu, Qian, & Parker, 2021). This transition has sparked a surge of interest in understanding its psychological consequences, particularly regarding mental health, productivity, and overall well-being.

Remote work offers notable advantages, including increased flexibility, reduced commuting time, and greater autonomy over one's schedule (Allen, Golden, & Shockley, 2015; Gajendran & Harrison, 2007). However, these benefits are frequently counterbalanced by a range of psychological stressors. Studies have found that prolonged remote work can lead to social isolation, technostress, work-family conflict, and blurred boundaries between personal and professional life (Carnevale & Hatak, 2022; Palumbo, 2020; Molino, Cortese, Ghislieri, & Colombo, 2020). These issues contribute to heightened stress, anxiety, and decreased well-being, raising concerns about the long-term sustainability of remote work models (Jong & Lee, 2024; Mendiratta, 2024).

Recent research has taken diverse approaches to investigate these dynamics. Quantitative studies have provided valuable insights into remote work's correlation with psychological distress and organizational outcomes (Chati et al., 2024; Jong & Lee, 2024), while meta-analyses and literature reviews have helped identify both the positive and negative aspects of telecommuting (Gajendran & Harrison, 2007; Allen et al., 2015). Yet, there remains a lack of qualitative, experience-driven

research that delves into how individuals perceive and respond to these challenges in their day-to-day lives. As Grant, Wallace, and Spurgeon (2013) emphasize, understanding the subjective psychological experience of remote workers is essential for developing effective support mechanisms and work policies.

This study addresses that gap by adopting a qualitative methodology to explore the psychological impact of remote work. Through in-depth interviews and focus groups with employees across various sectors, the research examines how remote work environments affect mental health, influence productivity, and shape strategies for maintaining work-life balance and personal well-being. By highlighting workers' lived experiences, the study offers practical insights for organizations aiming to create more supportive and psychologically sustainable remote work conditions.

Method

Research Design

This study utilized a qualitative, exploratory research design to investigate the psychological impact of remote work on employees. The qualitative approach was selected due to its strength in capturing detailed, subjective experiences and emotional nuances that quantitative methods might overlook. By exploring participants' lived experiences through open-ended dialogue, the study aimed to provide a comprehensive understanding of how remote work influences mental health, productivity, and overall well-being.

Participants

The study sample comprised 17 participants employed across three different companies, one of which is located in Stuttgart, Germany. Participants were selected through purposive sampling to ensure representation from diverse professional fields, including IT consulting, social work, and economics. The age range of participants spanned from 25 to 60 years, and the sample included individuals of all genders to capture a broad range of experiences and perspectives related to remote work. This diversity allowed for a richer exploration of the psychological effects across different occupational contexts and demographic groups.

Data Collection

Data were gathered through semi-structured interviews, a method well-suited to qualitative research as it balances guided inquiry with participant freedom to elaborate on relevant topics. The interview protocol was designed to explore key areas such as stress levels, anxiety, work-life balance, productivity changes, and coping strategies while working remotely. Interviews were conducted either virtually or in person, depending on participant preference and safety considerations. Each interview lasted approximately 45 to 60 minutes and was audio-recorded with participants' consent to ensure accurate data capture.

Data Analysis

The recorded interviews were transcribed verbatim and analyzed using thematic analysis as described by Braun and Clarke (2006). This six-phase process involved familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. Two researchers independently coded the transcripts to enhance reliability, with discrepancies resolved through discussion and consensus. This rigorous approach enabled the identification of both common and unique themes reflecting the psychological impact of remote work, as well as the coping mechanisms employed by employees.

Ethical Considerations

Ethical approval for the study was obtained from the relevant institutional review board. Participants were provided with detailed information about the study's purpose, procedures, and their rights as participants, including the right to withdraw at any time without penalty.

Results

Thematic analysis of semi-structured interviews with 17 participants from three companies revealed six primary themes reflecting the psychological impact of remote work: (1) Mental Health and Emotional Impact, (2) Work-Life Balance, (3) Productivity and Performance, (4) Social Isolation and Relationships, (5) Coping Mechanisms, and (6) Organizational Support and Suggestions. These themes highlight diverse and often contrasting employee experiences during the shift to remote work.

Mental Health and Emotional Impact

A majority of participants (approximately 12 of 17) reported experiencing increased anxiety and emotional strain linked to remote work, particularly due to prolonged isolation and uncertainty. However, a subset of employees indicated feelings of emotional stability and satisfaction, primarily attributed to the increased flexibility remote work allowed. The duality of these experiences underscores the complex psychological effects of remote work during the pandemic.

Work-Life Balance

Most participants (around 13) acknowledged that remote work offered greater flexibility, enabling better management of personal responsibilities and schedules. Despite this, nearly half of the sample (8–9 participants) struggled with maintaining boundaries between work and personal life, leading to blurred lines and extended work hours without conscious intent. A strong preference emerged for hybrid work models, with 14 participants expressing that combining remote and office work would best support their work-life balance.

Productivity and Performance

Reports on productivity were mixed but largely positive. Over half the participants (approximately 10) felt their productivity improved due to fewer distractions and better control over their work schedules. Conversely, 7 participants experienced decreased productivity, often citing technical difficulties, ineffective communication, or poor ergonomic conditions at home. Participants consistently identified individual discipline, role-specific demands, and the quality of their home office environment as significant factors influencing their performance.

Social Isolation and Relationships

Feelings of social disconnection were prevalent, with 15 participants describing a pronounced sense of isolation stemming from the loss of informal office interactions. Many deeply missed casual conversations and spontaneous social exchanges. To mitigate these feelings, participants relied on video conferencing, instant messaging, and scheduled virtual social activities, which were viewed as essential in maintaining team morale and fostering a sense of belonging despite physical distance

Coping Mechanisms

Participants actively employed various strategies to support their mental health and work effectiveness. Grounding routines such as yoga, journaling, and nature walks were practiced by roughly 10 participants, providing emotional relief and stress reduction. Many also utilized digital tools like mindfulness apps and Pomodoro timers to structure their workday and maintain focus. Creating designated work zones and daily rituals for beginning and ending work were reported to be effective in helping participants maintain work-life boundaries and reduce cognitive fatigue.

Organizational Support and Suggestions

A strong consensus emerged regarding the need for enhanced organizational support to improve the remote work experience. Participants (approximately 14) highlighted the importance of better IT infrastructure and ergonomic equipment to facilitate comfortable and efficient home working conditions. Flexible scheduling and increased autonomy were also emphasized as critical. Suggested organizational measures included offering mental health days, regular wellness check-ins, and providing hybrid work options. Across interviews, employees expressed a desire for greater trust from their employers and proactive initiatives aimed at supporting their well-being during remote work.

Conclusion

This study contributes to the growing body of knowledge on the psychological effects of remote work by offering in-depth, qualitative insights into employees' lived experiences. Through thematic analysis of interviews with professionals from diverse fields, the research highlighted the nuanced impact of remote work on mental health, work-life balance, productivity, and social connection. While remote work offered increased flexibility and autonomy for many, it also presented substantial psychological challenges—particularly related to social isolation, boundary-setting, and emotional well-being. Participants demonstrated resilience through personal coping strategies, but also expressed a clear need for stronger organizational support, including ergonomic resources, flexible policies, and wellness initiatives. Notably, most participants favored a hybrid model as the most sustainable and balanced approach.

The findings underscore that remote work is not a one-size-fits-all solution. Its psychological impact is shaped by individual roles, personal circumstances, and organizational practices. As remote and hybrid work models continue to evolve, it is crucial that organizations listen closely to employee experiences and take proactive steps to support their mental health, productivity, and sense of connection. Future research should expand on these insights by exploring diverse cultural and sectoral contexts, using both qualitative and quantitative approaches, to inform evidence-based policies that promote sustainable and psychologically healthy remote work practices.

Recommendations

Based on the findings of this study, several actionable recommendations are proposed for organizations seeking to improve the remote work experience and safeguard employee well-being:

1. Support Hybrid Work Models
   A majority of participants expressed a preference for a hybrid model that balances flexibility with structured, in-person interaction. Organizations should consider formalizing hybrid policies that offer both autonomy and opportunities for social connection.
2. Strengthen Technological and Ergonomic Infrastructure
   Employers should ensure that remote employees have access to reliable IT tools, ergonomic furniture, and adequate home office resources. This not only supports productivity but also reduces physical and psychological strain.
3. Encourage Clear Work-Life Boundaries
   Organizations can help employees manage boundaries by promoting regular work hours, discouraging after-hours communication, and encouraging routines that signal the start and end of the workday.
4. Foster Social Connection Virtually
   To mitigate feelings of isolation, managers should facilitate informal virtual interactions, team-building sessions, and peer check-ins. Maintaining a sense of community is essential for morale and belonging.
5. Prioritize Mental Health and Well-being
   Employers are encouraged to offer mental health days, wellness check-ins, and access to psychological support services. These initiatives demonstrate care and contribute to a culture of psychological safety.
6. Trust and Empower Employees
   Empowering employees through flexible scheduling and autonomy over their workflow can enhance motivation and reduce stress. A culture of trust, rather than surveillance, supports both well-being and performance.

By implementing these measures, organizations can create a more adaptive, sustainable, and psychologically healthy remote work environment—benefiting both employees and overall organizational outcomes.

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The Use of Artificial Intelligence Tools in Higher Education

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Abstract

The rapid development of Artificial Intelligence has also impacted Education in general, specifically Higher Education. This development has influenced how students learn and the professional development of professors. This paper examines professors' perceptions of using Artificial Intelligence tools in Higher Education. The study focuses on understanding professors' personal experiences, the role of Artificial Intelligence in teaching and learning, the challenges and limitations, as well as how they envision the future of Artificial Intelligence in higher education. Based on existing literature and case studies, this paper highlights the importance of comprehensive training for professors to maximize the effectiveness of using Artificial Intelligence tools in Higher Education. The aim of the research was to understand professors' perceptions of the use of Artificial Intelligence (AI) tools in higher education. This research is based on three objectives, starting with an investigation into the tools, challenges, and ethical issues associated with the use of AI in higher education. Next, it examines the impact of the use of AI on the role and functions of professors in higher education. Finally, the research investigates the impact of the use of AI tools on improving the efficiency and quality of the teaching and learning process in higher education. The findings suggest that Artificial Intelligence has the potential to improve personalized learning but raises concerns about its misuse, leading to the issues of data privacy, academic integrity, and the role of professors. Therefore, the recommendations of this study are linked to the professional training of academic staff, followed by students, for the proper use of Artificial Intelligence tools, ensuring that this technological power does not stifle the wings of imagination and the creative spirit within each individual.

Keywords: *Artificial Intelligence, AI tools, higher education, technology in education, teaching and learning innovation*.

Introduction

The need for change in education is a continuous requirement, and with the term innovation, technology itself emerges, while Artificial Intelligence (AI) is the latest word in today's technology. In 1956, a small group of scientists gathered for the Dartmouth Summer Research Project on Artificial Intelligence, marking the birth of this research field (J.McCarthy, Minsky, Rochester, & Shannon, 2024). The digital transformation in education is essential for operational efficiency, improving learning experiences, and expanding educational access. The integration of technologies such as AI, IoT, and cloud computing is critical for driving innovation in the education sector. Embracing digital transformation enables educational institutions to unlock new pathways for engagement, personalized learning, and competitive advantages. Tailored strategies for digital transformation are vital for navigating the complexity of integrating technology into educational models (Gehlot, 2024). On the other hand, the media is filled with stories about the potential of technology to replace human workers, including teachers. However, the truth is that teaching involves more than just the transfer of knowledge. Machines cannot replace the human touch that is necessary in our schools, which can only be provided by high-quality educators. Rather than fearing AI, teachers and education professionals can see it as a powerful tool for delivering better and more personalized educational experiences and easing much of the administrative load currently placed on teachers. As machine learning and AI continue to advance, human interaction will become even more important.

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Only teachers can truly understand the nuances of what is happening in the minds of their students in the classroom. Motivating students to learn, practice, and develop is a skill that is currently beyond the scope of artificial intelligence. High-quality teachers have a wide range of motivational strategies they can use to give students an initial boost and keep them motivated throughout the school year. Even young students quickly understand that the punishments and rewards given by computers are not the same as those they experience from a teacher, alongside their peers. (Berrnard Marr, 2022). While students in Kosovo demonstrate strengths in terms of a positive school climate, well-being, global competence, and positive teacher-student relationships, they face significant challenges related to academic performance, fixed mindsets, limited engagement with digital learning materials, and a lack of educational resources. Addressing these weaknesses will be crucial for the successful implementation of AI in Kosovo's educational system (Dida, 2023).

It means, AI has the potential to revolutionize education by enhancing student engagement and learning outcomes. By offering personalized instruction, gamification, and intelligent tutoring systems, AI can create a more engaging and effective learning experience for students. Real-life examples, such as Knewton, Duolingo, and Carnegie Learning, demonstrate the impact of AI on student engagement (Hendra, 2023).

Literature Review

Artificial Intelligence for Personalized Learning

In education, personalized AI agents, such as intelligent tutoring systems, are becoming increasingly important for providing personalized learning experiences, addressing the specific needs of students, and offering real-time feedback that traditional methods cannot achieve. These agents uniquely adapt to learning styles and paces, bridging gaps that traditional classroom environments often fail to address. However, this powerful technology casts a shadow of concern. Privacy breaches are a major issue, as some AI algorithms based on surveillance, including facial recognition systems and behavior analysis tools, can accurately analyze our daily digital lives, collecting data that may be used without our consent. Furthermore, embedded biases in AI models, especially those trained on rich but unbalanced datasets, risk incorporating social inequalities into systems that affect vital social functions such as employment practices, credit evaluations, and law enforcement (Sankaranarayanan, 2024).

Intelligent Teaching Systems

Intelligent teaching systems incorporate artificial intelligence techniques to simulate a human teacher. These expert systems are capable of assessing student abilities, providing examples and practice exercises for every topic, and offering immediate and personalized feedback to students. For example, Content Technologies, Inc. (CTI) is an AI company that uses Deep Learning to create personalized learning tools for students, such as "Just The Facts 101", where teachers import curricula into a CTI engine. The CTI machine then uses algorithms to generate customized texts and subjects based on key concepts. "Cram 101" is another AI-enhanced example, where any textbook can be turned into an intelligent study guide, offering bite-sized content that is easy to learn in a short period of time. (Orhani, 2021)

The study shows that most students support the use of Artificial Intelligence as an important tool in personalized learning, particularly as virtual tutors or intelligent assistants. However, there is considerable disagreement regarding the replacement of human teachers by AI, emphasizing the crucial role of human emotional and empathetic engagement in teaching. Studies using AI tools like ChatGPT reinforce this idea, showing that technology should complement, not replace, teachers. (Randieri, 2024)

By utilizing AI in these ways, professors can create a more efficient and personalized learning environment, leading to more insights into student progress and more effective interventions.

Professors can use a variety of Artificial Intelligence (AI) tools to enhance the assessment process, helping with grading, personalized feedback, and the evaluation of complex assignments. Here are some AI tools that can be particularly useful:

- Professors can use *Turnitin* to check for similarities in student papers, ensuring originality and providing feedback to students on how to improve their citations and paraphrasing.
- Professors can recommend *Grammarly* to students to improve writing quality or use it in the grading process to highlight language errors and make more informed decisions on writing quality.
- *Socrative* for creating formative assessments and receiving immediate feedback on student understanding. AI is used to analyze the data and provide insights into student performance.
- *Gradescope* to grade exams, problem sets, and even free-response questions. AI helps automate the grading process by analyzing patterns in answers and providing feedback.
- *Moodle with AI Plugins* **t**o create adaptive quizzes, track student progress, and provide personalized learning paths. AI-powered analytics can identify at-risk students and help improve decision-making in assessment.

- *Quillionz t*o generate various types of assessment questions (multiple-choice) quickly and efficiently. This allows them to focus more on teaching and less on prepareng assessments.
- *AI-Based Essay Scorers* to assess student essays, giving them feedback on structure, coherence, and language use. This tool can also assist with grading large numbers of essays more efficiently.
- Integrate *Knewton* into their courses to provide personalized learning experiences. The platform tracks student progress and adjusts the content, giving real-time feedback and insights for professors.
- *ChatGPT*, provide instant feedback on essays, assignments, and even quiz results. It can be a tool for automated feedback or as a supplement to personalized assessment.
- *ProctorU t*o monitor students during online exams, ensuring that the assessments are fair and preventing cheating. The AI helps detect suspicious behavior during the exam.
- *AI-Enhanced Rubrics* to generate grading rubrics tailored to specific assignments. This helps make grading more consistent and transparent, providing students with clearer expectations for performance.
- *Smart Sparrow t*o design customized, interactive assessments that adapt to each student's skill level and performance.
- *Turing* to facilitate peer reviews in their courses. It uses AI to help students assess each other's work by providing guidance on specific aspects of the assignment.

Artificial Intelligence-Powered Tutoring Systems

Artificial Intelligence (AI) has had a significant impact on the development of tutoring systems, leading to the creation of AI-powered tutoring systems that offer personalized and adaptive learning experiences. Below are some important scientific contributions in this field:

The LISTEN Project and the Reading Tutor: Led by Professor Jack Mostow at Carnegie Mellon University, an AI system that listens to children reading aloud, corrects mistakes, provides suggestions, and evaluates progress. This system has been implemented in various countries, including the United States, Canada, Ghana, and India, showing positive impacts on children's reading skills.

AI Tutors and Student Performance: A study from the Wharton School at the University of Pennsylvania investigated the impact of AI tutors on preparing high school students for math exams. The findings showed that while AI tutors could improve performance on practical problems, students often used them to copy answers, leading to lower engagement with the material. This highlights the need for careful integration of AI tutors to ensure that they enhance learning without promoting passive learning behaviors.

These studies highlight both the opportunities and challenges of integrating AI into tutoring systems, emphasizing the importance of careful implementation to maximize educational benefits.

A recent study found that high school students who used Generative Artificial Intelligence (genAI) to prepare for math exams performed worse on tests compared to those who did not use this tool at all. A "personal tutor for every student" is one of the optimistic scenarios that AI enthusiasts envision, but AI-supported learning still faces many hurdles to overcome.

A new report from the Wharton School of the University of Pennsylvania revealed that access to genAI tutors could improve students' performance on practical math problems. However, these students tend to use genAI to copy and paste answers, which leads to less engagement with the material.

Wharton researchers tested three groups of students preparing for a math exam. Nearly 1,000 9th, 10th, and 11th-grade students participated in four 90-minute sessions. One group used textbooks, another used a genAI tutor designed to mimic a typical chatbot interface, and the third group used a teacher-guided chatbot that provided step-by-step instructions for solving problems rather than simply giving the answer.

Kristen DiCerbo, Chief Learning Officer at Khan Academy, based in the Bay Area, agrees. "Our AI pilot has shown us that students need guidance on how to use AI tools," DiCerbo wrote in an email to Axios (Morrone & Chen, 2024).

Ethical Issues and Challenges in the Use of Artificial Intelligence

AI can enhance institutional efficiency and provide data-driven insights, which contribute to better decision-making in educational environments. As institutions adapt to the evolving digital landscape, the strategic use of AI can improve the quality of education, student engagement, and research productivity. However, successful implementation requires addressing challenges such as data privacy, ethical considerations, and the potential impact on traditional educational models (Abulibdeh, Chatti, Alkhereibi, & Menshawy, 2025). A study conducted by professors from Norway and Turkey shows that reliance on AI may reduce the ability to think critically, lower the originality of academic work, and raise ethical concerns in academic environments (Octaberlina, Dewi Chamidah, Alfin Mustikawan, Muslimin, & Surur, 2024).

Artificial Intelligence Tools

Students can use a variety of Artificial Intelligence (AI) tools to enhance their academic experience and increase efficiency during their studies. These tools are categorized based on their functionality:

- *For Writing and Academic Research*: ChatGPT (by OpenAI), Grammarly, Quillbot, Zotero
- *For Research and Scientific Studies:* Semantic Scholar. Connected Papers: Helps, Elicit.
- *For Planning and Time Management*: Notion AI, Clockify, My Study Life.
- *For Learning and Studying*: Quizlet, Khan Academy (with GPT-4), Duolingo, Anki.
- *For Data Analysis and Coding*: Excel (with Power Query and AI), Python Libraries, GitHub Copilot.
- *For Creation and Presentation*: Canva, Prezi, SlidesAI.
- *For Specialized Tasks*: Wolfram Alpha, Overleaf, Turing.com
- *For Psychological Support and Well-being:* Woebot, Headspace.

For University Professors: Professors can use a wide range of AI tools to enhance teaching, research, and administration. Here are some categories and useful tools for each:

- *For Creating Learning Materials*:

  Canva (with Magic Write): For creating customized presentations and visual materials for lectures. SlidesAI: Automatically generates presentations based on the provided text. Scribe: Assists in creating step-by-step guides and manuals for student use.

- *For Analyzing and Grading Assignments*:

  Gradescope: Automates and speeds up the grading process for tests and essays, using AI for text recognition and answer matching.
  Turnitin (with iThenticate): Checks plagiarism in submitted documents and suggests improvements for citations.
  ChatGPT: Can be used to suggest comments on essays and create preliminary evaluations.

- *For Scientific Research:*

  Semantic Scholar: Helps find relevant literature and important scholarly citations.
  Connected Papers: Explores connections between research papers and identifies new studies.
  Research Rabbit: A tool for tracking the latest papers and aiding in academic research. Zotero: Reference management and citation generation for research papers.

- *For Teaching Assistance and Personalization:*

  Khan Academy (with GPT-4): Offers a virtual tutor for students and suggests new ways to explain complex concepts.
  EdPuzzle: Uses AI to analyze how students interact with video lessons.
  Quizlet: Automatically creates quizzes and exercises for reinforcing material.
  Mentimeter: Creates polls and interactive questions during lectures.

- *For Time and Productivity Management:*

  Notion AI: Combines organizing documents, lesson plans, and research projects in one platform.
  Clockify: Time tracking for managing lectures and project deadlines.
  Trello (with Butler AI): Helps organize academic tasks and coordinate research projects with the team.

- *For Communication and Mentoring:*

  ChatGPT: Can be used as an assistant to create emails, project guidelines, and personalized responses for students.
  Woebot: Addresses students' mental well-being and suggests support resources.
  Grammarly: Ensures communications (emails, instructions, etc.) are free of grammatical errors.

- *For Analysis and Development of Academic Policies:*
  Power BI: For statistical analysis and reporting on student performance and course outcomes.
  Tableau: Data visualization for administrative reporting and decision-making.
  Socrative: Provides real-time feedback on students' progress during lessons.

- *For Creating Multimedia Content:*

  DALL·E: Generates illustrations and images for lecture materials.
  Synthesia: Creates educational videos with virtual presenters.
  Descript: Edits and transcribes audio and video materials.

- *For Online Learning and Interaction:*

  Zoom (with AI features): Automatically records lectures and creates real-time summaries of conversations.
  Moodle (with AI assistance): For personalizing the student experience on learning platforms.
  Padlet: For collaboration and interactive discussions in groups.
  Using these tools ethically and transparently can help professors enhance the quality of teaching and research.

Teachers and students benefit from AI-assisted adaptive learning, which improves assessment, learning efficiency, and creates personalized learning trajectories (Kaban & Stanusch, 2023).

Methodology

The population of this research is numerically determined, consisting of 6 professors who teach at the Faculty of Education at the University of Prishtina. In order to examine how Artificial Intelligence tools are used in higher education, professors from various disciplines, not just those from this specific field, have been included.

For the research method, the nature of the study has dictated the implementation of a combined methodology for data collection, analysis, and processing. Initially, we conducted a theoretical treatment of the selected problem through theoretical analysis, document analysis, and the descriptive method. The majority of possible theoretical sources have been utilized, mainly from external authors, but also from local ones, who have addressed the issue of using Artificial Intelligence tools in higher education.

Regarding the qualitative data analysis, thematic analysis was performed. As for the design, this study employed a descriptive design. The research was carried out through structured interviews, with interview questions sent via email.

For the implementation of this research, we first conducted a pilot study with 2 professors. The aim of this pilot study was to ensure that the interview structure was clear and unambiguous. The pilot survey is not included in the data analysis. Each respondent received the necessary information regarding the research procedure, and based on ethical research principles, it was guaranteed that, in addition to everything else, their data would remain confidential.

Results

In response to the question posed to professors regarding the concept of Artificial Intelligence, the professors expressed similar views, describing it as the ability of computers to perform various functions typically requiring human intelligence, imitating human cognitive abilities, and maximizing computer use for generating, creating, and adapting information according to individual needs.

As for the effectiveness of AI tools in the teaching and research process, opinions were divided. Some professors believed AI tools are not effective and that the information might not be accurate. On the other hand, others found them useful in academic writing, text analysis, avoiding plagiarism, and assisting with structuring and editing works to align with academic standards.

Regarding the use of AI tools for scientific research, professors expressed hesitation. While they may be effective in practical work, they are not seen as effective for generating research texts (qualitative). For the most influential AI tools in improving teaching and learning, professors mentioned: Khan Academy, Grammarly, and ChatGPT.

In terms of the use of AI tools by students, professors noted that while AI could improve student performance, it might also lead to dependency on technology, masking of knowledge, inefficiency in AI use, and misuse. However, others considered it as an opportunity for improvement, encouraging students to use AI tools.

When discussing the challenges and ethical issues related to the use of AI in higher education, professors emphasized the importance of information accuracy and security, assessment of originality in students' work, and highlighted the lack of

training for teachers (insufficient knowledge for effectively integrating AI into teaching), plagiarism, academic credibility, the need for clear rules, awareness-raising activities for students, and ethical regulations.

Regarding strategies for integrating AI tools into academic processes, professors suggested that successful integration could involve training for both teachers and students, organizing workshops, and establishing national strategies.

On the impact of AI on the role and functions of professors, professors noted that some functions could be replaced by AI tools, such as knowledge creation, routine tasks like automatic grading, material creation, and providing basic feedback.

Regarding the future change in the traditional role of professors as a result of AI, it was considered a "frightening statement," but professors believed that they would still serve as mentors and guides in learning. AI would empower teachers even further, providing benefits such as personalized learning, automation of administrative tasks, feedback provision, and the preparation of teaching materials.

The benefits of using AI in teaching, as well as the resistance of academic staff to adopting these technologies, were seen in the potential for every student to have their own personal instructor, every teacher having their own assistant, detailed lesson plans, creating detailed progress reports, grading tests and essays, and making learning more engaging and effective.

In terms of changes in the current system to encourage the use of AI tools or to restrict their use, professors expressed their support, calling for trained instructors, informative modules, ethical guidelines, partnerships with technology companies, regulation of AI through laws and regulations, and strategies for inclusion.

Discussions

Based on the findings from the thematic analysis of the interviews, it can be concluded how important Artificial Intelligence (AI) is, as all interviewees expressed the need to be prepared to utilize AI in a proper way in higher education, deeming it essential for the current era, also known as the "technology age." Evaluating AI from different perspectives, but essentially linking it to human intelligence, was emphasized. This was particularly focused on processes such as thinking, learning, and problem analysis.

Although the interviewed professors initially made general statements about how AI can be applied in higher education, they mostly focused on the personalization of teaching and learning. In addition to these aspects, the professors mentioned the evaluation process, where various AI tools can be used for assessment. This also extends to administrative support, data management, and the distribution of educational materials, followed by analyzing student performance. One professor even mentioned practical research work and the creation of knowledge tests.

Furthermore, due to the use of AI, universities can optimize student management, course programs, and academic support. Therefore, there exists a wide range of opportunities for the application of AI, although skepticism still exists regarding its usage, with many questions raised. The study findings show that the professors are well-informed about the term "Artificial Intelligence" and, in general, they find its application in higher education, especially in the personalization of teaching and learning, to be highly relevant.

Regarding their views on the efficiency of AI, both in the educational process and in scientific research, opinions are divided. Most of them do not consider it fully reliable.

As for the assessment and efficiency of AI tools, although the professors' opinions were divided, those who valued AI tools as useful acknowledged their potential, while the skeptics raised concerns about the reliability of the information provided (the trustworthiness of the information). The importance lies in the fact that almost all professors mentioned that the assistance offered by AI tools, both in teaching and in scientific research, depends on their correct usage.

On the other hand, the use of AI tools was deemed effective for students in structuring and editing their papers based on specific academic standards. As methodologies and work strategies vary for each instructor, so does the use of AI tools, which is influenced by the vision and approach of each teacher.

One of the interviewees rightly pointed out the aspect of "time," as the use of these tools is quite time-efficient. Although preparing a lesson plan typically requires a lot of time, the same time could be better spent on professional development. In the classroom, AI appears in the form of virtual assistants that can help both students and teachers manage their time and complete tasks (Marr, 2022).

Artificial Intelligence and Its Role in Education

Artificial Intelligence (AI) helps ease processes that require repetitive or administrative tasks by automating them and saving time. However, when it comes to the use of AI tools in scientific research, almost all of the interviewees expressed hesitation.

When asked about the most impactful AI tools in improving teaching and learning, the responses were quite surface-level. Very few interviewees mentioned specific tools, suggesting that these tools are not widely used, nor is there enough knowledge in this area. Expectations were that at least ChatGPT, being the most popular tool, would be mentioned, but only one interviewee referred to it, providing an example: "ChatGPT can help both teachers and students in specific areas. For example, in a research seminar course, where students need to choose topics they will research, they can use ChatGPT to

narrow down and clarify their ideas. Previously, students did this with the teacher, and now they can use ChatGPT. Then, together with the teacher, they can discuss these ideas, which are now more defined." (I.4)

The result of using AI tools by students could be seen as an improvement in performance, but on the other hand, it could lead to dependency on technology. Based on this, we asked the interviewees, who expressed that the use of AI tools might result in masking knowledge, dependency, and an unrealistic vision of themselves, while creativity and imagination could be questioned. Specifically, if students do not attempt to write or analyze certain issues on their own, without contributing their creativity and imagination, but instead rely entirely on AI tools, this skill will undoubtedly deteriorate due to lack of use and development.

Additionally, a study conducted in the United Arab Emirates found that teachers noticed that excessive reliance on AI-generated content could discourage students from developing their own ideas and affect the originality of academic writing.

This insight highlights the delicate balance required in using AI in education. While it can enhance student performance and streamline certain tasks, there are concerns about the long-term impact on students' intellectual independence and creativity (Alhajji, 2024).

AI Tools and Their Ethical Use in Academic Work

The information that is readily available needs to be processed by students, and this often doesn't happen as expected. One professor expressed concern: "Yes, I have noticed such a thing... the task that was assigned was not correct, not because it had inaccurate information, but because students were supposed to process that information, which didn't happen, and that was the flaw. I think it will be misused more than it will be used correctly." (I2). This is a valid concern, as students should be trained to use AI tools appropriately. If used improperly, it can create dependency, which ultimately impacts critical learning. Almost all stakeholders agree that if AI tools are not used correctly, it can lead to dependency and reduce critical thinking among students.

Using these tools is not always obvious, and it requires a special methodology to determine if the work is original or generated by AI tools. Teachers can utilize specific AI detection tools to check whether student work is original or entirely generated by AI tools. As one professor mentioned: "Although it is difficult to check whether the student's work is original or created with ChatGPT, I still consider this tool an opportunity to help students improve their writing, analyzing, and synthesizing skills. Therefore, we need to teach them how to use it effectively to optimize learning. It is important for students to learn to use AI in a critical, conscious, and ethical manner." (I3).

This issue needs to be addressed in detail by professors to closely monitor how tasks and projects are being completed. Positive examples should be utilized, and results from using AI tools to detect whether students have used them entirely for their work could be a very good practice.

Recent studies have highlighted significant concerns about the misuse of AI tools by students to fulfill academic requirements. Detecting AI-generated content with the naked eye was perceived as difficult, which led to the need for more accurate, reliable, and effective methods for identifying it. In response, educators are using AI content detectors and plagiarism checkers to determine the originality of submitted work. However, this has raised concerns among students about the accuracy and reliability of these tools, as well as the ethical and negative consequences of misclassifying original works as AI-generated content.

These challenges emphasize the importance of ensuring that AI tools are used ethically and responsibly within the educational context, with a focus on supporting student learning without compromising academic integrity (Samson, Mama, Luriaga, Delizo, & Ching, 2024).

Another perspective came from another interviewee, who does not categorize the use of artificial intelligence tools as an addiction similar to social media, but also believes it cannot increase student performance if it is not channeled towards learning (I5). The choice of methodology by teachers to address this issue is individual, but from the interview, one professor pointed out that as educators, we need to change the format of assignments we have used so far in order to give space for students to learn from AI and not copy it (I4). This is well thought out, as analytical assignments are more accessible to artificial intelligence tools, whereas descriptive tasks are easier for AI. Recent technological advancements have allowed for reflective responses in all fields, even in detailed form. They are so close to human perfection and intellect that they are difficult to distinguish at first glance. However, professors are the ones who know their students well and understand how much a higher-level task directed at certain students can be elaborated upon. In special cases, students may not show their true selves in front of others and may be better at writing, but they do not want to present this in front of others. However, professors should encourage students to show their true selves during lectures, and especially during course exercisesRegarding the challenges of using artificial intelligence tools in teaching, professors mentioned the accuracy and security of information, fair assessment of assignments that may not be original from students, lack of training for educators (lack of knowledge on how to effectively integrate AI into teaching), context, and language. Although the issue of challenges is individual, depending on the preparation, motivation, and practices of the educators, the responses of the interviewees were similar. The accuracy and security of information is also a challenge for other platforms; in fact, if certain artificial intelligence tools do not provide us, as users, with information that it comes from secure sources, it raises questions about their use in academic and research settings. The issue of assessing the originality of assignments has been addressed earlier, and based on the study, it suggests that AI

systems like ChatGPT can generate complex texts that traditional plagiarism detection software may not accurately identify, raising concerns about academic integrity (Khalil & Er, 2023).

Another challenge highlighted by the interviewees was the lack of training for educators (lack of knowledge about how to effectively integrate Artificial Intelligence in teaching). In the absence of such training, educators individually try to inform themselves about how AI can initially be used by students to avoid plagiarism or to fairly assess the knowledge students present. On the other hand, although professors generally valued and supported the use of AI tools, they did not express that they themselves use specific AI tools, with the exception of one. Here, these trainings have not yet started, but in other countries, professors are already trained to incorporate Artificial Intelligence into higher education, though they also face many challenges. Trainers face various challenges when training teachers to adopt and use artificial intelligence. The successful integration of Artificial Intelligence in education greatly depends on teachers' skills with these technologies. A systematic review titled "Challenges and Best Practices in Teacher Training for Using Artificial Intelligence" highlights several challenges and strategies related to this issue. Professor Yousef Aljemely from the College of Education at Al Majma'ah University in Saudi Arabia points out that many teachers are unable to understand AI and its use because they lack the technical knowledge. Moreover, institutions provide them with limited access to software, hardware, and the internet. As a result, teachers are unable to use and integrate it into the existing curricula. Additionally, teachers perceive the use of Artificial Intelligence as an invasion of their privacy and as an ethical issue. Therefore, there is a need for comprehensive training to prepare teachers and overcome the challenges they face when understanding or using AI applications. However, it is still unclear how training programs can be designed to help teachers adopt and use AI in teaching (Aljemely, Yousef, 2024). On the other hand, assessment itself is a challenge. Taking into account the challenges of assessing written assignments with the help of chatAPI, there are several strategies that academic staff can use to address these challenges:

- Clear and detailed instructions – Academics can provide clear guidelines to students on how to structure their assignments. This will help ensure that the assignments are more structured and coherent.
- Using a rubric for assessment – Assessing the quality of students' work using a rubric can help ensure that their effort and knowledge are accurately evaluated.
- Combining automated and manual assessment techniques – Using technological tools alongside manual evaluation can help provide a more accurate assessment of the students' level of understanding (Cotton, Shipway, & Cotton, 2024).

The ethical concerns arise right from the outset when using Artificial Intelligence tools. In this context, professors highlighted issues such as plagiarism, academic integrity, the need for clear rules, and the importance of awareness campaigns for students. Furthermore, when examining the use of Artificial Intelligence by students, one of the main arguments against its use is ethical in nature. "Arguments against using AI to grade student papers involve cost, privacy, legality, and ethics." (Kumar, 2023). As one of the professors expressed during the interview, "We cannot stop AI, but we can regulate its use to avoid ethical issues" (I5).

Looking ahead, the first interviewee sees this as a "frightening statement," strongly emphasizing the irreplaceable role of the educator in leading discussions, supporting students, and creating a learning environment that cannot be replaced by technology. The appearance of this "fear" among educators is not surprising, as today, questions that would once have been directed to professors, with or without hesitation, are now being directed to artificial intelligence tools. Additionally, when seeking help with projects or specific assignments, students can quickly find answers using these tools. The thought that one day we may no longer need educators can indeed be frightening. The attempt to replace humans has existed since the early stages of technological development, and many professions have disappeared, with workers losing their jobs. This creates a fear of this trend to replace educators, although it cannot be fully realized, and many aspects of teaching cannot be replaced. Nevertheless, the level of responses being offered is clearly more favorable than those we had previously, both in terms of time and the structure of the response. However, this course cannot be stopped, even if we wanted to, but the benefits it offers are indisputable. As one of the interviewees expressed, professors will be mentors and guides for learning. Therefore, changes will occur in the role of educators, transforming them not only into lecturers and no longer confined to delivering knowledge, but also moving further into being mentors. Although this has been a demand for several years, with the "emergence" of artificial intelligence, this role is expected to be further strengthened. Since students can now obtain knowledge readily from various sources, just as they have had the ability to do until now, but now even more easily and quickly, they need to be supervised and guided for learning. While the benefits of these tools can be numerous, the need for supervision and guidance in learning remains inconsistent. For professors, the use of these tools would save time and allow them to focus more on higher-level practical aspects with students. As one professor mentioned during the interview: "AI tools could be used to handle routine and administrative tasks, providing more opportunities for professors to focus on developing critical skills, motivating students, and creating a supportive learning environment."

The interviewed professors were asked about the changes in the current system as a result of the inclusion of artificial intelligence in higher education. When addressing the promotion or prohibition of AI tools, the professors unanimously supported the idea of incorporating AI into higher education, listing various ways to do so. They emphasized that this could be achieved through teachers who have undergone training and guidance on the proper use of AI in teaching, informational modules, ethical guidelines, partnerships with technology companies, and, finally, suggesting strategies for integrating AI at all levels of education.

Since the issue of training was mentioned in previous questions, this highlights its importance, and it is evident that educators express the need to be trained in this area so they can use AI effectively, ensuring they are ready to provide students with the correct ways to use it. On the other hand, it is noticeably easier for professors to manage situations when students use AI tools. The interviewees' suggestions are linked to addressing this issue through ethical guidelines, a topic we also discussed earlier. Three important areas of concern that need to be discussed to justify the ethics of artificial intelligence in a university are: the availability of technology, affordability for students, and the responsibility of EdTech companies or AI providers and the university (in terms of security, privacy, fairness, and transparency). If these concerns are not addressed, it will lead to an unjustifiable waste of time, resources, and valuable learning time, if not also a misdirection of students (Actis, 2022).

A final important suggestion from the professors, though no less significant, is that students should enter their studies already prepared for how to use Artificial Intelligence tools, having been trained and having faced challenges related to it beforehand. Otherwise, we risk having students who may be skeptical about using AI tools that could greatly ease their study process. Our students should be able to recognize, for instance, when artificial intelligence has processed poor-quality information, leading to inaccurate responses. More importantly, they must learn how to make their work truly stand out in an ocean of increasingly general essays created by AI—especially because they will need to do the same with job application letters, reports, and written assignments (Endersby, 2025)On the other hand, we will have students who use these tools but do not know how to fully take advantage of their benefits, or in the other extreme, they accept ready-made information without properly analyzing it and without processing the data.

Limitations and conclusions

Since our study is qualitative, we cannot make generalizations about the situation in the country. However, based on the thematic analysis of the data from the conducted interviews, we can say that professors are aware of the rapid development of Artificial Intelligence, but not to a satisfactory level. Although they are still skeptical about this issue, they support the use of Artificial Intelligence tools, but always relying on regulations and guidelines, with an emphasis on addressing ethical issues. The main concern is that creativity and imagination of students are being undermined, turning them from active students into passive ones by accepting everything ready-made from Artificial Intelligence. The expectations of the intervie-wees were to receive training and to begin implementing Artificial Intelligence at all levels.

Compared to the results of other studies, we can say that we are still in the early stages of integrating Artificial Intelligence in higher education. Therefore, it is an area that requires potential investment and quick intervention to avoid the misuse of such an impressive power for the benefit of all stakeholders involved in higher education.

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Physical Characteristics and Body Mass Index in First Grade Children

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Abstract

Physical development refers to the level of growth and control over muscles, coordination, and abilities to sit, stand, walk, and run. Motor development is a part of physical development and refers to the growth of a child's ability to use their body and physical abilities. Motor development can be divided into gross motor skills and fine motor skills. A child's ability to be physically active depends on their physical growth and development. Many factors influence physical development and gross physical abilities, such as: locomotor skills, balance and coordination skills, and manipulative skills. Working with children of different ages means working with children at various stages of development. Physical activity may differ for children with developmental disabilities. The relationship between body weight, obesity, and health has been widely studied. In cases of obesity, the production of proteins derived from fat tissue is increased, causing significant health consequences .Obesity is a medical issue. Overweight or obese individuals (severe obesity) are more likely to develop health problems compared to individuals with a healthy weight. Large quantities of low-nutrient foods and an inactive lifestyle are factors that lead to obesity. Based on literature, there are no noticeable morphological or hormonal changes at this age. The physical development in girls begins around the age of 11, which is earlier than in boys, where physical and hormonal development occurs at a later stage. From the data collected in this study, we can say that there are no significant differences in height and weight, with only a slight difference in weight favoring boys, although not very noticeable.

***Keywords**: Obesity, BMI, VO2 max, Physical Development, Motor Skills.*

Theoretical insights into the study

Development in Children

Physical development refers to the level of growth and control over muscles, coordination, and the ability to sit, stand, walk, and run. Motor development is part of physical development and refers to the child's increasing ability to use their body and physical skills. Motor development can be divided into gross motor skills and net motor skills.

- Gross motor skills refer to the child's ability to control large parts of the body, balance, coordination, self-control, movement, and stability.
- Net motor skills refer to the level of coordination and ability to manipulate small parts of the body. (e.g., using the thumb and index finger to pick up and hold a raisin)
- A child's ability to be physically active depends on physical growth and development. There are many aspects that influence physical development and gross physical abilities, such as:
- Locomotor Skills: Rolling, crawling, walking, and running.
- Balance and Coordination Skills: Standing, swaying, tiptoeing, and jumping.
- Manipulative Skills: Holding, throwing, and catching.
    - Also, not all children grow and develop in the same way or at the same rate, it is important to keep in mind the general growth pattern in young children. This growth pattern explains a lot about children's movements and activity. When working with children in your care, these key points should be kept in mind:

- After birth, the fastest growing part of our body is the head.
  - As a result, infants and toddlers have a higher center of gravity.
  - This makes it difficult to maintain balance and because of this, young children are more likely to fall.
- Body height throughout early childhood.
  - This lowers the center of gravity.
  - As the body grows, children are better able to maintain balance and are less likely to fall.
  - Children do not develop the same center of gravity as an adult until they reach the age of 6.
- Children grow from their bodies and outwards (from the inside out)
  - Children's arms grow before their hands, hands grow before their fingers. Feet grow before their toes.
  - For this reason, children develop Gross motor skills before Net ones.
  - Infants demonstrate this process best when they learn to grasp objects. Newborns use their entire arm to slide over an object and as they grow they begin to use their entire hand to grasp objects and then they will use their fingers to grasp objects.

Brain Development refers to the growth of the brain and the creation of new connections in the brain. Moving and being active positively impacts brain development. Physical activity helps the body produce chemicals that act as brain-boosting miracles (John Ratey, MD. Harvard Psychiatrist). Factors that influence early brain development.Aktiviteti fizik

- Genetic
- Oxygen
- Caregiver Responsibility
- Everyday Experiences
- Love

Language Development (Speech) refers to the process of learning to speak and communicate. Language development is linked to physical development. Knowing words that describe the body, types of movements, intensity, direction, and spatial relationships helps children learn, practice, and improve skills. Movement and growth stimulate the brain (frontal lobe) and enrich language and motor development.

Quick Tip

When practicing physical activity with the children in your care, talk about the movements using vocabulary that will help the children understand their activity.

"I have been trying to teach a child how to dance for a few months. She was 4 and a half years old and had a hard time crossing the line with her body, and I tried very hard to teach her the right way. After showing her some of the ways, there was a CD that taught her this skill. That day she was able to dance and we were all very happy and did a little dance. It was a beautiful moment when you saw her face happy to realize that skill. –(Teresa Storm, Tender Times Child Care, Amery)

Movement and the Brain

Because the Motor Center affects other parts of the brain, movement assists in benefits such as:

- Brain development
- Sensory integration
- Vision
- Hearing
- Coordination
- The ability to plan movement before the body begins to move

TABLE 0. Gross Motor Skills Development Objectives: Quick Reference Table

Age	Movement skills	Balance skills	Manipulative Skills
1 year old	- Holding the head up without moving -Lift the head/shoulders while holding it up on the hands. -Rotations from the waist with the boat. -Drag -Pull to get up	-Sits up for a moment -Stands for a moment without support -Sudden landings -Back and forth rolls on hands and knees	-Opens hand to release toys -Extension to grab things with one hand -Hits things that are closer Extension to grab toys using the whole hand

1-2 year old	-Swims when we bathe him. -Walks up and down stairs while holding on. -Walks independently. -Moves body in new ways, e.g. acrobatics -Walks sideways and backwards -Walks towards ball and throws it. -Runs alone -Runs increasing speed -Jumps from one place to another -Jumps on objects and goes down stairs	-Bends over to grab toys -Stands on tiptoes to reach something high -Gets up and down from a high chair -Falls while playing -Crawls on beams or corners of a box -Tries to stand on his feet	-Hold a large ball while moving -Swing a racket -Throw a ball or other objects by pushing it with both hands -Catch a large ball with both hands close to the body and slam it to the ground -Throw a ball that is out of bounds -Hold objects in one hand and hit objects with the other -Release things from a bucket and catch them with the other hand -Throw the ball with purpose -Throw the ball behind the head using both hands while standing
2-3 year old	-Walks across the room -Uses fast walking -Walks backwards -Pushes a toy with his feet while steering it with a steering wheel -Climbs onto tables using his feet -Moves across the room -Walks up and down stairs alternating feet in different ways and helping with hands. -Jumps with both feet from one place to another	- Reaching for toys -Standing on tiptoes to reach something high -Getting up and down from a high chair -Falling while playing -Crawling on a line or a ladder attached to the floor -Sidestepping on a line or a ladder attached to the floor -Sidestepping on a beam or the corners of a box	-We hold a large ball while moving -We throw the ball or other objects by pushing it with both hands -We catch a large ball with both hands close to the body and slam it to the ground -We throw a stopped ball
3-4 year old	-Running -Avoiding obstacles and people while moving -Climbing at least two stairs in the gym jungle. -Climbing up and down on playground equipment. -Pushing the tricycle forward with your feet. -Pushing the tricycle using the pedals. -Galloping -Jumping over objects or jumping off stairs.	-Walking forward along the edge of a curb, watching your feet. -Jumping from high up down a low step, landing with both feet. -Jumping over small objects.	-Throwing the ball or other objects. -Throwing the ball to the body (bending the arms when catching it) -Throwing the ball with a large racket. -Throwing the ball forward by jumping or running towards it.
4-5 year old	-Runs smoothly, changes direction quickly, and stops/starts very quickly. -Jumps and spins. -Marches - Moves across obstacle course. -Gallops and hops smoothly. -Plays “Follow the Leader” using a variety of movements. -Plays games that involve jumping or throwing a ball.	-Dancing on the playground, jumping with one foot and the other. -Walking across benches or the edge of a cube, back and forth. -Attempting to jump rope. -Jumps, skips, spins around and stops trying not to fall.	-Jump forward to throw the ball and follow it directly from behind. -Catching the ball after throwing with both hands. -Throwing the ball with a closed hand. -Dribbling the ball. -Shooting the ball from a blocked position. -Dropping the ball on the ground and catching it in the air. -Throwing the ball while running -Striking with shaking, turning or swinging the arm or leg

From Active Start: Introducing Physical Activity, a Guide for Children Birth to Age 5,
2nd Edition (2009) www.AAHPERD.org, National Association of Sport and Physical Education

Infantiles (Infants)

Babies absorb all the information around them as they learn to control their movements. They communicate not only with crying, but also with body language. Caregivers can support their baby’s language, physical, and cognitive development.

Physical Development

“Tummy time” encourages physical development in babies by giving them time to practice lifting their heads and upper bodies, which will develop into crawling. It also gives babies the opportunity to learn to roll over. Even young babies should experience “tummy time.” In addition, you can start gently moving their arms and legs forward, backward, and sideways. As your baby gets older, you can use favorite objects to encourage your baby to play and move around..

Activity idea

Pillow jumping circuit: Place different pillows on the floor and have the child jump, climb, or roll over the pillows and sides. (Dr. Craft's Active Play! Page 99) "For a baby, I watch closely and change the environment so that he has a safe opportunity to climb, pull himself up and also support his body so that he has the opportunity to jump and dance with other children. –(Brenda Flannery, Lil Blessings Child care, Crandon)

Language Development

Before children can speak, children use many signs and sounds that are essential for language development. When you are touching, moving children and encouraging them physically, talk to them constantly. Say the names of body parts and when you are moving them describe the movement they are making.

Quick Tip

Keep things simple! This is important for toddlers to be able to grasp things very well, this is what you will do before they move to another level of development.

Brain Development

Touch is important for stimulating brain development. Take time to think about what babies like to do when they are in your care. For example, one baby may like to have their arms and hands stroked lightly, while another may just like to be touched. Some ways to stimulate brain development include crossing their legs and arms over their midline. This will lead to improved physical coordination. " Give babies safe objects to pick up, put in their mouths, hold, and throw. These activities help them develop hand-eye coordination."

Toddlers

It is important for caregivers working with toddlers to understand that each child has an individual rate of growth and development. This will help caregivers encourage the progressive development of skills for that age group.

Physical Development

As children's bodies lengthen and their arms and legs become stronger, balance and coordination improve. As caregivers promote physical activity in the program, remember that physical growth and development occur over time. For example, a child learns to stand before they walk and walks before they run. Think about the timing of skill development when you are planning activities for the children in your care.

Brain Development

The brain itself and the connections in the brain grow very quickly in children. These connections help children build not only the skills needed to be active but also cognitive and social skills. Children need a variety of experiences to continue and stimulate brain development. Movement and physical activity stimulates the brain and promotes learning, so it is important for children to have enough time and be encouraged to move throughout the day. Nutrition and sleep are also very important for brain development.

Language Development

As children learn new words, they need examples to use those words, and caregivers can find those examples or where they can use those words. When teaching children new words related to physical activity, build on the words from the beginning, such as: up, down, inside, outside, fast, slow, jump. Model what the new words mean, so children have the right example to use when they speak. Don't worry if children use the words incorrectly, just keep using and repeating the words and patterns over and over.

Activity Ideas

Clean the Floor: Different ways to throw things outside have always been fun. Download a bin full of socks that have been tied together and made into a ball and then watch as the children have fun cleaning the floor with the socks. (Learn more

about this activity on page 40 of DR. Craft's Active Play) "I have found that by increasing the amount of physical activity in a typical classroom with a 2-year-old age group, the children are hungrier, sleep better, and behave better." – Debbie Wright, COA Child Care Center, Milwaukee

Preschools

Many people believe that young children are naturally quite active. Preschoolers may seem like they are always moving, but research shows that much of their physical activity is light, involving sitting, bending, lying down, standing, and walking. On average, preschoolers today are no more active than previous generations, nor are they as active as they need to be to be healthy.

Physical Development

During the preschool years, children develop more complex gross motor skills. This usually happens in stages. For example, jumping requires coordination, steps, and jumping, and riding a bike involves steering and pedaling. Give preschoolers time to practice gross motor skills every day. While gross motor skills are developing rapidly, so are fine motor skills. These skills help children develop smaller movements like holding and using small objects, such as holding a pen with their fingers rather than their whole hand. While we often think of gross motor skills as writing or drawing, we also use these skills in physical activity. We need gross motor skills to be able to manipulate small objects, such as a baseball. As gross and gross motor skills continue to develop, preschoolers improve their motor control and hand-eye coordination, both of which develop physical activity.

Brain Development

During the preschool years, the brain continues to grow and develop, and the connections that experiences have for development come to light. These connections in the brain are critical for healthy development, enabling the child to speed up, control, and coordinate both gross and fine motor skills. Experience stimulates all-brain activity, and children need to learn, practice, and master physical activities.

Language Development

Preschoolers learn new words at an amazing rate. They use words that are similar to what they do to expand, grow, and explore their vocabulary. Children can learn words like swing, exercise, and heartbeat when they are used with words they know very well. The more they see the pattern of word meaning, the more they are able to use these words themselves. In addition, preschoolers learn grammar while also expanding their vocabulary, so they are better at understanding and following directions. "Being able to jump over a hurdle when it is too high makes them very proud that they can get over it" -April Orth, April's Child Care, Salem.

Activity Ideas

Animal Movements: Gather all of your child's favorite animals and form some letters to act as movement commands. Get a CD player and have the children move according to their favorite animal of choice when the music starts. To begin the activity, choose a letter and turn on the music. When the music stops, the children stop and wait to see which animal on the letter will be chosen and imitated by them next. Make sure to use this opportunity to learn vocabulary about movements, using phrases like "walk like a crab" and "jump like a rabbit."

Mixed-age groups

Working with children of different ages means working with children at different stages of development. It is important to know where each child is in their physical, cognitive and language development so that you can adapt the activities, routine and environment to the developmental stages of all children. Mixed-age groups can be set up in centres with staff members to help or in home settings with just one caregiver. With a range of developmental levels, activities need to be flexible. Here are some ideas for achieving developmental levels in an activity.

1. Scaffolding. This is a great way to do this when you have two children of similar ages and abilities, one ahead of the other. Give your child a physical activity that involves the older child helping the younger one, such as dribbling a ball or throwing a ball with rhythm. This will help both children develop their skills.
2. Support the activity that children organize themselves. A large dice with large motor skills on each side or figures adapted to those types of skills are very good tools for promoting self-directed play. Older children can take the role of rolling the dice or picking up the cards and developing their own physical activities.

3. Make the most of technology (but only when you need it). When the day is hot and you need a quick entertainment for the children, it is very fruitful to have music and movement CDs and active DVDs.

Activity Ideas

Different colored scarves: Each child should have a scarf of a different color and represent things found in nature such as trees, water, sky or animals. Give scarves to younger children so they can learn through sensory exploration. Younger children will also watch older children and do what they do.

Inclusion

Physical activity may be different for children with developmental disabilities. If you are working with a child who has a developmental disability, consider how physical activity opportunities can be adapted to each child's individual needs. Here are some examples:

- A child with a speech delay or hearing loss may need frequent visual and verbal cues, such as counting to three out loud and with their fingers, and jumping three times.
- A child with a cognitive delay may need smaller, simpler examples. The child may benefit from having a peer demonstrate the examples.
- A child with autism may be more or less sensitive to noise, touch, or light. You may need to adjust equipment, materials, and the environment. In addition, routines are very important with activities that take place at the same time throughout the day.
- A child with physical challenges can thrive in environments that provide ample space for play. Include appropriate equipment and accessible materials. You can modify activities to use different parts of the body or to do other movements.

Be careful not to generalize. Not every child with a particular type of disability or delay will respond to activities in the same way. Get to know your child and tailor activities accordingly. If you are aware that each child is developing at a different rate or in a different way, be sensitive to the needs of that child and the child's parents. Be sure to understand the Individual Education Plan (IEP) or Individual Family Service Plan (IFSP) and how it relates to physical activity. Physical activity should be flexible and appropriate for each child in your care. Resources are available to help you adapt activities and materials so that all children can participate in physical activity.

Cultural Competence

One of the most important concepts in cultural competence is respecting the individual. The best way to ensure that each child's culture is respected is to get to know each family by communicating consistently about each child's progress and needs and to understand each family's values. Ways to get to know each family's culture and how each physical activity is viewed include:

- Ask questions about physical activity in interviews and conferences
- Have an "About Me" section on your resume. Include sections that ask how active your children and their families are. Include photos of physical activities to promote those activities in your classroom and home.
- Do a demonstration and show physical activity. Children can share a game or activity they do with their families at home. You can also teach them new games and activities.

Tools involved

Language Development Chart

Use this chart to refresh your children's movement vocabulary so you can teach them how to communicate about movement and physical activity.

Family Engagement

Plan family evenings that focus on physical activity and development. This will give you an opportunity to learn how active lifestyles can fit into the culture of families in your program.

Community Engagement

Work with your local children's museum to promote physical activity. Consider exhibits designed to educate families about physical development and promoting physical activity. "At our parent events, we always include a moving activity. The best one so far has been the dads doing a stick dance routine." –(Verna Drake, Westby Day Care and Learning Center, Westby) "We had a dad who is a public school teacher, and we came up with a 'Family Activity Night.' We have different sections set up for active participation, which include a stretching section, an obstacle course, family tug-of-war, toss and fill the bucket. We have a great number of families participating." –(Wendy Eagon, University Children's Center, Menasha)

Maximal oxygen consumption (VO2 max) in children and adults

Physical efficiency (aerobic fitness) can be defined: "physiologically as maximal oxygen uptake (VO 2 max), the highest rate at which skeletal muscle cells can utilize oxygen for the energy needed to move, or it can be described in functional terms such as running pace, the time it takes to cycle, run, or swim a given distance for an extended period of time. Maximal oxygen consumption (VO2 max), the highest rate at which an individual can consume oxygen during exercise, the capacity to perform various exercises, and is widely recognized in most young adults. (American College of Sports Medicine 1995).

It has been documented by various authors that most children and young adults can exercise to the point of exhaustion without demonstrating a VO2 max (Armstrong et al. 1995). The appropriate term for use with children and adolescents is the amount of oxygen uptake observed during a physical test, to understand the true existence of a high VO2 max.

All the determinants that give a difference in the aerobic physical efficiency of one person from another appear in the same way without differences in both children and adults. The additional dimension that is found in children is the increase in physical efficiency both functionally and physiologically.

When VO2 max is expressed in relation to body mass, no significant differences are observed. This was seen in a study in 1999 in pediatric boys, where their typical values during routine testing were 50-52 ml-kg-min. In girls, however, a progressive decline in VO2 was observed from the age of 8-15 years with about 20% lower than in boys. (Thomas 2005). This has been due to several factors such as: the small sample size selected, differences in body composition and sex may be responsible for the differences in VO2 max in children.

Aerobic physical efficiency during childhood and adolescence

Data from European countries show that VO2 in boys increases progressively with chronological age. Data for girls show a similar trend around the age of 13-14 years. Data for boys show an increase in Vo2 max around the age of 11-17/18 years. All studies covering the ages of 13 and 14 years show a greater increase in VO2 max. Data for girls are less clear, showing a progressive increase around the age of 11-13 years and then a decrease in VO2 max around the age of 14 years. In a British study in girls, a 45% increase in VO2 max was observed between the ages of 11-17 years (Armstrong and Welsman 2001). In Amsterdam, a study by the Dutch Health Institute found an increase in females aged 13-16, but a decrease of only 2% from the age of 14-16 (Kemper 2004).

Aerobic physical efficiency throughout the lifespan

The main determinants of VO2 max development in relation to body mass growth in children are:

1. increase in the amount of "motor" exercises, skeletal muscles
2. relative decrease in the activity of oxidation enzymes within skeletal muscle cells.

At the same time, according to the concept of developmental symmorphosis, all factors responsible for determining changes in VO2 max must constitute a single issue, i.e. a problem. And this is not a biological justification for one part of the system to possess a greater growing capacity or more advanced functional development during biological development in other systems. As a result of the child's growth, we also have an increase in their aerobic power. Between the ages of 6 and 12 years, VO2 max in boys increases more than twice from 1.2 L-min to 2.7 L-min, while the average value in girls is about 200 ml min lower than that of men of the same chronological age. During puberty, the increase in VO2 max accelerates as a result of the influence of the anabolic steroid testosterone, while in women we have a higher peak (Thomas 2005). Peak VO2 is closely related to body size as described by its relationship to body mass or height with a correlation coefficient of r=0.70 (Armstrong and Welsman 1994). Thus, peak VO2 max with increasing age reflects growth and the transition from childhood to adolescence. Studies generally confirm a stability of VO2 max in boys with respect to age, while studies in girls clearly show a progressive decline in VO2 with age (Van Mechelen and Kemper 1995). Boys demonstrate higher VO2 than girls during

childhood and adolescence, and the differences between them are even greater during puberty (Armstrong and Welsman 2000, Malina and Bouchard 1991). Previous studies have shown that VO2 max depends on chronological age and body mass. Gender differences during childhood and adolescence are attributed to a variety of factors including physical activity, body composition, and hemoglobin concentration in the blood. Boys are more physically active than girls (Armstrong and VanMechelen 1998), but evidence regarding physical activity in young adults suggests a lower VO2 (Morrow and Freedson 1994). Boys typically have a relatively greater muscle mass than girls in childhood, but the differences between them are not very apparent until adolescence. Between the ages of 5 and 16 years, boys increase muscle mass by about 42-54% of body mass, while girls increase muscle mass by about 40-45% between the ages of 5 and 13 years, and then decline during adolescence. Girls have more fat mass than boys during childhood and during adolescence we have an increase of 25% of body mass, while in boys we have a decrease of about 12-14% (Malina and Bouchard 1991). These large changes in body composition during puberty contribute to the difference in peak VO2 between the two sexes during this period.

Aerobic physical efficiency and the connection with physical activity

In children, the problem of the exercise-health connection and the relative impact on physical efficiency and activity are less clear. Knowing that diseases favored by exercise occur in adulthood, the connection between exercise in childhood and the positive effects of possible health are very or we can say undocumented by scientific studies due to this period. Physical efficiency and physical activity are two completely different definitions or pillars both operationally and mechanically where "Physical efficiency describes how well an individual can perform an exercise while physical activity describes the amount of movement that an individual engages in a given day".

It is accepted by all that creating a habit for a physical activity of any kind is important for the health of children both in their present and in the future (Thomas 2005).

An important question in this regard, then, can be identified; is how much does daily physical activity contribute to the efficiency of motor skills in children? This issue has almost always been in the context of physiological aerobic efficiency (how much daily activity affects VO2 max). In the reviews of 10 studies published by Morrow and Freedson (Morrow and Freedson 1994) it was found that, in only about half of these reports (physical efficiency and physical activity) as a significant relationship, and even in those same studies there was a low correlation (r = 0.20). For this reason they suggested three possible explanations:

1. Physical activity was not accurately measured in these studies.
2. Young people have a high level of aerobic physical efficiency
3. There is no evidence that there is or at least a very limited relationship between physical activity and physical efficiency in youth.

It was noted that there was no significant relationship between aerobic or anaerobic physical efficiency and physical activity in the study by Armstrong et al (Thomas 2005). The correlation coefficient ranged from -0.13 to + -. 0.16 in boys and from -. 02 to -.04 in girls. Studies of training during puberty have failed to show an increase in aerobic physical efficiency with increased physical activity, perhaps because growth exceeds the training stimulus (Weber, Kartodihardjo and Klissuouras 1976).

However, pre- and post-pubertal aerobic training has been found to result in increased aerobic physical efficiency (Shephard 1992). From these data it is difficult to make an effective argument on the range of regular daily activity of children and the effect on aerobic physical efficiency. We know that physical activity, as a behavior, is difficult to measure precisely, due to two large variations (error and individual variation).

This will affect the relationship of other variables such as aerobic physical efficiency, overweight. The relationship between physical activity, aerobic physical efficiency, and overweight can be viewed from different perspectives. One possible direction of causality could be that low levels of physical activity lead to a lower level of efficiency and a reduced sensitivity to metabolic hormones, especially insulin. However, both obesity and low cardiorespiratory efficiency are factors that affect insulin sensitivity in an unfavorable way and it may be difficult to tell which comes first. Another possibility is that dietary and physical activity behaviors may be unbalanced for other reasons and therefore cause overweight. This can lead to an even higher degree of physical inactivity, which can result in a reduced level of cardiorespiratory efficiency.

From all these studies we conclude that to understand the relationships between physical activity, aerobic physical efficiency, and overweight, it is important to have knowledge about the current level of objectively measured physical activity among children and young people.

However, a reasonable case for promoting exercise in children to reduce future health risks can be made on the grounds that:

- Activity and fitness can have their origins in childhood into later (adult) years
- Disease processes (atherosclerosis, osteoporosis, obesity, and hypertension) often have their origins in the pediatric years.

Assessments of Aerobic Efficiency

Included in motor skill efficiency is aerobic efficiency, defined as "a health component of motor skill efficiency that is related to the ability of the circulatory, respiratory, and respiratory systems to deliver oxygen during sustained physical activity" (US Department of Health and Human Services 1996).

Direct measurement of maximal oxygen uptake (VO2max) is the most objective and accurate way to assess aerobic (cardiorepiratory) efficiency. This is a test that requires expensive specialized equipment and is therefore rarely used in large epidemiological studies. This has resulted in the development of indirect tests that require either maximal or submaximal work. The most commonly used exercise modalities are treadmill or walking and ergometers.

Correlations between directly and indirectly measured aerobic efficiency have been found to be r = 0.9 for maximal assays and r = 0.6 for submaximal assays (Andersen et al. 1987).

In the laboratory, we can assess children's aerobic efficiency using a treadmill or bicycle (ergometer) test. Treadmill testing is usually preferred, especially for younger children.

Field aerobic tests, such as a 1.0-mile (1600 m) run/walk, have been widely used to assess cardiorespiratory fitness in children 5 to 17 years of age (Physical Fitness Program 1998, 1994, 1997, 1987).

In Canada and Europe, the multistage 20-meter test, developed and devised by Leger and colleagues (Leger et al 1998), is a very popular alternative to assess aerobic efficiency in children (8-19 years). For this test, children run a 20-meter distance back and forth. Speed is determined using a signal emitted from a pre-recorded tape. The initial pace is 8.5 km/h and the speed is increased by 0.5 km/h every minute until the children cannot maintain the pace.

Another test used to measure maximal aerobic capacity is the Andersen test, where individuals are directed (in two parallel lines 20 m apart) from one line to another where they run back and forth and touch the floor at each line. After 15 sec and with the sound of the signal, the subjects must stop as quickly as possible (about 2 steps) and with the sound of the whistle, the run continues for another 15 seconds. This procedure is followed for 10 min. The subjects run as fast as they can cover the longest distance possible during the 10-min test period, and this distance is the test result.

Measuring fat and its distribution in relation to health

The relationships between body weight, obesity, and health have been extensively studied. Although the primary role of adipose tissue is to store triglycerides, it plays a complex role in the production of a large number of hormones, prohormones, cytokines, and enzymes with autocrine, paracrine, and endocrine actions. In the obese state, the production of proteins derived from adipose tissue is increased, causing significant health consequences. There are regional differences in the production of proteins in adipose tissue. The expansion of adipose tissue deep within organs has negative effects on the body's hormonal functions and metabolism, which contribute to the development of diseases and other chronic health problems. The American Heart Association has stated that obesity is the leading cause of coronary heart disease in individuals (Eckel and Krauss 1998). The World Health Organization (WHO) and the National Institutes of Health (NIH) in the United States have stated that obesity as a chronic disease is a major risk factor for the development of type 2 diabetes, various cancers, and several psychosocial problems in industrialized countries, with a growing concern about abdominal fat (NHLBI 1998, WHO 1998). The negative effects of obesity and adiposity are likely to begin in childhood and adolescence. Recent surveys confirm that the prevalence of overweight and obesity has increased in the United States (Mokdad et al 2003; Ogden et al 2002), and the trend is increasingly pointing to an increase in this problem worldwide (WHO 1998). The obesity epidemic may soon overturn all previous efforts to prevent various diseases and this may contribute to the increase in the cost of health care. There is an urgent need for a strategy to manage this risk to the population, including the identification of those with excess adipose tissue that may impair health and quality of life. Obesity is a health problem encountered throughout life associated with specific issues related to age, maturation and race or ethnicity. Considering the physiological and health consequences of the distribution of connective tissue, we should also take more common measures available to assess the negative consequences.

Measuring obesity

Obesity is a medical problem. People who are overweight or obese (severely overweight) are more likely to develop health problems than people who are a healthy weight. Taking in more calories (a measure of energy from food or drink) than your body needs results in weight gain. Eating large amounts of food, eating foods with low nutritional value, and an inactive lifestyle are factors that lead to obesity. Losing even 10% of your excess weight has been shown to have positive effects on your health. Slow weight loss (about 1 kg per week) is more effective in keeping the extra weight off in the long term. Simple lifestyle changes such as reducing the amount of food you eat, avoiding overeating, eating a healthy diet (especially fruits, vegetables, and whole grains), and getting regular exercise are ways to maintain a healthy weight. Obesity is a disease that prepares the ground for many different diseases that affect the digestive system, hormonal system, respiratory system, heart and blood vessels. It appears when the amount of energy taken in through food exceeds the amount of energy burned through physical

activity. Diseases such as heart disease, high blood pressure, diabetes, high cholesterol, respiratory problems, joint diseases, menstrual disorders, sterility, impotence, gallbladder disease, stone formation, some types of cancer are some of the diseases that are directly related to obesity. Obesity can be defined as a disease that shortens human life and negatively affects the quality of life. According to studies, obesity has increased drastically over the last twenty years and continues to spread like an epidemic. Our country has also been affected by this epidemic.

Methodology

Objectives

Measurement of body mass index in children using the weight/height (BMI) method2. Measurement of maximal oxygen consumption VO2 max using indirect measurement, Comparison between boys and girls of BMI and maximal oxygen consumption.

Purpose

Comparison of data obtained from tests obtained from maximal oxygen consumption and body mass index measurements in children aged 6-7 years to highlight whether or not these abilities differ between the two genders.

Sample selection

An investigation was conducted in three 9-year schools in the city of Tirana, total number of children = 277 (boys n = 140, and girls = 137), first grades.

Tools and methods

To measure VO2 max, the Andersen Test indirect field measurement test was used, and to measure body mass index, the weight and height of the children were used, from which the BMI (kg/m2) was calculated using the formula weight / height x height. A total of 260 children participated in the VO2 max test and a total of 275 children in the BMI test.

Hypothesis

Knowing that at this age the body differences are not very visible between boys and girls, we hypothesize that the body mass index will be approximately the same, while in terms of the level of maximum oxygen consumption, boys will have it higher, knowing that they are more active than girls.

Statistical processing

Table 1 provides a clear overview of the total number n=277 as well as the gender composition in each test, i.e. variable. Of the total number of children who did not complete the test for health reasons, boys n= 10 and girls n= 7 in the Vo2 max test and boys n= 2 for the BMI test. A total of 260 children participated in the VO2 max test and a total of 275 children in the BMI test. The SPSS 17.0 program was used to perform the data analysis. The test data of the relevant variables were coded and placed in the program database and from there were used: descriptive analysis (total number of children for both boys and girls for VO2 max & BMI tests as well as the representation of children who did not complete the test for each variable for both boys and girls), averages in frequency or percentage of data, standard deviation as well as the minimum and maximum of the results achieved during the tests. For these data, tables and graphs of the relevant tests were built.

TABLE 1. Participation in testing

Gender			Vo2max	BMI
Boy	No.	Present	130	138
		Absent	10	2
Girl	No.	Present	130	137
		Absent	7	0

Below we present the protocols for VO2 max testing and BMI measurement.

Testing protocol

Anthropometric measurements; Height / Weight

Purpose: To determine body length.

Procedure: Length is the measurement of the maximum distance from the floor to the highest point of the head, when the child is facing forward. Shoes should be removed, feet together, and arms relaxed at the side of the body. Heels, hips, and shoulders should be supported on the wall during measurement.

Rating: In centimeters for the measured length.

Purpose: To determine body weight.

Procedure: The child stands almost still with arms extended. Shoes and excess clothing should be removed.

Evaluation: Kilograms for weight measurement.

Maximal oxygen consumption (Andersen test)

Purpose: Estimation of maximal oxygen consumption

Equipment needed: Tape measure and flat floor

Procedure: In a gym with a wooden floor, two parallel lines are placed about 20 meters apart. The children should be well informed about the testing procedures and they should do a warm-up for about 10 minutes before the test. The children should run from one line to the other, where they should touch the floor with one hand at the end of the line, turn around and continue running again. After 15 seconds of testing, the leader blows the whistle and the children should stop as quickly as possible (about 2 steps) and wait for another 15 seconds. This procedure should be followed for 10 minutes. They should not have any verbal encouragement. The children should be divided into pairs where one will race, while the other will count the laps.

Evaluation: Children must run as fast as they can to cover as much distance as possible during the 10 min running test and this distance will be the test result. At the end, the formula will be applied to each child; VO2max= 18.38 + (0.03301* distance) – (5.92* sex) (boys= 0; girls=1) (r=0.84)

Results

Table 2 presents the data on the average age of boys 6.8 years (std +/- 0.36) and girls 6.7 years (std +/- 0.37) participating in the tests conducted. The number of participants for boys is N= 140 and for girls N= 137. The table also presents the age distribution for boys and girls in two values (lowest and highest) where for boys the averages are 6.8 years– 6.9 years and for girls 6.7 years– 6.8 years.

TABLE 2. Average age for boys and girls

Gender		Test Value = 0					
					95% Confidence Interval of the Difference		
	No.	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	
Boy	Age	140	6.890	0.36	0.03	6.830	6.949
Girl	Age	137	6.761	0.37	0.03	6.699	6.823

Table 3 presents the data on participation during the tests conducted for Vo2 max, where it can be seen that the participants present during the tests conducted were for boys No=130 and No=10 of the participants who did not conduct the test and for girls No=130 and No=7 who did not conduct the test. The reasons for not conducting the test were: absence from school on the day the test was conducted and health reasons.

TABLE 3. No. of participants in Vo2 max

Gender			Vo2max
Boy	No.	Valid	130
		Missing	10
Girl	No.	Valid	130
		Missing	7

Table 4 presents data on participation during the tests conducted for BMI (body mass index), where it can be seen that the number of participants present during the tests conducted was for boys No.=138 and No.=2 of the participants who did not conduct the test and for girls No.=137. The reasons for not conducting the test were: health reasons and absence from school on the day the test was conducted.

TABLE 4. No. of participants in BMI

Gender			BMI
Boy	No.	Valid	138
		Missing	2
Girl	No.	Valid	137
		Missing	0

Table 5 presents the average weight for both boys and girls. For boys, the weight is 27.2 kg (std +/- 6.4) and for girls, 24.4 kg (std +/- 4.5). The table also presents the distribution of weight for boys and girls in two values (lowest and highest), where for boys the averages are 26.2 kg - 28.3 kg and for girls 23.7 kg - 25.2 kg.

TABLE 5. Average weight (kg) for both boys and girls

Gender		Test Value = 0					
					95% Confidence Interval of the Difference		
	No.	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	
Boy	Weight	138	27.251	6.35	0.54	26.183	28.320
Girl	Weight	137	24.480	4.53	0.39	23.714	25.246

Table 6 presents the averages for height (m) for both boys and girls. For boys the height is 1.25 m (std +/- 0.05) and for girls 1.22 m (std +/- 0.07). The table also presents the distribution of height for boys and girls in two values (lowest and highest) where for boys the averages are 1.24 m – 1.26m and for girls 1.21m – 1.24m.

TABLE 6. Average height (m) for both boys and girls

Gender		Test Value = 0					
					95% Confidence Interval of the Difference		
	No.	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	
Boy	Height	138	1.248	0.05	0	1.239	1.257
Girl	Height	137	1.224	0.07	0.01	1.212	1.235

Table 7 presents the averages for BMI (body mass index kg/m2) for both boys and girls. For boys, BMI is 17.4 kg/m2 (std +/- 3.03) and for girls 16.3 kg/m2 (std +/- 2.27).

The table also presents the distribution of BMI for boys and girls in two values (lowest and highest) where for boys the averages are 16.8 kg/m2 – 17.9 kg/m2 and for girls 15.9 kg/m2 – 16.7 kg/m2.

TABLE 7. Average BMI (kg/m2) for both boys and girls

Gender		Test Value = 0					
					95% Confidence Interval of the Difference		
	No.	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	
Boy	BMI	138	17.352	3.03	0.26	16.843	17.862
Girl	BMI	137	16.292	2.27	0.19	15.909	16.676

Table 8 presents the averages for Vo2 max measured in (m) for both boys and girls. For boys, Vo2 max, i.e. running in (m) is 730.3 (std +/- 127.8) and for girls 705 (std +/- 118.7). The table also presents the distribution of Vo2 max for boys and girls in two values (lowest and highest) where for boys the averages are 708.1– 752.5 and for girls 684.4– 725.6

TABLE 8. Average Vo2 max for both boys and girls

Gender		Test Value = 0					
					95% Confidence Interval of the Difference		
	No.	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	
Boy	Vo2max	130	730.308	127.87	11.21	708.119	752.497
Girl	Vo2max	130	705.019	118.72	10.41	684.418	725.621

Conclusions

1. There is no significant difference at this age (6-7 years) between boys and girls in terms of height, where for boys the height is 1.25 m (std +/- 0.05) and for girls 1.22 m (std +/- 0.07).
2. A greater value is observed for boys during the measurement of body weight, approximately 2.8 kg, where for boys the weight is 27.2 kg (std +/- 6.4) and for girls 24.4 kg (std +/- 4.5).
3. During the measurement of body mass index, it is observed that boys have a higher BMI, knowing that the weight values are also higher, where for boys the BMI is 17.4 kg/m2 (std +/- 3.03) and for girls 16.3 kg/m2 (std +/- 2.27).
4. It is observed that during the VO2 max measurement test, boys have run more than girls, where for boys the running in (m) is 730.3 (std +/- 127.8) and for girls 705 (std +/- 118.7).
5. In conclusion, at this age, there is no significant difference in body mass index between boys and girls, but in terms of testing the measurement of maximum oxygen consumption, boys have higher values than girls, with boys having 42.48 ml/kg/min and girls having 35.7 ml/kg/min.

Discussions

From the study conducted to measure body mass index and maximal oxygen consumption in children aged 6-7 years, we can say that: Knowing from the literature that at this age there are no visible changes, either morphological or hormonal, and physical development in girls begins at the age of 11, an earlier period than boys, where physical and hormonal development is at a later stage, and from the data obtained from this study, we can say that in terms of height and weight there are no visible changes, where only in weight do boys have a change, but not very noticeable. Regarding maximal oxygen consumption, and from our hypothesis raised before the development of this study, it appears that boys have higher values than girls. Here we can say that boys are more active than girls and have a higher percentage of participation in various sports and participation in clubs, as well as being more active during school breaks and free time.This study confirms the hypothesis raised at the beginning of this study.

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The Role of Emotions in Educational Processes and Their Effect on Students' Learning and Behavior

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Abstract

Emotions have often been overlooked in educational contexts, with a predominant focus placed on cognitive processes. However, recent research underscores that emotions play an integral role in learning, shaping motivation, attention, and memory (Pekrun & Linnenbrink-Garcia, 2014). This paper examines how both positive and negative emotions can enhance or hinder student engagement and academic performance, illustrating that emotions may simultaneously serve as a catalyst for deeper learning or pose a distraction from instructional goals. In particular, it discusses the seemingly paradoxical effects of emotions: positive emotions, while generally beneficial, can sometimes result in complacency or reduced critical thinking, whereas negative emotions, though typically viewed as detrimental, can spur resilience and more focused cognitive processing. By synthesizing these findings, the paper highlights the importance of recognizing and managing emotional factors within the classroom to foster optimal learning outcomes and overall student well-being.

***Keywords**: Emotion, emotional intelligence, learning, well-being, motivation, student engagement, emotional regulation, academic performance, classroom environment*

Introduction

Emotions are a fundamental aspect of the human experience and play a central role in how individuals perceive, process, and respond to the world around them. In educational contexts, the influence of emotions on learning outcomes and student behavior has garnered increasing attention (Immordino-Yang & Damasio, 2007). Historically, models of learning and cognition emphasized rationality, detaching affective components from educational theories and classroom practices. However, a growing body of research suggests that learners' emotional states are intricately connected to numerous factors that drive academic success, such as motivation, attention, and memory (Linnenbrink-Garcia & Pekrun, 2011; Pekrun, 2006).

Despite this burgeoning recognition, educational practices and policies still often underemphasize or neglect the role of emotions in shaping learning processes. Students are frequently treated as homogeneous groups whose intellectual abilities can be distilled into standardized tests and objective assessments. Consequently, educational stakeholders—teachers, administrators, policymakers—may fail to appreciate the complex emotional underpinnings that can optimize or disrupt learning (Ashkanasy, 2004). By overlooking these emotional dimensions, educators risk implementing pedagogical strategies that do not maximize student engagement or, worse, that inadvertently generate negative emotional experiences in the classroom.

This paper aims to synthesize current insights into the role of emotions in education and to provide a clearer understanding of how positive and negative emotions can both aid and undermine academic performance. Moreover, it explores the emergence of emotional intelligence and emotional regulation as essential competencies for students and teachers alike (Goleman, 1995; Mayer, Salovey, & Caruso, 2004). Through an examination of relevant theoretical models, empirical evidence, and practical implications, the paper underscores the imperative to develop emotionally conscious classrooms that cultivate well-being, engagement, and achievement.

The discussion is organized into several sections. Following this introduction, the literature review presents key theories and findings on emotions in the learning process. Subsequent sections explore positive and negative emotions in detail, emotional intelligence and regulation, and the role of the classroom environment and educator practices. Finally, the paper considers implications for educational practice and policy, concluding with suggestions for future research avenues.

Literature Review

Historical Perspectives on Emotions in Education

Early theorists in psychology and education placed varying degrees of importance on emotion. Behaviorist perspectives, most notably associated with John B. Watson and B.F. Skinner, largely minimized the complexity of emotional processes, emphasizing observable behaviors over internal affective states (Skinner, 1974). As cognitive psychology gained prominence in the mid-20th century, focus shifted toward understanding mental processes such as perception, memory, and problem-solving, yet emotions were still often treated as peripheral to these core cognitive functions.

However, as neuroscientific research advanced, scholars began to recognize that emotion and cognition are deeply intertwined. Damasio (1994) argued that emotions are integral to rational decision-making, a viewpoint that paved the way for contemporary educational psychology models stressing the importance of emotions for learning. Over the last few decades, researchers such as Pekrun (2006) and Linnenbrink-Garcia and Pekrun (2011) have provided robust evidence that academic emotions—feelings specifically tied to learning contexts—profoundly shape students' engagement, academic achievement, and overall motivation.

Theoretical Models Linking Emotions and Learning

A prominent theoretical framework in this domain is Pekrun's (2006) Control-Value Theory (CVT) of achievement emotions. CVT posits that emotions arise in achievement settings based on two core appraisals: control (i.e., learners' perceived influence over learning outcomes) and value (i.e., the importance or valence learners assign to a task). Positive emotions, such as enjoyment or pride, typically emerge when students believe they possess high control and place a high value on the task. Conversely, negative emotions (e.g., anxiety or hopelessness) may occur when students perceive a lack of control or value in the learning activity. Importantly, CVT demonstrates that emotions do not merely reflect student experiences but actively shape engagement, cognitive resources, and performance.

Another relevant model is Bandura's (1997) Social Cognitive Theory, which, though not focused exclusively on emotions, underscores the role of self-efficacy beliefs in student motivation and resilience. Self-efficacy—an individual's belief in their own capacity to execute behaviors necessary for specific performance attainments—is closely linked to emotional states. For instance, high self-efficacy can foster positive emotions that bolster students' willingness to tackle challenging tasks, while low self-efficacy is often accompanied by anxiety and avoidance behaviors (Bandura, 1997). These emotional repercussions can directly affect the learning process and outcomes.

Empirical Research on Emotions in the Classroom

Recent empirical investigations have further validated the central role of emotions. For example, Linnenbrink-Garcia and Pekrun (2011) found that students experiencing positive emotions like enjoyment and hope tend to be more engaged and persist longer in tasks, leading to higher academic performance. Negative emotions, including boredom and frustration, often correlate with lower achievement and disengagement (Pekrun & Linnenbrink-Garcia, 2014). However, research also suggests that nuanced relationships exist, wherein emotions such as anxiety can sometimes be harnessed to enhance alertness and task focus (Zeidner, 1998).

Studies indicate that the classroom environment significantly shapes students' emotional experiences. Warm and supportive teacher-student relationships promote positive emotional climates that encourage students to take academic risks without fear of harsh judgment (Hamre & Pianta, 2006). On the other hand, competitive or highly evaluative classroom environments may heighten stress and anxiety among students, inhibiting their willingness to actively participate (Turner & Meyer, 2000). Such findings emphasize the importance of teacher practices and the overall social-emotional climate in determining the valence and intensity of students' feelings during learning activities.

Positive Emotions in Learning

Benefits of Positive Emotions

Positive emotions, such as joy, curiosity, and pride, are often praised as catalysts for deeper engagement and improved academic performance (Fredrickson, 2001). They are associated with increased motivation, creativity, and resilience, which are crucial for tackling complex tasks. When students experience enjoyment in learning, they tend to devote more cognitive resources to the task, maintain attention for extended periods, and exhibit a propensity for higher-order thinking (Meyer & Turner, 2002). This heightened engagement often leads to better retention of information and overall academic success.

Additionally, positive emotions can facilitate collaborative learning and social interactions. Students who feel happy and secure in their learning environment are more likely to cooperate with peers, participate in group discussions, and share knowledge openly (Gillies, 2008). Such a supportive atmosphere fosters a learning community where students can construct meaning together, further enhancing their emotional and academic well-being.

Paradoxes of Positive Emotions

Despite their generally beneficial nature, positive emotions do not always guarantee improved academic outcomes. For instance, excessive pride or overconfidence can lead to complacency, wherein students believe they have mastered material prematurely and reduce their effort. This phenomenon can inhibit critical thinking and reduce the likelihood of seeking feedback or verifying the accuracy of one's understanding (Pekrun & Linnenbrink-Garcia, 2014). In some cases, a classroom climate that is overly relaxed might inadvertently reduce the sense of accountability or urgency, diminishing students' focus and productivity.

Moreover, certain positive emotions, like enthusiasm, may become counterproductive if not channeled properly. Students who exhibit high enthusiasm can sometimes monopolize group discussions, overshadowing quieter peers and potentially creating friction or disengagement within a collaborative setting (Baker, 2010). Thus, the mere presence of positive emotions is insufficient; educators must guide students to regulate and direct these emotions constructively.

Cultivating Healthy Positive Emotions

Recognizing the value and complexities of positive emotions leads to practical considerations. Strategies for fostering healthy positive emotional experiences might include:

- **Autonomy-supportive teaching**: Allowing students to make meaningful choices in their learning fosters a sense of control, enhancing their enjoyment and motivation (Reeve, 2002).
- **Mastery-oriented feedback**: Emphasizing growth over performance can reinforce pride in effort rather than outcome alone, mitigating the risks of complacency (Dweck, 2006).
- **Collaborative tasks**: Designing group activities that encourage shared responsibility and interdependence can maintain enthusiasm while keeping students accountable and engaged (Gillies, 2008).
- **Reflective practices**: Encouraging students to monitor and reflect on their emotional states helps them recognize when positive feelings may be leading to overconfidence or reduced critical thinking (Zimmerman, 2002).

Through these methods, educators can harness the power of positive emotions while mitigating potential downsides that may arise from overconfidence or unstructured enthusiasm.

Negative Emotions in Learning

Detrimental Effects of Negative Emotions

Negative emotions—such as anxiety, fear, boredom, and frustration—are frequently perceived as impediments to the learning process. They can deplete cognitive resources, narrowing students' capacity for attention and reducing working memory availability (Pekrun, 2006). For instance, intense anxiety during examinations can lead to performance decrements as students ruminate over potential failure rather than concentrating on solving problems (Zeidner, 1998). Likewise, persistent frustration or boredom may result in disengagement, affecting long-term academic trajectories and eroding self-efficacy.

Beyond academic outcomes, negative emotions can also adversely affect students' behaviors and peer interactions. Irritability and stress may lead to interpersonal conflicts, reduce cooperative tendencies in group work, or lead to disruptive classroom behaviors (Wentzel, 1993). These emotional states can foster a vicious cycle where negative experiences reinforce avoidance or misconduct, further distancing students from meaningful learning opportunities.

Constructive Aspects of Negative Emotions

Despite the apparent drawbacks, certain forms and levels of negative emotion can have constructive outcomes in the learning process. Mild to moderate levels of anxiety, for example, can heighten alertness and motivation (Zeidner, 1998). This phenomenon, often described in relation to the Yerkes-Dodson Law, suggests that optimal performance may occur at moderate levels of physiological arousal (Teigen, 1994). A manageable degree of concern about performance can push students to study more diligently, seek help, or engage in self-regulatory tactics.

Additionally, negative emotions like frustration may signal that a student is grappling with challenging material. This discomfort can act as a prompt to utilize problem-solving strategies or seek clarification from teachers and peers (Hammond, 2015). When navigated effectively, such negative emotions become catalysts for deeper cognitive engagement and exploration, fostering the development of resilience and adaptive coping skills (Turner & Meyer, 2000). Indeed, many educators have observed that students who persevere through frustration often emerge with a more robust understanding of the material.

Managing Negative Emotions Productively

The dual nature of negative emotions warrants an approach that does not simply suppress them but instead helps students manage these feelings productively. Potential strategies include:

- **Mindfulness techniques**: Encouraging students to become aware of their emotional states and to practice breathing or reflection can mitigate the intensity of negative emotions, reducing the likelihood of cognitive overload (Schonert-Reichl & Roeser, 2016).
- **Scaffolding challenges**: Designing tasks that are moderately challenging yet achievable helps prevent overwhelming anxiety or frustration, allowing students to experience negative emotions at manageable intensities (Vygotsky, 1978).
- **Teacher responsiveness**: Prompt and empathetic teacher support when students express confusion or distress helps validate their emotional experiences and guides them toward effective coping mechanisms (Hamre & Pianta, 2006).
- **Constructive feedback**: Providing timely and specific feedback allows students to reframe mistakes as opportunities for growth, thereby transforming their initial negative reactions into motivation to improve (Hattie & Timperley, 2007).

By integrating these strategies, educators can create a classroom environment where negative emotions are acknowledged and harnessed as potential stimuli for academic resilience and growth.

Emotional Intelligence and Emotion Regulation

Defining Emotional Intelligence

Emotional intelligence (EI) refers to one's capacity to perceive, understand, regulate, and harness emotions in oneself and in interpersonal contexts (Salovey & Mayer, 1990). Popularized by Goleman (1995), EI has been identified as a core predictor of personal and professional success, complementing cognitive intelligence measures such as IQ. In educational settings, EI is increasingly viewed as a critical factor in student success and well-being. Students who demonstrate higher emotional intelligence tend to handle stress more effectively, build healthier relationships, and maintain higher levels of academic motivation (Mayer et al., 2004).

The Role of EI in Learning

The link between EI and learning manifests in multiple ways. First, students with well-developed EI can better regulate negative emotions, preventing them from escalating into overwhelming stress responses that impair concentration and memory (Brackett & Salovey, 2006). Second, such students are more adept at interpreting their emotional states, which enables them to employ appropriate coping or study strategies when faced with academic challenges. For instance, recognizing early signs of test anxiety might prompt a student with high EI to engage in relaxation techniques or seek clarification on difficult topics before anxiety becomes incapacitating (Zeidner, Matthews, & Roberts, 2009).

Furthermore, students with stronger EI skills are often more empathetic toward peers, fostering collaborative learning environments where mutual respect and emotional safety prevail (Gillies, 2008). These learners are also likely to communicate

their emotional needs or concerns effectively, facilitating supportive teacher-student interactions. In essence, EI acts as a catalyst for emotional resilience and constructive social engagement, both of which are essential to academic and personal growth.

Strategies for Fostering EI in the Classroom

Educators can implement various strategies to cultivate EI among their students:

1. **Explicit instruction**: Incorporate lessons on recognizing and labeling emotions, understanding emotional triggers, and applying emotion regulation techniques within the curriculum (Schonert-Reichl & Roeser, 2016).
2. **Role-modeling**: Teachers who demonstrate calmness under pressure, empathy in conflicts, and reflective self-assessment can implicitly teach students how to manage emotions effectively (Jennings & Greenberg, 2009).
3. **Social-emotional learning (SEL) programs**: Structured programs like CASEL's framework (Collaborative for Academic, Social, and Emotional Learning) systematically build skills in self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020).
4. **Reflective discussions**: Creating opportunities for students to discuss emotional experiences during group debriefings or reflective journaling can enhance self-awareness and empathy (Hammond, 2015).

When such practices are systematically integrated into classroom routines, they not only enhance students' academic performance but also contribute to a more harmonious and empathetic school climate.

Classroom Environment and the Teacher's Role

Emotional Climate and Teacher-Student Relationships

The classroom environment serves as the primary context within which students experience educational processes. Teachers play a pivotal role in shaping this emotional climate through their instructional strategies, relational approaches, and classroom management techniques (Hamre & Pianta, 2006). A supportive and empathetic teacher who provides clear expectations, consistent feedback, and respectful communication can foster a sense of security and belonging. Such positive emotional climates encourage students to take risks in learning, voice concerns, and engage more deeply with academic material. Research indicates that the emotional climate extends beyond direct teacher-student interactions to include peer relationships. Teachers who promote collaboration, group problem-solving, and inclusive practices help students develop a sense of shared purpose and mutual support (Gillies, 2008). Conversely, an environment characterized by excessive competition, harsh feedback, or unpredictability may cultivate anxiety, fear of failure, and avoidance of academic challenges (Turner & Meyer, 2000).

Instructional Design and Emotional Engagement

Teachers also shape students' emotional experiences through the design of learning activities and assessments. Engaging, hands-on projects that challenge students at an optimal level (i.e., slightly beyond their comfort zone but within their zone of proximal development) can evoke curiosity and excitement (Vygotsky, 1978). Incorporating variety in instructional methods—such as using multimedia resources, group discussions, and real-world problem-solving tasks—helps maintain students' interest and positive emotional engagement (Meyer & Turner, 2002). Assessment practices further influence emotional responses. Regular, low-stakes assessments that emphasize growth and progress can reduce test anxiety and encourage consistent study habits (Dweck, 2006). In contrast, high-stakes testing environments that heavily weight summative evaluations can intensify fear of failure, diminishing intrinsic motivation and heightening stress (Harlen & Deakin Crick, 2003). Balancing formative and summative assessments, along with providing timely and constructive feedback, is critical for ensuring that assessment processes are perceived as supportive rather than punitive.

Professional Development for Teachers

To cultivate a classroom environment conducive to healthy emotional development, teachers themselves must be equipped with skills in emotional regulation and sensitivity (Jennings & Greenberg, 2009). Professional development programs focusing on social-emotional learning, trauma-informed instruction, and effective communication strategies can enhance teachers' capacity to respond to students' emotional needs (Schonert-Reichl & Roeser, 2016). Such training may include:

- **Self-reflection workshops**: Encouraging teachers to examine their personal emotional triggers and regulation strategies to avoid transmitting unproductive emotional states to students.

- **SEL curriculum integration**: Equipping educators with concrete lesson plans and strategies to seamlessly incorporate emotional learning objectives into academic subjects.
- **Collaborative learning communities**: Engaging teachers in peer observation and feedback sessions where they can learn from one another's successes and challenges in managing classroom emotions (Darling-Hammond, 2010).

By investing in teacher preparedness, schools can better ensure that emotional considerations are embedded at the heart of pedagogical practice.

Implications for Practice

Policy Implications

As awareness grows regarding the centrality of emotions in education, policy changes at local, regional, and national levels may be warranted. For instance, curriculum standards could be expanded to include explicit social-emotional learning objectives, ensuring that emotional competencies are systematically addressed rather than treated as ancillary concerns (CASEL, 2020). Additionally, teacher certification programs and ongoing accreditation processes could require demonstrated proficiency in SEL instruction and emotional climate management. These policy shifts can encourage schools to allocate resources for SEL programs, mental health support, and professional development in emotional intelligence and regulation.

Classroom Strategies and Schoolwide Initiatives

At the classroom level, teachers can adopt a variety of strategies to integrate emotional considerations into daily practice:

1. **Routine emotional check-ins**: Beginning the school day or class session with a short reflective activity where students identify and share their emotional state. This practice can help teachers anticipate and address emotional barriers to learning (Brackett & Rivers, 2013).
2. **Differentiated instruction**: Recognizing that emotional triggers and motivational factors vary among students, educators can tailor activities to accommodate diverse emotional needs and learning preferences (Tomlinson, 2014).
3. **Positive behavior interventions and supports (PBIS)**: Schoolwide frameworks that proactively reinforce positive behaviors and foster a culture of respect and empathy can significantly reduce disruptive behaviors linked to negative emotional states (Bradshaw, Koth, Thornton, & Leaf, 2009).
4. **Peer mentoring**: Pairing older or more experienced students with younger counterparts provides emotional modeling and support, promoting a cohesive and empathetic school culture (Hammond, 2015).

Such initiatives, when embedded within a broader school culture that values emotional well-being, can lead to sustained improvements in academic performance, reduced behavioral incidents, and enhanced student engagement.

Technology and Emotional Engagement

Technological tools also offer opportunities to support students' emotional well-being. For example, applications designed to teach mindfulness or emotion regulation can be integrated into classroom routines, providing prompts for relaxation or reflection (Schonert-Reichl & Roeser, 2016). Additionally, learning management systems can incorporate features that track student engagement and solicit feedback about emotional states. Teachers can then respond proactively by offering personalized support or adjusting lesson difficulty. However, it is crucial to balance the adoption of these tools with privacy considerations and ethical data usage policies.

Conclusion

Emotions form a critical dimension of the educational process, influencing how students perceive, engage with, and ultimately benefit from learning experiences. Far from being a peripheral issue, emotions intersect with core cognitive functions, profoundly shaping attention, motivation, memory, and behavior. Positive emotions often stimulate curiosity, enjoyment, and collaboration, although they can occasionally lead to complacency or reduced critical thought if unchecked. Conversely, negative emotions, despite their common association with academic hindrance, can serve as catalysts for persistence and deeper cognitive engagement under the right conditions.

The concept of emotional intelligence highlights the significance of developing skills to perceive, understand, and manage emotions effectively in oneself and in social interactions. Embedding emotional intelligence training and emotional regulation

strategies into curricula can help students navigate the complexities of both positive and negative emotions. Teachers play a pivotal role in this process by fostering supportive classroom environments, designing engaging learning experiences, and modeling healthy emotional behaviors. Educational policies and institutional frameworks that integrate social-emotional learning objectives further support these aims.

Recognizing and supporting the emotional dimensions of learning can yield far-reaching benefits, from improved academic performance and student well-being to the cultivation of a more empathetic and cohesive classroom community. Future research might explore the long-term impacts of explicit emotional education interventions, investigate cultural or contextual differences in emotional expression within classrooms, and examine how technology can be harnessed to enhance emotional awareness and regulation. Ultimately, when educational stakeholders acknowledge and address the interplay of emotion and learning, they equip students not only with cognitive proficiencies but also with the emotional resilience and self-awareness necessary to thrive academically and beyond.

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The Intersection of Nationalism and European Integration: The Role of Education in National Identity Formation

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Abstract

This paper aims to explore the effects of including the ideology of nationalism in school curricula. In this sense, main objective of this manuscript is to discuss the rise of nationalism in Europe and how it intersects with the EU's influence, globalization, and the role of education in shaping national identities, particularly focusing on Albanian nationalism as a case study. Nationalism, in various forms, has been significantly shaped by both political and educational forces. The EU's impact on nationalism and the role of education in fostering national identity are central themes that continue to evolve in response to global and regional changes.

Keywords: *nationalism, globalization ,education, national identities,European Union*

Introduction

The history of Albania has taught us that the emergence of the first Albanian schools had a key impact on the break from the Ottoman conqueror. Through learning the Albanian language, people became familiar with their traditions and history, forming the idea that they were an ancient and distinct people from their neighbors.Schools are the main environments where national identity and nationalist discourse are shaped. It emphasizes that schools are pivotal in shaping national identity, as they transmit ideas about the nation through both formal and informal curricula. Schools are identified as key places where nationalism is taught, either consciously or unconsciously, through formal curricula or in response to societal changes, such as migration or globalization.

Literature review

Historical Context

Historically, nationalism and the school curriculum have been closely connected. Since the 19th century, schools have become powerful tools for spreading national identities and creating national societies. Since then, nationalism has reshaped curricula worldwide. Therefore, an accurate understanding of this phenomenon is essential for curriculum researchers. Curriculum scholars have identified the most important concepts for analyzing the concept of nationalism. In a comprehensive review of the literature, three approaches to nationalism in relation to the curriculum are identified: the ideal norm approach, the typological approach, and the claims-based approach (A. Peters, 2018). The approach related to the impact of elites in shaping nationalism as a global norm, or as a type of ideal, risks overemphasizing the impact of the homogeneity of nationalism in school curricula. By placing the curriculum development process at the center of the analysis of the key concept "nationalism," the goal is to understand its impact and role in integrating teaching curricula. Additionally, this paper aims to help understand the relationship between these two variables how, when, and under what conditions nationalism contributes to the shaping of the teaching curriculum .

The political revolutions of the 18th century and the emergence of modern constitutional states in Europe and North America, public education aimed at the linguistic and ethnic integration of heterogeneous populations. Politicians and

philosophers of this era argued that being a citizen is more than just a legal status and adherence to laws; being a citizen also implies an intellectual and emotional connection with the ethnic and cultural group known as the nation (Breuilly,1993).

Theoretical Foundations and Approaches to Nationalism in Education

Marx argued that modernity is defined by the dominance of industrial capitalism, which drives three interrelated trends: the concentration of industries, urbanization, and globalization. These trends continuously accelerate due to capitalism's rapid growth of productive forces. As industries consolidate, smaller manufacturers and peasant households are increasingly replaced. Urbanization has shifted power from rural areas to cities, improving living conditions for many but also disconnecting them from rural life. Globalization, driven by capitalism's need for expanding markets, forces the bourgeoisie to spread and establish connections worldwide *(K.Maks,1974)* .

However, it is generally recognised that nationalism takes different forms , which can even be fundamentally incompatible, depending on how the national in-group is defined. Nationalism, as a political project, is focused on ensuring that national and state borders coincide, so that only the national in-group is included in the state, and that the entirety of this in-group is included (P.Trifonas&S.Jagger 2023). These are seen in four directions:

I. Increasingly, students come from diverse cultural backgrounds as a result of migration movements and the effects of globalization.
II. Schools are environments in which the idea of national identity emerges in unconscious and unintended ways.
III. Formal curricula aim to transmit specific ideas about nationalism.
IV. Schools are environments that influence the education of children and youth to be tolerant of change (Arnott and Ozga, 2010).

Globalization and Nationalism

Nationalism in Europe has surged since the 1980s, often attributed to a backlash against European integration, which benefits radical right parties focusing on nativism, anti-immigration, and anti-ethnic minority rhetoric. However, the argument here is that changes to EU governance in the late 1980s and early 1990s actually weakened loyalty to central states. These reforms promoted ethnoregionalism, where regions seek greater autonomy or independence. Additionally, the EU's influence diminished the relevance of external exclusiveness appeals, which aim to reclaim territory and people in neighboring countries.. This appeal can range in intensity from aiding purported conationals, to arguing that these kin or territory should become part of the state (Bruter 2004).

The European Union (EU) and its predecessors are often seen as an anti-nationalist project, aiming to unify Europe and ensure peace following the devastation of two World Wars. This view is frequently echoed by pro-EU politicians, who emphasize the EU's role in fostering cooperation over nationalism. (A.T.Johston,2023).

One of the founders of the Social Democratic and Labour Party in Northern Ireland viewed the EU as a model for overcoming nationalism and securing peace in Northern Ireland, even stating that those in conflict should look to the EU for guidance. Similarly, Jean Monnet, a key figure in the creation of the European Coal and Steel Community, believed European unity could restore Europe's global leadership and was not just a political idea, but a moral one. Jacques Delors also shared this vision of a united Europe, speaking about the goal of eliminating borders by 1992 and seeing the EU as a "great European dream" rooted in humanity's creative efforts. Overall, the EU has been associated with values like cosmopolitanism and cooperation. (A.T.Johston,2023,fq.10).

Despite the optimistic belief that European integration could overcome nationalism, nationalism has become more prominent across Europe since 1980. In the 1970s, only four of nine EU Member States had nationalist parties in parliament. By 2019, all 27 Member States, except Ireland, Luxembourg, and Malta, had elected at least one nationalist party. Even among the founding six Member States, nationalist parties only had representation in Italy and Belgium in the 1980s, but by 2019, they had gained seats in all six countries, except Luxembourg. This shift suggests that nationalism is increasingly influential within the EU, despite earlier hopes for unity (A.T.Johston,2023,fq.15).

Nationalist parties are increasingly gaining traction due to a backlash against globalization, which is seen as threatening national identity through greater economic, social, and political interconnectedness. This backlash has fueled the rise of radical right parties, which claim to protect national identity from perceived threats, particularly immigrants and ethnic minorities. The economic and demographic changes driven by globalization have sparked a cultural backlash, where people reject unconventional social norms and seek reassurance in communities that share traditional values. Leaders of these movements often express socially controversial views while advocating for the preservation of these values and beliefs (Blunt,2007).

EU integration is often viewed as a key aspect of the globalization narrative, particularly due to its emphasis on the four freedoms: goods, people, services, and capital. As a result, the rise of nationalism is frequently seen as a backlash against EU integration, with critics arguing that the increasing interconnectedness promoted by the EU threatens national sovereignty and identity. This idea is widely discussed in political commentary and is commonly used by politicians to explain the growing prominence of nationalist movements across Europe (A.T.Johston,2023).

In an interview with *Financial Times*, Dutch Prime Minister Mark Rutte warned against the idea of "more Europe," suggesting that the EU should reduce its involvement. He argued that further EU integration was contributing to the rise of populist parties, particularly radical right parties (RRPs), as people increasingly felt that national sovereignty was being undermined. (A.T.Johston,2023,fq.22).

There is often tension between nativism and ethnoregionalism, as they represent a centre-periphery cleavage. Nativism aims to protect the centre, which is the current nation-state, emphasizing the preservation of its homogeneity and integrity. In contrast, ethnoregionalism seeks to challenge the existing nation-state by advocating for greater autonomy or even independence for sub-national groups located on the periphery. This creates a conflict, as nativism defends the status quo, while ethnoregionalism pushes for a restructuring of national boundaries and power dynamics (Banks, 2008).

A major component of nationalism, particularly regarding internal homogeneity, involves nativism and ethnoregionalism. Nativism strives to maintain the cultural and demographic purity of the nation-state, often focusing on protecting it from perceived threats like immigrants and ethnic minorities. In contrast, ethnoregionalism centers on a sub-national group, advocating for the preservation of its autonomy, distinctiveness, and cultural identity within a larger national context. Both ideologies express concerns about safeguarding internal unity, whether from external influences or internal challenges to national cohesion.

Nationalism can manifest in various forms, with two key types being internal homogenisation and external exclusiveness appeals. Internal homogenisation appeals focus on preserving the cultural or ethnic purity of a nation, and include ideologies like nativism (which often involves anti-immigrant and anti-ethnic minority sentiments) and ethnoregionalism. Both forms are concerned with protecting a perceived in-group from threats to its homogeneity, whether those threats come from immigrants, ethnic minorities, or even the central state itself. These appeals prioritize maintaining a unified, culturally or ethnically distinct community (Bruter 2004).

The tension between nativism and ethnoregionalism arises from their differing positions on the centre-periphery cleavage. Nativism aims to protect the existing central nation-state, while ethnoregionalism seeks to challenge this central state in favor of the periphery, often advocating for greater autonomy or independence. Nationalist parties are defined by their prioritization of at least one of these internal homogenisation appeals.

In contrast, external exclusiveness appeals focus on kin or territory that are believed to "belong" to a particular kin-state but are currently part of a neighboring country. These appeals can vary in intensity. At a lower level, they may call for the kin-state to support its kin by providing economic assistance, extending citizenship, or advocating for their interests. At the more extreme end, these appeals may become irredentist, arguing that the kin or territory should be incorporated into the kin-state (Bruter 2004) .

This thesis addresses several important gaps in the literature by examining the European Union's (EU) influence on the salience of various forms of nationalism. Specifically, it offers a novel argument, suggesting that the reforms to EU governance in the late 1980s and early 1990s have had a significant impact on all forms of nationalism—something that has not been previously developed or tested in existing research (A.T.Johston,2023) .

Education's Role in National Identity

The importance of public schooling to the nation has been a central topic, especially during times of national crisis. Most modern nation-states have faced crises, whether from external threats, internal conflicts (such as ethnic, religious, or social tensions), or the risk of collapse, revolution, civil war, or secession. Many modern nations emerged from wars of liberation or secession and revolutions or rebellions. In the nineteenth century, as nation-states engaged in national rivalries and conflicts, these experiences also influenced the evolving concept of nationalism, reshaping its nature and role in society (Hroch, 1985).

Nationalism increasingly aimed to foster a sense of unity, creating a collective "we" among the people of a nation-state, which contrasted with a "they" — those from other nations or even within the nation who did not share the national identity. During times of war or internal conflict (such as the American Revolutionary War, Civil War, the French Revolutionary Wars, the Austro-Prussian War, World Wars I and II, and the Cold War), this national identity became even more crucial, distilled into patriotism, loyalty, and the willingness to fight and sacrifice for the nation. In this context, two institutions—military service and public schools—played a key role in transforming young men into citizen-soldiers, or *soldat-citoyen* (Benedict, 1983).

Although the concept of the citizen-soldier faded in most nations during the twentieth century, the strong connection between national security policy and public schooling remained. Nation-states, regardless of their current security risks, continued to prioritize fostering patriotism and allegiance through both formal and informal education. Additionally, they aimed to provide students with advanced scientific knowledge that could later contribute to the nation's defense through civil and military technologies. An example of this motive is seen after the Franco-Prussian War of 1870–1871, when a rumor spread in European newspapers that superior public education in Prussia had helped German soldiers navigate French territory more effectively than the French themselves. This belief led nations like Switzerland to increasingly emphasize subjects such as geography and map reading in public schools in the late nineteenth century (Hroch, 1985).

In 1983, the US National Commission on Excellence in Education released a report arguing that national security was closely tied to the country's educational system. However, the threat it identified was not external but internal. The report stated, "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war" (National Commission on Excellence in Education, 1983, p. 5). This emphasized the importance of education in maintaining national strength and security, particularly through the development of a well-educated workforce capable of supporting both civil and military needs.

Following the report, concerns about the perceived inadequacies of American education were framed not just as a threat to individuals, but as a danger to the nation itself. The report argued that poor education was weakening the country's primary source of strength—its well-educated, loyal, and competent citizens. Despite the twentieth century being referred to as the "century of the child," with a focus on children's physical and psychological well-being, this example highlights that one of the fundamental roles of public schooling in modern nation-states continues to be the formation of virtuous citizens, who are integral to the nation's strength and stability.

Nationalistic education is seldom discussed in Western literature, as liberal educational philosophy has traditionally neglected it due to concerns about indoctrination and ideological control. For a long time, it was viewed as incompatible with the goals of liberal education, which aims to foster autonomy and critical thinking within a democratic society. As such, the idea of using education to promote national sentiment or nationality was seen as a potential threat to individual freedoms and democratic values (A. Peters, 2018).

Recent Western educational literature has begun to explore the concept of nationalistic education, with some scholars arguing for an education system that cultivates national sentiment within a liberal framework. They contend that children should be raised in their national traditions and language to help build a strong national identity through a self-reflective process. This education for national identity is seen as essential for fostering the solidarity necessary for a healthy democratic society. However, scholars such as P. Trifonas and S. Jagger (2023) also caution that there is a risk of undermining critical thinking if nationalistic education is not carefully balanced.

As mentioned earlier, nationalism spread globally in the 18th century due to social, economic, and political changes, aiming to establish a national identity. To achieve this, nationalism needed to create a new social consensus based on loyalty and commitment to the nation-state. Public education became a crucial tool in fulfilling nationalist ideologies, significantly influencing educational systems. Nationalism's impact on education has been both positive and negative. On the one hand, it has supported the development and improvement of education, contributing to the growth in both quality and quantity of educational practices. On the other hand, it has sometimes been exploited for the benefit of the ideology itself and the powerful classes within society. A. Peters (2018) explores both the positive and negative aspects of nationalistic education, highlighting how it has shaped educational systems throughout history.

Positive effects of nationalistic education

Some positive effects of nationalistic education are discussed in this part:

The role of nationalism in expanding public education (elementary to high school) and compulsory education

As discussed earlier, a distinct form of nationalism, influenced by the French Revolution and the Napoleonic Wars, emerged in Europe from the late 18th to early 19th century. Initially, this new nationalism was intertwined with liberal principles and political rights. However, over time, the focus of nationalism shifted towards the creation of a powerful political nation-state. Consequently, nationalism and the education system, particularly through school curricula, became a crucial means of fostering national unity, advancing political stability, and promoting democracy. For ideologues, education served as a tool to instill national identity and values, aiming to solidify the nation-state's foundation and ensure its future success (P.Trifonas&S. Jagger 2023). To achieve their goals, those involved in education sought to expand public and compulsory education. From this perspective, nationalism was seen as a tool for maintaining political stability and shaping national identity, which in turn formed the foundation of individual identity. Additionally, education was linked to democracy by encouraging greater political participation among citizens. The Industrial Revolution also played a key role, as education was essential for training individuals to assume economic roles and meet the demands of a rapidly industrializing society. Together, these three elements—nationalism, democracy, and the Industrial Revolution—formed the foundation for the widespread expansion of public education across Europe (Breuilly,1993).

Albanian Nationalism

Albanian nationalism has a rich and complex history, heavily influenced by the country's struggle for independence and the role of elites in shaping national identity. Albanian nationalism, in particular, has been shaped by a series of historical events, political regimes, and cultural movements.

Albanian nationalism has been central to the country's identity, especially during its struggle for independence from the Ottoman Empire. The emergence of the first Albanian schools played a significant role in breaking from the Ottoman conqueror. As Albanians learned their language and gained a deeper understanding of their traditions and history, the concept of a distinct and ancient national identity was cultivated.

Schools in Albania have been crucial in shaping national identity, especially in a context where nationalism was encouraged and directed by elites. Through education, students were instilled with the idea of being part of a unique cultural and historical community, setting Albanians apart from their neighbors. The role of education and nationalist discourse in schools was key in promoting national unity and in shaping the collective understanding of Albanian identity.

Nationalism and its promotion through the school curriculum were ways that could bring positive effects on national unity and political stability. The concept of nationalism in the numerous debates about its political character has been analyzed in two perspectives:

1. As a progressive and liberating force, offering national unity or independence;
2. Or as an irrational reactionary creed, allowing political leaders to pursue expansionist military policies and wage war in the name of the nation (Heywood, 2002, p. 133).

In the book *The Nationalist Discourse in Albania and Other Studies* by Enis Sulstarova, the nationalist discourse in Albania is analyzed across different stages of history. The author divides the nationalist discourse into three periods:

1. The National Renaissance period,
2. The Communist period, and

3. The Post-Communist period. The author helps us understand in brief the Albanian nationalist discourse during these three major historical periods, highlighting the many changes and contradictions from one period to another. Factors such as circumstances, events, and different political regimes have influenced the change in nationalist discourse (Sulstarova, 2015, p. 128-132).

Albanian nationalism has been encouraged by and directed by the elites, and to this day, elites play a critical role in Albanian nationalism. Various political, historical, cultural, and religious factors have influenced the development of Albanian nationalism later than in other countries of the Balkans. These factors show that the difference between Albanian nationalism and that of other groups in the Balkans is that in other countries, nationalism is much stronger. Albanian nationalism developed later than that of other Balkan countries. The factors that contributed to this delayed development include political, historical, cultural, and religious factors. Albanian nationalism was less intense compared to some of its Balkan neighbors, but it still played a vital role in the country's formation and independence. (Fischer, 2014, p. 37).

The development of Albanian nationalism has been largely influenced by political and intellectual elites who directed the nationalist discourse. These elites played a central role in forming the ideology of nationalism, helping guide the country through the difficult transitions between the Ottoman Empire, communism, and post-communist independence.

Conclusion

In conclusion, the paper argues that nationalism in education has a profound impact on the development of national identities and social cohesion. It examines the role of education in the formation of these identities, noting that nationalism can both positively advance the spread of education and civic participation, and negatively, by reinforcing exclusionary or ideological agendas. Nationalistic education has had both positive and negative effects. On the positive side, nationalism led to the expansion of public education, supporting political stability, national unity, and democratic participation. On the negative side, nationalism has sometimes been exploited to advance the interests of particular political elites.Understanding the dynamics of nationalism within curricula is crucial for policymakers and educators. In the context of globalization, the resurgence of nationalism in Europe has been attributed to fears of losing cultural identity due to migration and EU integration. Nationalist parties have gained traction, particularly in response to these pressures, sometimes promoting exclusionary or ethnocentric ideologies.Nationalism in Albania evolved through different political regimes, with elites playing a significant role in shaping the national discourse. The paper notes that Albanian nationalism developed later than in other Balkan nations, influenced by its unique political, cultural, and religious factors.

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Alterity as a Political and Cultural Phenomenon: An Analysis of the Representation of the 'Other' in Albanian Cinema

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Abstract

This study explores how the political and ideological discourse of the communist regime in Albania (1945–1990) influenced the construction and representation of the figure of the "Other" in the field of art, particularly in cinematographic art. After the establishment of communist rule in Albania, all art institutions were placed in service of the ideological apparatus, which aimed to shape and control collective consciousness and perception. Drawing on Louis Althusser's (1970) concepts of interpellation and ideological state apparatuses, Stuart Hall's (1997) analysis of representation, and Michel Foucault's (1969; 1975) theory of power and discourse, the study examines the stereotypical representations of certain social categories - such as representatives of the Catholic, Muslim, and Orthodox clergy; the merchant class; intellectuals educated in the West; and specific individuals identified as bearers of foreign ideologies or outdated traditions. These stereotypical representations in Albanian cinema, which were perceived by the public as truthful reflections, contributed to the naturalization of differences and the construction of a symbolic order that defined what was considered normative and what was deviant. The approach is qualitative and based on discursive, narrative, and content analysis through the examination of some of the most representative figures in cinema. The study also analyzes other ideological and political sources such as reports on the activities of cultural institutions and speeches by the communist leadership. The aim of the study is to demonstrate that these forms of representation were not coincidental but part of a broader project to construct socialist identity and control public perception - with consequences that persist in the post-communist context.

Keywords: *Alterity, Ideology, Discourse, Stereotype, Political Art, The Other, Cultural Identity*

Introduction

The concept of *alterity*, understood as "the state of being other" or "different" (Levinas, 1969), lies at the heart of many philosophical, sociological, anthropological, and cultural approaches. Throughout the history of culture and artistic representation, the Other has served as a discursive construct through which collective identity itself is built. As Stuart Hall (1997) emphasizes, "people are not simply born with identity – they are formed through different cultural representations, which are closely tied to power and discourse."

After World War II, Albania experienced a radical political, social, economic, and cultural transformation under the communist regime. Art and cultural institutions were conceived as "assistants of the Party for the communist education of our people" (Hoxha, 1974), becoming direct mechanisms for the dissemination of Marxist-Leninist ideology. In this context, the construction of the figure of the Other was not merely an aesthetic or artistic act, but a strategic and political move aimed at reinforcing the divide between what was considered ideological norm and what was marked as deviation. Political and propagandistic discourse targeted figures such as the clergyman, the wealthy rural and urban classes, the independent intellectual, or individuals with modern and liberal tendencies – all stigmatized as threats to the model of the new socialist

man. This is how art functions as an ideological state apparatus (Althusser, 1971), contributing to the maintenance of cultural hegemony by normalizing new social hierarchies (Gramsci, 1971).

As Michel Foucault (1975) argues, "power produces reality... it produces subjects and categories of knowledge that become self-evident." Similarly, Louis Althusser (1970) sees art as part of the state's ideological apparatuses (ISA) through which individuals are interpellated as subjects of the ideological system. On the other hand, Walter Lippmann (1922) highlights that "we define first and then see," indicating that our perceptions are shaped through cultural and discursive filters. This human tendency to understand the world through images and interpretations makes art a powerful tool for fixing differences and naturalizing stereotypes produced by dominant ideology.

This study aims to analyze representations of the Other in Albanian cinema during the communist regime, focusing on how certain social groups were stereotyped in service of political and ideological discourse. The primary objective of the research is to understand how art influenced the production and naturalization of these ideological stereotypes, constructing enduring forms of social perception toward "the others" during the communist period in Albania.

Theoretical Framework

This section aims to build the theoretical foundation for analyzing how political and ideological power in communist Albania influenced the representation of the Other in cinema and art, drawing on the intersection of four key approaches: discourse analysis (Foucault), representation theory (Hall), ideology theory (Althusser), and cultural anthropology (Boas). These theories are used to explain how political and ideological power constructs and reproduces the figure of the Other in the context of politically and ideologically engaged art.

According to Michel Foucault (1969; 1975), discourse is not a reflection of reality, but a mechanism of knowledge production closely linked to power. In this light, the artistic representation of the cleric, the bourgeois intellectual, the merchant, or other categories whose beliefs and principles opposed the ruling party's ideology constitutes a disciplinary mechanism through which the regime's "ideological truth" was produced — imposed as though it were historical truth.

Stuart Hall (1997) defines representation as "the act through which meaning is produced and communication takes shape"; he emphasizes that stereotypes function by fixing differences and essentializing them as unchangeable.

These processes do not happen spontaneously. Louis Althusser (1970) argues that institutions such as schools, media, and art are ideological state apparatuses that function through interpellation — a process by which the individual is "hailed" by ideology to become a subject within it. Albanian cinematography during communist regime were among the most effective tools for the interpellation of the socialist citizen, through the construction of an ideological "Us" that excluded the "Other" as a deviation.

In various studies and in the theories of alterity developed in postcolonial studies (e.g., Edward Said, 1978), in gender studies (e.g., Simone de Beauvoir, 1949), in psychology, and in philosophy (Jean-Paul Sartre, 1943), the terms Alterity, the Other, the Foreigner, or hetero-image are used in different contexts to examine how groups and individuals are perceived as different from the norm or the dominant group. This phenomenon plays a critical role in processes of social, cultural, political, and even psychological division. These terms are not only used to analyze intergroup relations, hierarchies, exclusions, or identity formation processes, but also help to understand how certain categories or individuals are included or marginalized within society. In Albanian cinema — as well as more broadly in literature, theatre and visual arts — theories of alterity offer a precise method to understand how social groups, through the creation of the Other, simultaneously shape and reinforce their own identities.

To support this discussion, anthropological studies are also included. Contrary to essentialist approaches, which present cultural behaviours as linked to race or unchangeable natures, Franz Boas emphasized that culture is a historical and social construct. Boas argued: "The behaviour of an individual is determined not by his racial affiliation, but by the character of his culture..." (Boas, 1938, p. 146)

This relativist approach sees stereotypes as products of ideological context, not as reflections of any universal "truth." From this perspective, representations of the Other in Albanian art are products of ideological structures and must be analyzed as such - not as self-evident, but as conscious and politically intentional constructions.

The combination of these approaches provides a strong theoretical framework for understanding not only the ideological function of art in the context of dictatorship, but also the reason why these figures continue to influence social representations in the post-totalitarian period.

Methodology and Limitations of the Analysis

This study follows a qualitative and analytical approach. By combining tools from discourse analysis, narrative analysis, and content analysis, it aims to understand and explain how some of the stereotypical representations of the "Other" were constructed in cinema during the period of the communist regime in Albania.

In line with the theoretical framework described earlier, the study focuses on selected cinematic productions from this period, chosen specifically for their inclusion of representations of the Other as clearly constructed figures aligned with the political and ideological discourse of the time.

Ideological sources such as speeches from the communist leadership (especially those of Enver Hoxha), along with reports and evaluations of cultural institutions, help in understanding the expectations that the regime held toward art.

The historical and political context of the time played a crucial role in shaping meanings and representations. Taking this context into account helps provide a deeper understanding of how ideological discourse influenced creative activity.

Through this combination, the study seeks to analyze how the figure of the Other is constructed at both a semiotic and symbolic level, becoming naturalized as a deviant, foreign, or even dangerous category to the socialist order. These figures, although coded as individuals, in fact represent broader social categories and function as carriers of ideological meaning.

Study Materials

Some of the analyzed films include:

"*Përballimi*" (1976)
"*Pylli i lirisë*" (1976)
"*Kur zbardhi një ditë*" (1971)
"*I teti në bronx*" (1970)
"*Komisari i dritës*" (1966)
"*Pse bie kjo daulle*" (1969)

Method of Analysis

In the analysis of each text or work, the focus is placed on how the figure of the Other is constructed: how it is described and what characteristics are attributed to it. The examination of exclusion and stereotyping mechanisms, by analyzing how differences are projected between the socialist "We" and the "Other" representing deviation, emerges as a crucial method in this study. Particular emphasis is placed on the analysis of ideological symbols, the propagandistic function of artistic representation, as well as the use of language, imagery, and narrative.

Limitations

As a research paper, this study does not claim to offer a complete overview of all representations of the Other in Albanian art during the communist period. It is focused solely on cinema, without including other mediums such as theatre, literature, or visual arts. Even within cinematographic production, it does not encompass the full spectrum of representations of the Other present in Albanian films. For example, representations of ethnic minorities, foreign women married in Albania, or individuals with vices or petty-bourgeois concepts are not addressed here, although they certainly merit dedicated research. The analysis does not aim for a full technical deconstruction of the films, but rather a semiotic and ideological reading, focusing only on key typologies selected for their recurrent and functional role in ideological discourse. Nonetheless, these limitations do not weaken the value of the analysis. Instead, they help clarify its scope, which lies in exploring the intersection between art and power in the production of a politically and culturally controlled collective identity.

Representations of the Other in Albanian Cinema During the Communist Regime

Introduction to the Analysis Section

Before moving into the analysis of the artistic works themselves, it is necessary to place these creations within the political and ideological context of the time. Art in communist Albania became a tool used for political education and the fight against foreign ideologies. In almost every report or discussion related to problems in art and culture, one inevitably encounters statements that emphasize the role of art in serving propaganda and the ideological formation of the masses. According to journalist Dashnor Kaloci (n.d.), in an archival report from the Ministry of Education and Culture on artistic activities in 1973, covering institutions such as the National Theatre, Variety Theatre, the Circus, and the Puppet Theatre, it is written:

"The professional artistic troupes of Tirana (the National Theatre, the Variety Theatre, the Circus, and the Puppet Theatre), inspired by the recent speeches of Comrade Enver, the decisions of the 4th Plenum of the Central Committee, *'On the ideological struggle against foreign manifestations and liberal attitudes towards them'*, have achieved a series of results in further developing our socialist art and in placing it in the service of the ideological and aesthetic education of the masses."

This report clearly shows that the political decisions of the Central Committee and the speeches of Enver Hoxha served as the primary criteria for evaluating and judging a work of art. The role and function of art in the "propaganda front", and the push to ideologically and politically shape creators, is found throughout Enver Hoxha's speeches concerning matters of art and culture. In one of his discussions during a meeting of the Central Committee Secretariat - with the telling title *"Cinema and television serve the Party, the people, and proletarian internationalism"* - he stated: "Artists and all workers in cinema and television, these important branches of our cultural and propaganda front, must deeply internalize the Marxist-Leninist theoretical thought of our Party." (Hoxha, 1974)

It is worth emphasizing that after the communist regime was established, the ruling party undertook transformative reforms in all areas of life. Initially, in the political sphere, it installed a one-party system, declaring as enemies anyone who might aspire to ideas or beliefs that contradicted the communist ideology. Then, in the economic sphere, it implemented socialist economic structures, confiscating property and waging ideological war against the wealthy classes in both rural and urban areas.

Social and cultural reforms led to the abolition of religion, with religious institutions closed and destroyed, and clerics from all three major faiths persecuted. In the name of women's emancipation, moral and social codes that had traditionally upheld Albanian family and societal values were attacked. In foreign affairs, the West was declared an enemy, and a pattern of short-lived alliances emerged - first with Yugoslavia, then the Soviet Union, and finally with China.

It is no coincidence that nearly all these political and socio-economic developments are reflected in a significant portion of Albanian stage and cinematic production. As a result, we see art during this period clearly positioned as an instrument of ideological representation, with the task of clearly distinguishing between two parts of society: on one side, "Us" - the socialist majority - and on the other side, "Them" or the "Other" - the minority.

Considering this powerful political and ideological framework, the following analysis will focus on how Albanian cinema of the communist era constructed the figure of the 'Other' through representations of the main oppositional and ideological groups: nationalists, Ballists, and Zogists. These figures were portrayed in the films of the time not just as political enemies, but as symbolic embodiments of danger and deviation from the socialist order - serving as propagandistic tools in the construction of socialist collective identity.

Representatives of the Nationalist, Ballist, and Zogist Forces

On the political level, the communist leadership parted ways with other nationalist forces - the Ballists and the Zogists - during the war. The Communist Party treated these groups as political and ideological enemies, issuing directives to discredit them through art and culture. In artistic productions, these forces were portrayed stereotypically and negatively, as the "Other" - enemies of the Albanian people and of the new order. Regardless of historical facts, the construction of the "Other" as an enemy - a political and ideological opponent - began through theatrical and cinematic works.

This approach was reflected across all Albanian art, depicting the leaders of these political groups as caricatures of evil and the past, figures to be excluded, rejected, and annihilated. As Said (1978) and Hall (1997) argue, the "Other" is a constructed category through mechanisms of exclusion that help the dominant group define itself as the norm and the Other as inferior or threatening.

In cinema this difference between "Us" and "the Other" is projected through both ideological and physical characteristics. While the positive hero - patriot and partisan - is depicted as noble and brave, the Other is represented as cowardly, deceitful, selfish, and often physically flawed. For example, in the film *"Kur zbardhi një ditë"* (1971), which is based on the Albanian liberation war, we observe two contrasting approaches to two typologies of the Other. In almost all war-themed films, the German occupier is portrayed as merely brutal and savage, maintaining a somewhat neutral tone. However, the nationalist Other is mocked with sarcasm, ridicule, and grotesque exaggeration.

The first part of the cinematic triptych *"Kur zbardhi një ditë"* offers a clear example of this grotesque and mocking approach to nationalist political groups. The character Sulo the Ballist, masterfully played by Birçe Hasko, became an influential figure in shaping public perception of this political faction through humour. This mocking tone is more pronounced in later scenes when the positive hero, driver Thoma Shpuza (Demir Hyskja), is stopped on his way to join the partisans by an armed group - also representatives of Balli Kombëtar. The scene where the Ballists open the stolen flour sacks from Shpuza's vehicle is one of the most comedic, mocking, and degrading in all Albanian war cinema.

The same attitude and stereotypical portrayal of this class appear in the film *"Koncert në vitin 1936"* . Figures of royal authority in the city - Shazivari (Mirush Kabashi), Veseli (Beb Shiroka), Fotaqi the sub-prefect (Robert Ndrenika), and Xhevo (Gjon Karma), the mayor - are depicted as comic and grotesque. One has a mouth deformity and is a womanizer, another pretends to be highly cultured while being ignorant, and another uses outdated Turkish and Arabic expressions. They are placed in a ridiculous situation early in the film when they mistake the brand name of a piano for a concert performer. Their language and behaviour function to stigmatize them as representatives of an outdated era, conflicting with the new norms and atheism of the communist system. They are described as immoral, dishonest, cowardly, ignorant, and uneducated, forming a narrative where individuality is erased in favour of ideological caricature.

Such portrayals also appear in other films by director Kumbaro, such as *"Historiani dhe Kameleoni"* (1988), where stereotypes are clearly used to depict political, social, and economic classes.

The perception shaped by these films of the monarchy period in Albania has continued to reflect in post-1990 public and political discourse, as well as in various academic studies. These representations, built and disseminated especially during the communist regime, have influenced how the monarchy era is interpreted historically. Researcher Julian Bejko (2012), in an analysis of *"Koncert në vitin 1936"*, writes: "One of Kumbaro's sharpest criticisms in the film - delivered through comedy - is precisely the monarchy's failure to care for the people. Therefore, analyzing the monarchy as a modern totalitarian regime is not entirely accurate."

According to Stuart Hall: "Stereotypes are highly simplified representations of a group, which emphasize a few traits and erase complexity and individuality." (1997)

However, unlike this theoretical view that sees stereotypes as simplified reductions of reality, in Albanian cinema during the communist regime, stereotypical representations appear more as intentional distortions and ideological constructions - not only simplifying, but actively discrediting and delegitimizing certain social or political groups. These are not merely poor representations; they are polarized narratives that erase individuality in order to transmit a propagandistic message.

The most striking ideological portrayals on film and stage occur where historical figures are named directly. For example, Sejfi Protopapa appears in the film *"I teti në bronx"* as Sali Protopapa - a minor alteration easily decoded by the audience; Mithat Frashëri in the comedy *"Karavidhet"*; and Qazim Mulleti in the comedy *"Prefekti"*. Using real or slightly altered names increased the suggestive power of the ideological portrayal, creating a sense of "reality" that made the film narrative seem credible and historically accurate.

In *"Prefekti"*, interpreted by two of Albania's most well-known comedic actors—Mihal Popi and Robert Ndrenika—the character of the prefect is portrayed as grotesque, ridiculous, corrupt, and intellectually limited: a caricature of the "old spirit." Because of the powerful performance and the central role theater played in the public culture of the time, this portrayal gained tremendous persuasive power, transforming Qazim Mulleti into a collective "truth". As noted in the TV program *Dosja K* (2019):

"The comedy *Prefekti* was used as a 'murderous weapon' of propaganda against Qazim Mulleti's family, creating a distorted and degrading portrait of this institutional figure." In reality, "he had graduated from Galatasaray University and later the diplomatic-military academy in Vienna, and was one of Albania's rare polyglots."

A similar case is that of Sejfi Protopapa, portrayed in *"I teti në bronx"* by director Piro Mani as a grotesque, comic figure - cunning, cowardly, boastful, and hedonistic. These traits conveyed a generalized negative image of the "other class," embedding in public consciousness a figure with little connection to the real historical person. Meanwhile, according to *Panorama* (2014), after fleeing Albania, "Sejfi Protopapa earned a PhD in nuclear physics in the U.S., worked at the Los Alamos laboratory on the hydrogen bomb, and later at NASA on laser satellite communications.

This stark contrast between the real historical figure and the cinematic portrait shows how aesthetic form, masterful performance, and ideological context combined effectively to turn a distorted portrayal into an internalized "truth." As Roland Barthes observed, cultural myths function by "turning history into nature" (Barthes, 1972), masking ideological construction as something natural and self-evident.

Thus, artistic representations - through language, aesthetics, and performance - played a crucial role in producing manipulated public knowledge about historical figures.

In conclusion, the analysis shows that in Albanian communist cinema nationalist figures appear more as ideological inscriptions than real portraits. Through ironic, grotesque, and caricatured portrayals - and language filled with outdated expressions - the stereotype of the Other functioned as the on-screen representation of the "class enemy."

This approach, far from recognizing human individuality and complexity, helped construct a distorted collective image of this group as a symbol of ideological deviation. This exclusionary and stigmatizing logic was not applied only to nationalist forces, but also to other groups that challenged official ideology - such as clerics and representatives of religious communities.

The Other as Representative of the Clergy (Catholic, Orthodox, Muslim)

For decades, religion and its representatives played a key role in the spiritual and educational life of Albanian society. This moral and value-based foundation lost its significance after Enver Hoxha's speech on February 6, 1966, which paved the way for Albania to declare itself the first and only atheist state in the world. As reported: "On February 15, the doors of religious institutions were found covered with denunciatory posters threatening anyone who attempted to reopen them." (*Panorama*, 2025) Because religious institutions and clergy held deep influence in Albanian society, the decision to close all religious institutions required not only political measures but also extensive educational campaigns and anti-religious propaganda, often carried out through cinema.

In one of the meetings regarding the Party's directives on literature and the arts, Enver Hoxha (1974) emphasized: "Theatre for us is a political and ideological weapon for educating the people," and advised artists to: "Carry out deep ideological and political work needed to fight the influences of the old world," reminding them that they must: "Always play the role of the Party's assistant in the formation of the new man."

Albanian cinematography played a central role in conveying the regime's political and ideological messages. For a long period, the treatment of religion became a recurring cinematic theme, and, as in other areas, film closely followed the Party's ideological discourse, portraying clergy as negative and regressive figures.

In films such as *Komisari i dritës* (1966), *Pylli i lirisë* (1976), and *Përballimi* (1976), clergy are depicted as class enemies: as remnants of the dark past - deceitful, hypocritical, untrustworthy, and often grotesque or comic. This is achieved through one-sided film language, where clergy represent a hindrance to social progress, symbols of fanaticism and cultural backwardness, sharply contrasting with the image of the partisan and the representatives of the new people›s power.

In *"Komisari i dritës"*, this ideological division is made clear from the opening scenes, where the gloomy figure of Don Pal (Ndrek Luca) appears amidst a joyful crowd celebrating liberation. Visually and symbolically, he is presented as a figure of the past. His journey with Dritan Shkaba, (Rikard Larja) a partisan seeking to open the village's first school, serves as a metaphor for the clash between old and new. Scene by scene, the priest's character resists progress and education, morally corrupt and eventually exposed as a collaborator with the enemies of the new regime.

A strong symbolic element is the use of light and darkness: director Dhimitër Anagnosti places characters such as Don Pal, Doda (Prend Lëkunda), Dava (Liza Vorfi), and Nikollë Mustaqeziu (Reshat Arbana) mostly in dim or night-time scenes, visually aligning them with darkness in opposition to the ideological "light" of socialism. Their dialogue is filled with doubt, dissent, and anti-regime sentiment, reinforcing through speech the idea that the clergy posed a threat to popular power.

Although the focus of *"Pylli i lirisë"* lies in the resistance war and the collaboration between the rural bourgeoisie and fascist occupiers, screenwriter Kiço Blushi and director Gëzim Erebara also include an Orthodox priest (Lazër Filipi). He is not depicted as an overt class enemy but as a cunning, hypocritical figure, detached from his spiritual mission. Rather than caring for the community, he pursues personal financial interests, symbolizing a regressive influence at odds with the collective resistance and morality. This message is conveyed figuratively in the opening scene, where the sound of a funeral bell and the church courtyard frame a funeral attended by a fascist officer. The priest silently nods in agreement with the officer's speech, signaling quiet approval of the enemy. Later, the priest is seen at a table with Lam Shllapi (Ndrek Luca), a merchant collaborating with the occupiers, and Ibrahim Bey, commander of the Ballist forces (Demir Hyskja). The priest's submissiveness and economic exploitation of villagers underscore his symbolic betrayal.

Unlike the previous two films, "*Përballimi"* features a Muslim cleric, and Albanian cinema presents a unified approachto representing Muslim clergy, resulting in a stereotype of the ignorant, uneducated, superstitious, and comical cleric. Their language is filled with theological vocabulary in Turkish and Arabic. A notable element is age - most are elderly, reinforcing the idea of a "religion of the past" incompatible with the vision of a new socialist society. This stereotype manifests in the character Mulla Kamberi. Director Viktor Gjika uses a subtle method to include Christian symbolism, too. In a humorous scene involving Platon Bubuqi (Pandi Raidhi), the secretary (Bujar Lako), and a lawyer, the Christian cross is occasionally visible - an elegant way to appear ideologically neutral.

An important recurring device is character naming. Heroes and supporters of the new system are typically given neutral names, avoiding associations with any of Albania's three major religions. In contrast, negative characters, representing "the Other," often have Muslim names - Nazif, Xhezo, Shefedin, Sefer - suggesting a deliberate ideological use of names as markers of backwardness or moral inferiority. As Althusser (1971) argues, ideology is not abstract but "exists in practice" - as seen here in how art encodes ideology through language and imagery.

A rare instance where representatives of all three religions appear together is in the film *"Të paftuarit"* (1985). In the opening scene, three clerics wait in an anteroom alongside writer Besian Vorpsi (Vangjush Furxhi) to meet a royal official. Once in the office, the clerics bow obediently and exit in formation, ready to collaborate with a regime acting against national interests. Shortly after, a conversation between Vorpsi and the official reveals the regime's intent to use art as a tool of ideological influence: "Because you are a well-known writer in that region, the king chose you to send a friendly message to the Prince. Your writings have shown great ability to persuade people." (*Të paftuarit*, 1985, 6:40)

Unable to speak freely about his own experience with communist censorship, screenwriter Ismail Kadare uses this historical setting as a metaphor. Vorpsi's dilemma is a veiled commentary on how art functions as an ideological state apparatus (ISA) in the Althusserian sense: part of the "cultural ISA" that transmits and reinforces state ideology.

Through deliberate use of stereotypes, Albanian films of the communist period constructed a persistent, negative image of clergy. Rather than being depicted as spiritual or ethical guides, clergy were cast as obstacles to socialist progress. This strategy was part of a broader campaign to promote atheism and dismantle religion's historical influence in Albania. The stage and screen served as enforcers of an ideologically manufactured reality.

Woman and Emancipation through the Cinema Screen

One of the most significant reforms undertaken by the communist regime in Albania was carried out in the name of women's emancipation and development, granting women freedoms and rights previously denied to them by earlier systems. As these reforms challenged important customary codes, the regime was careful to construct a new image of the Albanian woman. In this case as well, the role of art across all its genres was central in constructing both a new stereotype of the Albanian woman and a contrasting stereotype of those social categories that resisted or opposed this social transformation.

> "You have heard that the Party has addressed the entire population, peasants, city dwellers, especially the peasants of the North, to adopt a new attitude towards women and girls… The Party advises you to eradicate once and for all the customs that enslave women and degrade their dignity… Just as we fight religion, so too must we abolish

> certain traditions and customs that neither our time nor our socialist life accepts… The faster we eradicate religious and backward customs, the more our country will flourish, especially the highlands." (*Enver Hoxha, 1967/1982, pp. 224–228)*

Following this speech - overtly ideological and with clear objectives to alter fundamental elements of tradition, especially in Northern Albania - the theme of women became a key subject in numerous Albanian cinematic productions. One notable example is the film *"Pse bie kjo daulle"*, released in 1969, just two years after Hoxha's speech. The screenplay is an adaptation of the novel *"The Wedding"* by writer Ismail Kadare. The novel's release was accompanied by mixed reactions. In the preface of the latest edition, French critic and essayist Éric Faye writes that Kadare "considered it his worst book." On the other hand, critics welcomed it with enthusiasm, perhaps because it tackled timely themes such as the fight against religion, arranged marriages, and women's emancipation (Faye, 2015).

The same ideological tone is evident in the film adaptation by director Piro Milkani. The film carries direct political and ideological messages. Characters, narrative, and events are all constructed in service of explicit ideological content, making it a representative example of art as ideological instrumentation. Characters are simplified to serve the stereotype and, as Chimamanda Ngozi Adichie (2009) notes: "The problem with stereotypes is not that they are untrue, but that they are incomplete. They make one story become the only story." (Adichie, TED Talk, 13:00)

Stereotypes are positioned against one another, creating binary confrontations: young activist women versus women still bound by old customs; progressive youth building a new city versus those still living under the rules of the Kanun of Lekë Dukagjini. The dialogue in the film is often hard to interpret - it's unclear whether it is formulaic, absurd, or ironic, reflecting what Albanian society was experiencing at the time.

In conclusion, we can say that art in general - and Albanian cinema during the communist era in particular - did not produce female characters with genuine complexity and individuality, but instead replaced social reality with a version shaped by ideology. Women in socialist realist films were not portrayed as autonomous subjects with personal will and experience, but as figures in service of the ideological project to construct the "new man."

Although emancipation was promoted as a progressive value, it was in fact used as a tool to restructure traditional society according to Party norms. This resulted not only in the creation of stereotypical female characters, but also in the silencing of alternative voices, replacing them with a single, uniform, propagandistic narrative. This mode of representation served more to consolidate power than to achieve genuine gender emancipation.

The phenomenon was not isolated to Albania, but reflects a common characteristic of cinema in totalitarian regimes, where art is employed as an instrument of ideological control. Even though these portrayals have aged over the decades, their influence on collective consciousness and on how the figure of the woman is still imagined in Albanian culture remains an issue that demands critical attention and reassessment.

Conclusions

The analysis of Albanian cinema during the period of socialist realism clearly shows that art did not function as a free creative sphere, but rather as an ideological mechanism, instrumentalized by the political regime to shape collective consciousness. Political discourse was not only used to guide the thematic directions of art, but also to construct through it a stable system of representations, in which the "Other" - whether a political, religious, or class opponent - was systematically stereotyped and delegitimized.

In this sense, art did not reflect reality; instead, as Antonio Gramsci emphasized, it served cultural hegemony, becoming an "instrument for preserving the dominance of the ruling class through consensus produced in the cultural sphere" (Gramsci, 1971, p. 12). The stereotypes created in cinema were not merely simple moral divisions between "good" and "evil"; they were sophisticated forms of power, which shaped how Albanian society imagined itself and the "Other."

One of the deepest consequences of this process was the internalization of stereotypes by the very groups that were marginalized, a phenomenon long recognized and analyzed by Franz Boas, who stated that "one of the most powerful forms of cultural domination is when the oppressed adopt the oppressor's beliefs about themselves" (Boas, 1938). In the Albanian context, this means that groups such as women, clerics, political prisoners, and members of excluded classes shave often internalized the ways they were represented in films of that era, complicating the process of reflection and deconstruction of these perceptions.

Moreover, even after the fall of the regime, the consequences of this discursive construction continue to be felt. The stereotypes created and reinforced by cinema are not just relics of the past, but elements that still influence current political and public discourse. In a sense, one could say that there has been a reversal of roles: during communism, political discourse shaped art, whereas today, ideologized art from the past continues to shape political discourse.

Such cases demonstrate that representations produced in the propaganda laboratories of the regime continue to be recycled as "truths" in new contexts. In this way, cinematic representations of the past are not merely artistic testimonies but ideological documents that should be read critically - not only to understand how the totalitarian system functioned but also to see what form ideology takes when embodied in the arts and distributed through the language of imagery.

This is why a critical reading of these representations remains important not only for academic study but also for the civic education of future generations. Understanding how art has been used to construct false realities means being better prepared to deconstruct today's narratives that aim to produce similar imaginings. Cinema, like any form of art, can be an instrument of domination - but equally a tool for liberation.

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Youngsters' Perception and Knowledge of the Albanian Lyric Music Icons

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Abstract

Icons of Albanian lyric music such as Tefta Tashko Koço, Jorgjia Truja and Marije Kraja have left their mark and contribution to the advancement of Albanian music. With their reputation in Albania, and other countries of the world, they have exalted Albanian lyric music. Nowadays, when the internet and social networks are an important part of students' lives, how familiar are the young people about these Albanian lyric singers. Students of the eleventh and twelfth grades of two high schools in Tirana, "Qemal Stafa" and "Partizani", were surveyed through a standard questionnaire, which contained: The names of lyric singers (Tefta Tashko Koço, Jorgjia Truja and Marije Kraja), the period in which they performed (from the 1930s to the 1980s), some of the most famous songs (Zare trëndafile, Kur më vjen burri nga stani, Unë ty moj të kam dashtë, Midis t' ballit ma ke një pikë), etc.. A total of 160 students participated. They were given 24 hours to respond. Of the 160 students surveyed, only 35 of them knew some of these singers and their songs, 42 students did not know them and did not show interest in searching, even on the Internet, for these artists. The remaining group of 83 students did not know these singers but conducted research on the Internet about them. Interestingly, several students knew some songs from the repertoire of these singers, through remixed versions, performed by today's commercial singers. Despite their contribution and values in Albanian lyric music and the status as icons of this genre, this study showed that these artists are almost unknown by the younger generations. Despite the way their songs are broadcast, on the Internet, on platforms such as YouTube, the impact that these songs and these artists have on youngsters is minimal.

Keywords*: lyrical music, genre, media, Tefta Tashko Koço, Marie Kraja, Jorgjia Truja, Lola Gjoka*

Introduction

The Albanian music over the years recognizes names that have left their mark in the history of music. While the media in the past was in its traditional form; newspapers, radio and then television, these important figures of Albanian lyric music were had these icons in their coverage. Names such as Tefta Tashko Koço, Lola Gjoka, Jorgjie Truja, Marie Kraja, in addition to their success in the Albanian music scene, left their mark with their contribution and transformation into music icons, to the public that followed them live in concerts, on the radio or followed the news that was written about them in newspapers, having an important part of the culture section in the media of the time. Over the years, the media has followed their artistic activity, but without revealing their human aspect; they were daughters, mothers, sisters, wives, who developed their careers in a patriarchal environment and at a time when it was a taboo to talk about their private lives in the media. Over time, and with the discovery of letters, manuscripts, and even the memories of their relatives, the public has come to know the difficulties, problems, and challenges that these worthy artists faced, beyond the makeup and neat costumes on stage, and the smiles they conveyed to the public. Their artistic dimension, in the media over time, expanded, presenting the human aspect as well. When it comes, to the Albanian urban lyric music, Western audiences have become familiar with what is perhaps the least known, least heard, or least discussed urban folk music in Europe. Although this music – Albanian urban songs – is the most prominent of Albanian musical genres, it has been consistently overlooked by musicologists in favor of authentic folk music from rural areas. Some commentators have implied that Albanian urban

music was not actually as Albanian as the music of its mountains and villages. But it is part of the country's musical history, especially in the twentieth century, and is just as much an expression of the Albanian spirit and culture.

Author Eno Koço examines the diatonic and chromatic autochthonous modes used in Albanian urban music and classifies them under traditional headings and as part of a newly created grouping, called the modes of the southwestern Balkans. The analysis of Albanian urban lyric songs is seen as an artistic version of traditional Albanian urban songs. When these songs began to enter the classical repertoires, the pioneers of the 1930s suggested that, based on Albanian urban songs, the new genre should develop into urban lyric songs. Whatever its origin, be it the Near Eastern Balkans or the southwestern Balkans, the composers and arrangers as well as the singers of Albanian urban lyric songs in the 1930s conceived them entirely as Western vocal and instrumental products (Koço E., 2004)

Icons of Albanian urban lyric music

Tefta Tashko Koço (1910-1947) was born in Fayum, Egypt, where her parents emigrated from the late 19th century. In 1921 the family moved to Korça and in 1927 Tefta went to Montpellier to learn singing. Between 1932 and 1936 she studied at the National Conservatory of Music in Paris. When she returned permanently to Albania in 1936, in addition to her operatic and chamber music programs, she devoted a great deal of effort to teaching and performing Albanian urban lyrical songs. She recorded twice for the Columbia record company in Italy, in 1937 and 1942, a selection of classical vocal repertoire and 45 Albanian urban lyrical songs (Koço E., 2000). Tefta Tashko Koço was praised by local and foreign critics as "a lyric soprano of excellent training, with a clear and healthy tone, with a crystal intonation, with brilliant vocal technique, with measured gestures and with pleasant phrases" (Tefta Tashko Koço, "Princesha" E Muzikës Lirike, 2023).

Marie Kraja is one of the symbols of the Albanian music with the interpretation of operatic parts, which she marked with the interpretation for the first time of the opera "Mrika". Kraja studied canto in Austria in the period 1930-1934 and after returning to Albania, not only did she contribute to Albanian opera, but she also performed successfully on the stages of the European continent and wider in the world with the operas: "Rusalka", "Ivan Susain", "The Bartered Bride", "La Traviata", "Iolanta", "The Marriage of Figaro", to name a few of them. Despite her contribution to Albanian music and her talent, she faced the repercussions of the communist regime that led to her removal from the stage for political reasons. In 1951, Kraja began a series of clashes with the authorities of the time and was removed from the Philharmonic. The reason was the biography of some of her family members, whom the authorities had classified as enemies and collaborators of the Nazis. The Security Service of Tirana and the chairman of the Arts Committee, F.S., with a letter dated July 7, 1951, with the note "Reserves" that F. S. sends to the Security, it is announced that there would soon be an organizational meeting to report the elements of a list, and Marie Kraja was mentioned as first on that list. The order of the Central Committee of the Labor Party of Albania clearly required that the persons on the list, including Kraja, be dismissed from their jobs. "Marie Ndue Kraja: Lyric artist is dismissed for lack of guarantees for these reasons: during the occupation, her entire family collaborated with the enemy and hated the people's war and propagated against it. Her father was a Nazi collaborator; her brother was a radio announcer at the Nazi station in Germany. At the end of 1944, the family fled. Her attitude during the occupation was indifferent, she did not sympathize with the National Liberation movement. She worked at Radio Tirana and gave concerts in Florence and Bari, in Italy. Today's attitude is indifferent; there is no hostile activity. She has carried out the work that was assigned to her, she has carried out the work plan," says the letter and the biography compiled by the communist regime for Marie Kraja (Zholi, A. 2018). Despite the problems with the regime, Marie Kraja, in addition to her operatic activity, collected 300 folk songs from Peja, Gjakova, Shkodra, Korça, Berat, Elbasan, Tirana and other cities, in a collection preserved by Radio Tirana. Marie Kraja's name is now remembered every year at an international opera festival that bears her name and where artists from all over the world, with their performances, honor the name of one of the icons of the Albanian music.

The autobiographical book "Muza e parë" (The First Muse) for the lyric soprano Jorgjia Truja sheds light on the human aspect of the great artist. It comes in the form of an autobiography from childhood and the painful family stories that have accompanied her throughout her life. In the book of memoirs (Dorëshkrimet E Panjohura të Jorgjia Filçe Trujës - Shqiptarja. com, 2014) compiled for the public by composer and music scholar Vasil Tole and Jorgjia's daughter Takuina Truja Adami, the soprano herself states that she was born exactly in 1907, based on documents found in the Turkish language. When she was still young, her father passed away due to heart problems and left behind five children. In the absence of an Albanian school, the artist completed her elementary education at the Greek school in Korça. She says that this day was deeply imprinted in her memory, as when she had gone out into the yard during school recess, a friend informed her that her father had passed away. The book describes the emotions she experienced upon hearing the news: "Crying and running, I headed home. The road that seemed bumpy to me, gave me the impression that I was standing still. As soon as I entered the house, I saw the doctor coming out and my father lying with his chest open and his eyes closed. I never saw those eyes again. I was 7 years old. It was a great misfortune." (Truja J., 2014). The great Albanian soprano continues to describe the dramas of her childhood life, when she reveals that within the same year her two younger brothers also passed away: four-year-old Filipi and Niku at the age of one and a half. As misfortunes overtook her family in a short space of time, Jorgjia's mother also fell ill. As she herself describes the drama at that time, losses and misfortunes in the family were not the only problem, as poverty was a companion of life, not even having the material goods to live a normal life. Jorgjia Truja reveals that from a young age she was forced to wear black

clothes, since according to the traditions and customs of the time, children also wore black, while she and her five-year-old sister and brother became orphans (Truja J., 2014).

In the Albanian music, the contribution of the first Albanian instrumentalist, pianist Lola Gjoka (Aleksi), who also holds the title "People's Artist", has also played an important role. In addition to her contribution to music, Lola Gjoka marks the history of Albanian culture as "the fighter who, amidst the nebula of centuries-old backwardness that prevailed in semi-feudal Albania at the beginning of the 20th century, became a symbol of progress and emancipation for all Albanian women." (Stringa H., 2013). Lola Gjoka was one of the Albanian artists with an important role in strengthening the first artistic institutions of Albania. She also worked hard in the formation of young artists and contributed to the translation of the first two operas, "Rusalka" and "Ivan Susanin". She is also the creator and performer of the suite for piano and string orchestra for the "May Concerts" in 1978. There are 52 folk songs arranged for voice and piano, belonging to different regions of our country, from Korça, Elbasan, Shkodra, Dibra, but also songs from Kosovo, that the artist Lola Gjoka has put into music. Among them are: "Kroi i fshatit tonë", "Shamia e beqarit", "Kënga e Rexhës", "Dola n'penxhere", "Pranvera filloi me ardh", "Karajfilat që ka Shkodra", "Kënga e Emines", "Dashnor tu bana", "Kjo dashnia qoft mallkue". We have heard these songs performed by great voices like Tefta Tashko Koço or Marije Kraja, but very little is known to the public that behind them stands the pianist Lola Gjoka, who took the motifs from folk music and adapted them for interpretation by lyrical voices on the Albanian stage.

"When Tefta came, I was completely confused at first, as the requests for folk songs were increasing more and more. It was my love for folk songs and my great will that gave me the strength to face this request and do something. No one had written folk songs before, so fixing them on a music sheet presented a lot of difficulties for me. I made a lot of efforts to write them; I took folk sazes home several times to learn from them... I often went to weddings to familiarize myself with those songs as much as possible", Lola Gjoka once recalled about the beginnings of her work (Shqiperia.com, 2007)

Study

Material and methods

This is a cross-sectional study where eleventh and twelfth grade students of two public high schools in Tirana, "Qemal Stafa" and "Partizani" were surveyed through a standard questionnaire, which contained: The names of lyrical singers (Tefta Tashko Koço, Jorgjia Truja and Marije Kraja), the period in which they have practiced their artistic career (from the 1930s to the 1980s) and they were offered some of the most popular song titles (Zare trendafile, Kur më vjen burri nga stani, Unë ty moj të kam dashtë, Midis t'ballit ma ke një pikë), etc. This questionnaire was created online and then, through a created link, was distributed via email and the communications application, WhatsApp.

Questionnaire:

How well do you know these icons of lyrical music?
Please give your answers

1. Which of these lyrical singers do you know?

Tefta Tashko Koço (career from 1926-1945)
Jorgia Truja (career from 1930-1950)
Marie Kraja (career from 1937-1959)
None

2. Which of these songs do you know?

Kur më vjen burri nga stani
Zare trendafile
Une ty moj te kam dashtë
Midis t'ballit ma ke një pikë
None

3. If you know these artists and songs, where did you hear about them?

Internet search
Social networks
TV or radio
At school during class or from parents

I haven't heard them at all, and I haven't searched for them on the internet
I heard a remixed version performed by commercial singers

A total of 160 students participated in this survey, who were given 24 hours to respond.

Statistical processing

The extraction and statistical processing of data was carried out through the online network, more precisely by completing and submitting the questionnaire through Google Form. This platform offers a well-formatted visual report of the collected data, with graphics.

Results

From the responses received on the Google Form platform from the 160 students surveyed, it resulted that only 35 of them knew some of these singers and their works (Table 1).

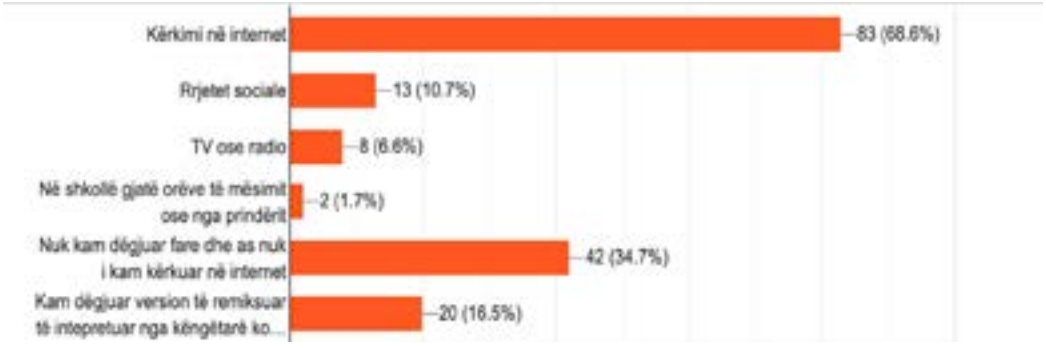
TABLE 1: Question: Which lyric singers do you know?



The table shows that out of the 35 students, five of them knew up to two singers included in the survey. Of these singers, Tefta Tashko Koço is the most well-known, with 84.2% of respondents, followed by Marie Kraja, with 68.4%, and Jorgjia Truja, who ranks third, with 57.9%. The data shows that the statistical difference between these Albanian lyrical music singers is small.

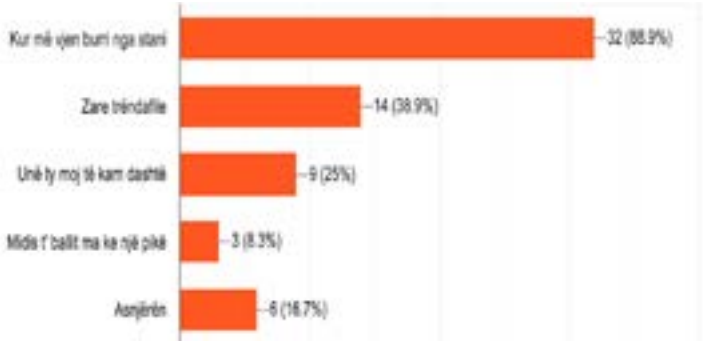
Of the respondents, 42 students (34.7%) did not know them and did not show interest in searching for these artists, even on the internet (Table 2).

TABLE 2: If you know these singers and their songs, where did you hear about them?



The remaining group of 83 students (68.6%) did not know these singers but did research on the Internet about them (Table 2). Interestingly, some of the students knew some works from the repertoire of these singers, through remixed versions, performed by today's commercial singers. This resulted in 20 students (16.5%). From the data in Table 2, it is evident that social networks (10.7%, TV or radio 6.6%) have a small impact on the knowledge of these Albanian lyrical music singers, compared to the information that students receive from school, during classes or from discussions in their families, with their parents (1.7%).

TABLE 3: Which songs do you know?



From the data in Table 3, regarding the question about the most popular songs of these Albanian lyrical music artists, it results that the song "Kur më vjen burri nga stani" (Tefta Tashko Koço) leads with 88.9%, followed by "Zare trendafile" (Tefta Tashko Koço) with 38.9%, "Unë ty moj të kam dashtë" (Marie Kraja) with 25% and finally ranks "Midis t'ballit ma ke një pikë" (Marie Kraja), with 8.3% of the responses. 16.7% of the surveyed students answered that they did not know any of these songs.

Discussion

In the group of surveyed students, two public high schools in Tirana, "Qemal Stafa" and "Partizani", non-professional music schools, were selected to avoid the influence of professional classes on the knowledge of these singers of Albanian lyrical music. This is also since non-professional high schools are in higher number than professional music schools. This was done to increase the confidentiality of the study.

All surveyed students expressed interest in participating in the study, regardless of the knowledge they had about the questions included in the survey, 68.6% of students searched for these singers on the Internet, which indicates the interest they showed in getting to know them. In addition to the Internet, 10.7% of students searched on social networks and 6.6% of respondents had heard about these singers on television or radio, through documentaries or music programs. From the internet search, information is accessible for the bibliography of these singers, including: the book of Tefta Tashko Koço's son, Eno Koço and his book "Tefta Tashko Koço and her time", the unknown manuscripts of Jorgjia Filçe Truja, Marie Kraja's "Bad Biography", when the Theatre of Opera and Ballet lost one of its first voices.

During the internet search, videos on YouTube of these artists' songs (AlbKulture, 2023, Zemra Shqiptare, 2019, OfficialShkoderzemer, 2011) and television documentaries (Top Channel Albania, 2019, Tole V. composer, 2024, Kazhani M., 2022) about them were also available. Based on the internet data, the role of Tefta Tashko Koço's son in providing information and elevating the image of his mother, who he never met, is highlighted, and so is the prominent work of journalists in bringing the public as much information and details from the artistic and private lives of these singers. The study shows that television and radio are of little interest to the group of students surveyed to obtain information about these singers, while social networks ranked higher as search tools by the respondents. This also comes within the framework of a trend observed in recent years, where traditional media, such as radio and television, have lost their previous power, in the face of social networks, where more people are using them as one of the main means of information and communication (Alestam, 2022).

Another important element was the information provided by the school during classes or family conversations with the parents of students about getting to know the singers of Albanian lyrical music, which resulted low, of 1.7%. From the review of textbooks in nine-year elementary school and secondary education, these singers are mentioned in passing, not providing information for students to have a clear image for Albanian urban lyric music. Returning to the previous discussion on the selection of the group of respondents, this was one of the intended goals to identify the extent to which these Albanian lyric singers are known in public non-professional music high schools. Of the students surveyed for the singers included in the study, Tefta Tashko Koço is the most well-known with 84.2%, followed by Marie Kraja with 68.4%. If we refer to the internet search for these singers, what is evident is the placement of Marie Kraja's name in an operatic music festival, widely advertised on social networks, television and radio. The conduct of a commercial musical activity, both in the Albanian artistic scene, and its extensive advertising, both in information portals and in the form of videos on the YouTube platform, has influenced the promotion of Marie Kraja's name and work. Despite these, she remains unknown among today's youth. Another interesting fact is about the other lyrical singer Jorgjia Truja Filçe, who, despite being ranked third, has a slight difference with Marie Kraja (57.9%, 68.4% Table 1). In the survey, 52.6% of students did not know any of these Albanian urban lyrical music artists (Table 1). This shows the low interest that today's youngsters have for these singers and the lack of promotion by traditional media, such as television and radio. An intervention by schools at all levels, on the history of Albanian music, would provide more information available to students, so that they would be exposed to the names and

works of these icons. In the survey, it is noted that the most well-known song is "Kur më vjen burri nga stani" by Tefta Tashko Koço (88.9%), but when asked, the students surveyed said that they did not know this song from the original version, but from remixed versions, performed by commercial singers. From the data in Table 3, it is noted that the song "Zare trendafile", also by the same singer, Tefta Tashko Koço, was known to 38.9% of those surveyed. The same approximate information is also found on the YouTube internet platform, where the song "Kur më vjen murri nga stani" is more viewed, compared to the other song "Zare trendafile" (Nallbani, A. 2010, Albanian History, 2016). Much less known among students is another icon of Albanian urban lyrical music, Jorgjia Filçe Truja, with 57.9% of respondents, even though she passed away much later than the other two singers, Tefta Tashko Koço and Marie Kraja. Music plays an important role in the socialization of children and teenagers. Music is present almost everywhere and is easily available through the radio, various recordings, the internet and new technologies, allowing adolescents to listen to it in different environments and situations, alone or sharing it with friends. Parents are often not aware of the lyrics of the songs their children are listening to because they can now download the songs and listen to them in complete privacy, with their headphones. Or they can listen to songs while spending their allotted time on social networks.

Research ("Impact of Music Lyrics and Music Videos on Children and Youth (RE9144)," 1996) on music has explored its effects on homework, social interactions, emotional state and especially behavior. As the new generation is exposed to music that is often violent, with rude words, swearing or presenting a slang, and describing a luxurious lifestyle and beyond the means of a normal Albanian family, the role of schools should be more decisive in suggesting a genre of Albanian music, such as the urban lyric music. This will not only help in promoting the works of artists of this genre, but on the other hand will influence the listening of qualitative music, which represents the Albanian music. This would help that an adolescent, exposed to today's music, have the right perception and effect from the musical messages, which is important. There is a multifaceted impact of music on adolescent culture, examining how music influences various aspects of adolescent life formation, including expression, fashion, language, social norms, and community involvement. Research (Hanzilia et al., 2024) shows that music serves as an important medium for self-expression and creativity, allowing adolescents to articulate their emotions and construct personal and social identities. Music has long been known as a powerful tool for expressing emotions, across a wide spectrum. For example, fast-paced, high-intensity music can convey happiness, while slow-paced, low-pitched music can convey sadness and disappointment (Dovorany et al., 2023). Both spectrums are found in Albanian urban lyric music. Given the remixed forms of lyrical music that appear fast and often at a rhythm that is meaningless to the original, the impact they have on students is negative. Browsing online reviews, this type of form is often conceived as having a negative effect on the formation of behavior during adolescence.

Through listening to urban lyric music, adolescents can easily understand and manage their emotions. Music, especially lyric music, serves as an instrument for emotional regulation, helping individuals to relieve stress, alleviate anxiety, and strengthen self-confidence (Aalbers et al., 2017). Research shows that listening to music can lower levels of cortisol (a stress hormone), thereby reducing stress (Emami et al., 2023). Music also offers social benefits, as it serves as a shared interest and experience and fosters a sense of connection and belonging. For example, sharing musical tastes can strengthen friendships among young people and promote the formation of social identity (Zou & Wang, 2021). Furthermore, participating in group musical activities (such as an orchestra or choir) can help adolescents develop teamwork skills and provide a strong sense of belonging and shared achievement (Cores-Bilbao et al., 2019). Through music, adolescents can freely explore and express their thoughts, emotions, and imagination (Xia et al., 2023). Furthermore, studies have shown that musical training can positively impact intellectual development, particularly improvements in musical training related to mathematical, logical, and spatial intelligence (Kim, J., & Chung, Y. J. 2023).

Although the specific impact of urban lyric music on intellectual development continues to be studied, studies suggest that adolescents who listen to quality music perform better academically than those who do not. Music education plays a key role in shaping the mental health of adolescents. It is necessary that education authorities should prioritize the design of teaching methods, including music courses. Music curricula should include all aspects of music. Teaching methods should focus on student-centered approaches and inspire active participation, exploration, and creative thinking. Innovative teaching techniques, such as project-based learning and collaborative learning, can arouse adolescents' interest and increase their effectiveness in the learning process (Lei H. 2022). Second, education authorities should provide more access to resources for music education. This access includes providing a multitude of resources such as music books, music software, music websites, and organizing a variety of music activities such as concerts, competitions, and festivals.

Conclusion

This study conducted in two non-professional public high schools in Tirana, where 160 students were surveyed about the icons of Albanian urban lyric music, showed that the interest for them was very low, compared to the contribution that these singers have brought to Albanian urban lyric music. Even though their names cross the borders of the Albanian territory, they remain almost unknown to the new generation. Despite the way their songs are broadcast, and put on various internet platforms, such as YouTube, the impact that these songs have on today's youth is very small. The binomial adolescents-urban lyric music is a mutual relationship, where school, family and media have their role in encouraging

and forming young adolescents. The importance of the song lyrics during adolescence is well documented, providing a platform to express oneself, address personal problems and foster connections with others (Choi, K., & Downie, J. S. (2019). Recent studies have highlighted the empowering impact of urban lyric music on young people, fostering optimism about the future and cultivating critical awareness through a process of repeated action and reflection. While existing research on musical complexity has focused primarily on audio-related elements, contemporary research has ventured to assess the complexity of song lyrics (Kwon et al., 2020). Collectively, these findings suggest that the lyrical content of songs has the potential to motivate adolescents to overcome obstacles, gain knowledge, create supportive connections, and envision a promising future, underscoring the constructive impact of music on adolescent growth and well-being.

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PANEL IV

BRIDGING ACADEMIA AND INDUSTRY: INNOVATION AND COLLABORATION IN STEM FIELDS TO SUPPORT ALBANIA'S EU INTEGRATION AND COMPETITIVENESS

Forging Future-Ready Innovators Integrating Security Expertise into EU Digital Curricula

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Abstract

As the digital landscape evolves, so does the complexity of cybersecurity threats, which poses a significant challenge for educational frameworks across the European Union that aim to prepare the next generation of IT professionals. This research seeks to analyze and enhance the integration of security expertise within EU digital education curricula, focusing on developing a comprehensive understanding of current offerings and their alignment with industry needs. The study will begin by conducting a thorough review of existing digital education curricula across various EU institutions to identify the integration level and depth of security-related content. Comparative analyses with global best practices will highlight discrepancies and potential areas for improvement. Stakeholder feedback, gathered through surveys and interviews with educators, students, and industry professionals, will provide qualitative insights into the perceived efficacy and gaps in current educational offerings. Furthermore, this research will engage in longitudinal and impact studies to evaluate the outcomes of students trained under existing frameworks, assessing their preparedness to tackle contemporary cybersecurity challenges. Based on these analyses, the study aims to propose refined educational frameworks and policy recommendations that better incorporate essential security skills. These frameworks will be validated through pilot studies to ensure their effectiveness and adaptability. Ultimately, this research intends to publish its findings in respected academic journals and present at conferences, providing actionable recommendations to policymakers and educational leaders. The goal is to foster an educational environment that not only meets the current demands of the security landscape but also anticipates future needs, thereby enhancing the overall resilience and innovation capacity of the European Union.

Keywords: *Cybersecurity Education, Digital Curriculum Integration, EU Educational Frameworks, Security Skills Gap, IT Professional Training*

Introduction

As the European Union accelerates its transition toward a secure and innovation-driven digital society, cybersecurity has emerged as a strategic priority not only in policy and infrastructure, but also in education. The increasing complexity and frequency of cyber threats demand a comprehensive response from higher education institutions, which must prepare graduates with not only technical expertise, but also competencies in data protection, risk governance, and regulatory compliance. The European Cybersecurity Skills Framework (ECSF) and the Digital Education Action Plan (2021–2027) emphasize the role of universities and vocational education institutions in equipping learners for cybersecurity-critical roles.

In Albania, where alignment with EU standards is both a national objective and a requirement for integration, legal developments have marked significant progress—most notably with Law No. 124/2024 (on personal data protection, in accordance with the GDPR) and Law No. 25/2024 (on national cybersecurity). However, these frameworks have yet to be systematically embedded into university curricula. A recent curriculum review of programs across Europe—focusing on cloud computing and cybersecurity—highlighted inconsistencies in how digital security is integrated into educational pathways. Furthermore, insights gathered through a national-level academic and policy focus group emphasized the lack of interdisciplinary structures, the limited availability of hands-on security training, and the insufficient collaboration between academic institutions and industry. This paper explores these systemic challenges and presents evidence-based recommendations for aligning higher education curricula with emerging cybersecurity standards and market needs, with a focus on Albania's digital and institutional context.

Research Aim, Questions, Hypothesis, and Objectives

Research Aim:

This study aims to evaluate the extent to which European cybersecurity and cloud computing curricula align with the European Cybersecurity Skills Framework (ECSF), and to explore how these models can guide Albania's higher education institutions in integrating legal, technical, and practical components of digital security education.

Research Questions:

1. To what extent do current European higher education programs incorporate ECSF-aligned competencies, GDPR awareness, and practical cybersecurity training?
2. What institutional, legal, and pedagogical challenges hinder the adoption of such competencies in Albanian curricula?

Hypothesis:

Although the EU has introduced comprehensive frameworks for cybersecurity education and digital skills development, there remains a significant implementation gap at the institutional level. While Albania has recently aligned its legislation with EU standards (e.g., Law No. 25/2024 on Cybersecurity and Law No. 124/2024 on GDPR), these frameworks have not yet been fully operationalized in higher education curricula, particularly in interdisciplinary and hands-on learning formats.

Research Objectives:

- To review and compare cybersecurity and cloud computing curricula across selected European universities.
- To assess the degree of alignment between these curricula and the ECSF role profiles and EU digital education priorities.
- To explore how legal and regulatory dimensions (e.g., GDPR) are reflected in academic programs.
- To analyze expert stakeholder perspectives on curriculum gaps, challenges, and reform opportunities in the Albanian context.
- To propose actionable recommendations for integrating ECSF-aligned, practice-based cybersecurity competencies into Albanian higher education systems.

Literature Review

The Cybersecurity Workforce Gap in Europe

The European Union (EU) is experiencing a significant shortage of cybersecurity professionals. The 2024 $(ISC)^2$ Cybersecurity Workforce Study reports a regional gap of approximately 348,000 professionals—an increase of nearly 10% from the previous year—placing many organizations at moderate to extreme risk due to understaffing ($(ISC)^2$, 2024). ENISA likewise emphasizes that this shortfall is exacerbated by an outdated educational pipeline that fails to respond dynamically to evolving industry needs (ENISA, 2022).

The Role of ECSF in Curriculum Alignment

To address the fragmentation of skill development, the European Union Agency for Cybersecurity introduced the European Cybersecurity Skills Framework (ECSF). This framework defines 12 professional profiles and articulates the knowledge, skills, and abilities (KSAs) associated with each role (ENISA, 2022). However, studies show slow adoption at the institutional level. Aalto University (2023) found that while ECSF is acknowledged by most academic leaders, few programs in EU universities have formally mapped their learning outcomes to it (Aalto University, 2023).

Digital Education Strategy and Implementation Gaps

The European Commission's *Digital Education Action Plan (2021–2027)* underscores the need to modernize educational ecosystems and strengthen digital competencies across all learning pathways. It explicitly identifies cybersecurity as a strategic priority and calls for curriculum reform and faculty training to address this need (European Commission, 2021). However, despite these policy directions, implementation remains patchy. OECD and UNESCO assessments suggest that integration is hindered by outdated teaching practices, a lack of interdisciplinary coordination, and insufficient institutional incentives (OECD, 2021; UNESCO, 2022).

Barriers to Curriculum Integration

Recent research by Vykopal et al. (2024) highlights that many cybersecurity programs focus heavily on technical theory, while neglecting practical competencies such as penetration testing, threat modeling, or secure cloud deployments. In addition, legal and ethical education—central to compliance and policy roles—remains siloed in law departments, making cross-training rare (Vykopal et al., 2024). This leaves graduates ill-prepared for complex real-world challenges that combine technical and regulatory risks.

Southeast Europe: A Regional Case

The challenges are amplified in Southeast Europe. A curriculum assessment by the Gordon Institute at Florida International University found that in countries such as Albania and North Macedonia, cybersecurity education is rarely a mandatory component of undergraduate IT programs (FIU Gordon Institute, 2023). The same study found minimal interdisciplinary collaboration between law and engineering faculties and limited exposure to international frameworks such as GDPR and ECSF (FIU Gordon Institute, 2023). These structural limitations contribute to persistent gaps in readiness among graduates entering public or private security roles.

Toward Interdisciplinary and Regulatory Education

UNESCO (2022) advocates for cybersecurity education models that combine technical depth with legal and ethical fluency. This view is supported by the World Economic Forum, which notes that the most resilient organizations are those whose cybersecurity teams can interpret legal risks and participate in governance, not just respond to incidents (World Economic Forum, 2023). As digital systems grow more regulated and interconnected, higher education must prepare students for a hybrid role at the intersection of compliance, security engineering, and digital ethics.

Methodology

This study employs a qualitative exploratory methodology aimed at understanding the integration of cybersecurity and cloud computing competencies within European higher education curricula, with a specific focus on how these insights can inform Albania's ongoing digital education reforms. The methodological approach combines a comparative curriculum analysis with expert-based consultation through a structured national focus group. In light of Albania's legislative advances through Law No. 124/2024 (GDPR) and Law No. 25/2024 (Cybersecurity), it is essential to explore how academic curricula can become strategic tools for compliance, risk management, and digital innovation. This study employs both exploratory and comparative techniques to address this intersection of education, law, and emerging technologies. The multi-source approach acknowledges the complexity of curricular evolution in response to European policy instruments and the urgency of preparing a cybersecurity-competent workforce.

Research Design

The study adopts a dual-method research design that leverages both comparative and consultative data sources to enhance triangulation, analytical rigor, and interpretive validity. In qualitative research, triangulation refers to the process of using multiple methods or data sources to develop a comprehensive understanding of phenomena, thereby increasing the trustworthiness and reliability of findings (Denzin, 1978; Patton, 2015). This approach is particularly suited to studies that investigate the interaction between educational policy, institutional practice, and regulatory change.

Document Analysis

The first component of the methodology is a comparative document analysis conducted on the curricula of selected European academic programs in the domains of cloud computing and cybersecurity. This method involves the systematic review and

interpretation of textual data—such as syllabi, course catalogs, program handbooks, and institutional strategy documents—to uncover patterns, trends, and variations across institutions (Bowen, 2009). The review focused on identifying the explicit or implicit integration of the European Cybersecurity Skills Framework (ECSF) role profiles, including Threat Intelligence Specialist, Network Security Administrator, and Cybersecurity Educator, as well as the inclusion of General Data Protection Regulation (GDPR) content and practical skill-building modules, such as cloud infrastructure deployment, cybersecurity labs, or industry certification preparation (e.g., AWS, Microsoft Azure).

This level of analysis allows for a macro-level comparison of curriculum structures across different national systems and institutional types, identifying both convergences and discrepancies in how digital competencies are operationalized in academic contexts. It also facilitates an understanding of how legal mandates, such as the GDPR or NIS2 Directive, are being interpreted and translated into educational objectives.

Focus Group Consultation

The second component of the methodology consists of a structured expert focus group, convened to gather qualitative insights from stakeholders within Albania's digital education ecosystem. The focus group methodology is widely recognized in policy-oriented educational research for its ability to generate in-depth understanding of perceptions, challenges, and future scenarios (Krueger & Casey, 2015). This session brought together key actors from academia, government, and industry—including cybersecurity officials, legal experts, and faculty members—who offered unique perspectives on the alignment (or lack thereof) between national policy instruments and current academic practices in cybersecurity education.

Unlike the document analysis, which provides an external benchmarking lens, the focus group allows for a micro-level investigation of domestic implementation barriers, institutional capacities, and governance bottlenecks. Participants addressed questions regarding:

- The practical implications of Albania's Law No. 124/2024 and Law No. 25/2024 for higher education institutions;
- The perceived readiness of academic programs to respond to ECSF competencies;
- Challenges in developing interdisciplinary content that combines legal, ethical, and technical training;
- The need for closer cooperation between universities and regulatory bodies such as the National Cyber Security Authority.

The focus group was designed using a semi-structured format that included open-ended prompts, scenario-based discussion, and structured reflection. This format enables participants to explore key issues in depth while also allowing the researcher to guide the discussion toward the study's objectives.

Integrated Value of the Dual-Method Design

By combining these two methodological components, the study balances comparative benchmarking with contextual relevance. It simultaneously illuminates how leading European institutions are designing cybersecurity programs in response to EU policy directives, and how Albania can interpret and adapt these lessons within its own institutional and regulatory environment.

This dual-method approach reflects best practices in policy-oriented educational research, as articulated by Yin (2017), who emphasizes the need for multi-level data integration in cases involving organizational reform and public sector change. It also aligns with recommendations from the European Commission's Joint Research Centre (JRC), which advocates for evidence-informed policymaking through combined empirical and stakeholder-based analysis (Vuorikari et al., 2020).

Institutional Selection and Sampling Strategy

The study focuses on a purposive sample of eight European institutions offering dedicated programs in cloud computing, cybersecurity, or adjacent digital innovation domains such as artificial intelligence and information governance. The purposive sampling strategy, commonly employed in qualitative educational research, enables researchers to select cases that are information-rich and contextually relevant to the research problem (Palinkas et al., 2015). In this case, institutions were selected not for statistical representativeness, but for their strategic relevance to digital skill-building in line with European policy frameworks such as the Digital Education Action Plan (2021–2027) and the European Cybersecurity Skills Framework (ECSF).

The selection criteria were defined as follows:

1. **Geographical Diversity**: Institutions were drawn from multiple regions within the European Higher Education Area (EHEA), including both Western and Eastern Europe, and both EU Member States (e.g., Ireland, Romania) and Brexit-impacted jurisdictions (e.g., the United Kingdom). This diversity was intended to illuminate regional variations in curriculum design, particularly in response to differing regulatory and labor market pressures.

2. **Document Accessibility and Transparency:** Only programs with publicly accessible, English-language curriculum documentation were included. These documents—such as program handbooks, module descriptors, and official websites—formed the primary data sources for comparative analysis. This criterion ensured methodological transparency and allowed for consistent comparison across institutions without the need for translation or institutional gatekeeping.
3. **Engagement with European Digital Education Initiatives:** Preference was given to institutions that are active participants in Erasmus+, Horizon Europe, or other EU-funded digital capacity-building projects. This criterion reflects the assumption that such institutions are more likely to align their curricular offerings with evolving European digital strategies and skill frameworks. Their participation in transnational projects also signals a commitment to curriculum modernization and pedagogical innovation.

The programs selected for analysis include a range of Master's and Postgraduate Diploma offerings, reflecting a deliberate emphasis on advanced-level education. This focus acknowledges the critical role that postgraduate education plays in professional specialization, continuing education, and lifelong learning—a priority area in EU policy for digital upskilling and reskilling. Postgraduate programs also tend to feature greater curricular flexibility and opportunities for interdisciplinary integration, such as the inclusion of legal, ethical, and managerial content alongside technical modules.

Examples of such programs include the MSc in Cloud Computing at Newcastle University, which offers optional modules on cloud security architecture, and the Postgraduate Diploma in Cloud Computing and Software Development at the University of Galway, which integrates Agile methodologies with regulatory compliance training. Other programs, such as the MSc in Cloud Computing and IoT at Politehnica University of Timișoara, explicitly mention data protection frameworks within their course descriptions—offering rich material for assessing ECSF role alignment.

By concentrating on institutions that already engage with European-level priorities, the study ensures that the analysis remains forward-looking, policy-relevant, and representative of best practices that could inform Albania's digital education reform agenda.

Data Collection Instruments and Criteria

Curriculum data were collected using a standardized research template, collaboratively developed by academic partners within a broader Erasmus+ project consortium. While the consortium is not named here to preserve reviewer anonymity during peer review, the template reflects collective expertise from multiple EU higher education institutions engaged in digital education capacity-building. The use of such a structured instrument ensures methodological consistency, allowing for cross-case comparability while maintaining sensitivity to institutional and national differences.

The template was specifically designed to facilitate systematic extraction and classification of curricular information across multiple dimensions deemed critical for assessing alignment with the European Cybersecurity Skills Framework (ECSF) and related EU digital education priorities. The data collection framework encompassed the following six core categories:

1. Program Structure: This category included degree level (e.g., postgraduate diploma, MSc), the presence of core and elective modules, ECTS credit distribution, and program duration. Structural features were analyzed to determine how curricular time and weight are allocated across theoretical, technical, and applied learning domains.
2. Learning Outcomes and Competency Mapping: Particular attention was given to the explicit or implicit inclusion of ECSF-aligned competencies, such as cyber incident response, network defense, secure software development, and data protection governance. The presence of interdisciplinary outcomes—spanning law, ethics, management, and engineering—was also recorded as a measure of curricular comprehensiveness.
3. Assessment Modalities: The template captured the presence of project-based learning, laboratory simulations, group assignments, internships, hackathons, and capstone projects. These forms of experiential and performance-based assessment are considered best practices for skills validation in applied cybersecurity education (Biggs & Tang, 2011).
4. Legal and Policy Integration: One of the core evaluative dimensions was the inclusion of legal and regulatory content, especially concerning GDPR compliance, national cybersecurity strategies, and EU digital policies. Modules that referenced Law No. 124/2024 (on GDPR) or equivalent EU legislation were flagged as particularly relevant to Albania's current reform trajectory.
5. Practical Content and Hands-on Training: The presence of cloud labs, sandbox environments, risk assessment simulations, and penetration testing modules was analyzed to determine the degree of hands-on learning. Programs that integrate industry platforms (e.g., AWS Academy, Microsoft Learn for Educators) were also noted, as these enhance employability and credential portability.
6. Micro-Credentials and Lifelong Learning Tracks: Finally, the review examined whether programs offered stackable modules, continuing education certificates, or micro-credentials—in line with the European Commission's vision for modular, flexible learning ecosystems. This was seen as a proxy for alignment with lifelong learning and professional reskilling agendas.

Each program was reviewed independently by researchers using the template, and qualitative notes were captured to document both content and context. Following individual review, the findings were consolidated into comparative matrices that enabled the identification of thematic convergence and divergence across institutions. For instance, while several programs included cybersecurity fundamentals, fewer explicitly addressed legal compliance or interdisciplinary ethics. The matrices also highlighted variability in the extent to which hands-on skills were scaffolded across semesters, and whether practical elements were assessed summatively or formatively.

This process of systematic comparison allowed for the construction of a cross-institutional typology, offering insights into shared practices, notable innovations, and persistent gaps in cybersecurity and cloud computing education. It also provided a structured basis for triangulation with the findings of the expert focus group.

Institutions Analyzed

The institutions reviewed are as follows:

Institution	Country	Program Title	Level
University of Galway	Ireland	Postgraduate Diploma in Cloud Computing & Software Dev.	Postgraduate
University of East London	United Kingdom	MSc Cloud Computing	Master
Politehnica University of Timișoara	Romania	MSc Cloud Computing and Internet of Things	Master
Dublin Business School	Ireland	Diploma in Cloud Computing	Postgraduate
University of Limerick	Ireland	MSc in Artificial Intelligence	Master
Newcastle University	United Kingdom	MSc in Cloud Computing	Master
University of Lincoln	United Kingdom	MSc in Cloud Computing	Master

(*Note: Due to ongoing data collection across partner institutions, this table is representative but not exhaustive.*)

Focus Group Consultation

To supplement the institutional curriculum review and to embed contextual understanding within the study, a **structured expert focus group** was conducted on **March 10, 2025**, hosted at the **European University of Tirana (UET)**. The aim of this session was to collect **qualitative insights** from national stakeholders on Albania's current capacity—and future readiness—to align its higher education landscape with **European cybersecurity competency frameworks** and **data protection standards**.

Focus groups are a well-established method in policy and educational research for uncovering **collective reasoning, shared concerns, and expert foresight** (Krueger & Casey, 2015). They are particularly valuable when exploring issues that are influenced by policy uncertainty, organizational fragmentation, or evolving regulatory environments—characteristics that define Albania's current phase of digital transition.

Participant Composition and Expertise

The session engaged **seven participants**, selected through purposive sampling to reflect a diverse spectrum of expertise. This diversity ensured that the conversation captured multiple stakeholder perspectives, particularly those bridging the gap between **policy design** and **educational implementation**. Participants included:

- A senior official from the National Cyber Security Authority (CSIRT Albania), offering insight into the operational implications of Law No. 25/2024.
- A legal advisor with specialization in GDPR compliance, contributing knowledge of data protection laws and their educational applications.
- Two faculty members with expertise in computer science and legal informatics, providing insight into curriculum design.
- Representatives from two private-sector companies—Smart Tech Solution and Cyber Morphosis—with backgrounds in security auditing, AI-driven risk assessment, and digital certification programs.
- A representative from NYU Tirana, focusing on interdisciplinary teaching of technology ethics.

Participants were invited via formal email and were provided with an **informed consent form** outlining the study's purpose, data usage protocols, and confidentiality guarantees. The session was held in-person and lasted approximately two hours.

Focus Group Format and Question Framework

The session was structured using a **semi-structured discussion guide**, developed by the research team. The guide consisted of both **open-ended exploratory prompts** and **scenario-based questions** designed to provoke reflection on real-world implementation challenges. Key discussion domains included:

1. **Policy Alignment**: To what extent are Law No. 25/2024 (Cybersecurity) and Law No. 124/2024 (on GDPR) aligned with the educational principles embedded in the European Cybersecurity Skills Framework (ECSF) and the Digital Education Action Plan (2021–2027)?
2. **Curriculum Gaps**: What legal, technical, or pedagogical content is missing or underrepresented in current Albanian higher education offerings?
3. **Cross-sector Collaboration**: How can cooperation between academia, industry, and government be institutionalized to support cybersecurity training ecosystems?
4. **Future-Oriented Competencies**: What are the anticipated future needs (e.g., quantum-safe algorithms, AI-driven cyber threats), and how should curricula evolve to meet them?

This approach allowed the research team to balance flexibility—letting themes emerge organically—with analytical focus, ensuring alignment with the study's core objectives.

Data Collection and Analysis

The focus group was recorded (with verbal consent) and supported by detailed notetaking. Audio recordings were transcribed verbatim, and data were anonymized to protect participant identity. The transcripts were subjected to **thematic analysis**, following the six-phase framework of Braun and Clarke (2006):

1. Familiarization with the data
2. Generation of initial codes
3. Searching for themes
4. Reviewing themes
5. Defining and naming themes
6. Producing the report

Codes were initially derived from the guiding questions (e.g., "compliance pressure," "curriculum inertia," "AI threats") and were expanded based on emergent concepts during the discussion. The analysis surfaced several **key thematic clusters**, including:

- **Institutional Fragmentation**: Many participants highlighted the lack of coordination between departments (e.g., law, computer science, public administration), which impedes the development of interdisciplinary modules combining legal and technical cybersecurity training.
- **Curricular Obsolescence**: Stakeholders expressed concern that existing programs remain overly theoretical, with limited exposure to real-world or simulated security environments (e.g., no lab work on network monitoring or incident response).
- **Compliance-Driven Reform vs. Educational Vision**: While Albania's alignment with GDPR and cybersecurity legislation was recognized as a legal achievement, participants cautioned that **curricular reform should not become merely reactive**—focused on compliance—without a parallel investment in pedagogy, infrastructure, and faculty training.
- **Emergent Skills and Foresight Gaps**: Participants raised future-oriented concerns related to **quantum computing**, **machine learning in threat detection**, and the need for **quantum-resilient curricula**—domains not yet addressed in current Albanian academic offerings.

3.6 Ethical Considerations and Analytical Limitations

This study was conducted in full accordance with ethical research standards as defined by the European Code of Conduct for Research Integrity (ALLEA, 2017) and institutional guidelines for qualitative inquiry in higher education.

All institutional data were derived from publicly available sources, such as university websites, course catalogs, and official curriculum documentation. In cases where data were obtained through internal academic templates or unpublished syllabi, these were reviewed with the informal approval of university partners involved in the broader Erasmus+ project consortium. At no point were confidential materials requested or disclosed, and no proprietary content was published.

For the focus group, participants were informed in advance of the session's objectives, data usage protocols, and confidentiality safeguards. Verbal consent was obtained prior to recording, and participants were reminded that their contributions would be anonymized and used exclusively for research purposes. Transcriptions of audio recordings were stored securely and pseudonymized to prevent personal or institutional identification. Participants were also offered the opportunity to review synthesized findings for accuracy prior to analysis, in line with participant validation best practices (Birt et al., 2016).

In terms of methodological limitations, several constraints must be acknowledged:

- Linguistic Constraints: The decision to include only programs available in English may have led to the exclusion of high-quality curricula developed in local languages (e.g., German, French, Dutch, Polish), particularly those that may reflect national digital education strategies or novel interdisciplinary approaches. As such, the sample may slightly favor institutions with an internationalization agenda rather than those primarily serving domestic populations.
- Informal Learning and Hidden Curricula: The review focused strictly on formal academic offerings. It did not account for informal pedagogical activities such as industry-led workshops, student clubs, cybersecurity competitions (CTFs), or ad hoc bootcamps—despite their increasing importance in skill-building ecosystems. These informal elements often provide cutting-edge, hands-on experience that complements formal learning but are difficult to capture systematically across institutions.
- Variable Curriculum Transparency: Not all universities provide equally detailed documentation. Some institutions offer comprehensive course descriptors and syllabi, while others limit their online presence to high-level overviews. This variation in transparency may have introduced gaps or inconsistencies in the data collected, particularly when evaluating the depth of technical training or the presence of interdisciplinary modules.
- Focus Group Composition: While the focus group featured a strategically diverse set of stakeholders, the sample size was modest (n=7) and rooted within the Albanian context. Therefore, while the discussion produced valuable thematic insights, the generalizability of the findings is limited. Broader regional trends or sector-specific challenges may not be fully represented.

Nonetheless, the use of a triangulated methodology—combining cross-national curriculum analysis with localized expert input—ensures a robust and context-sensitive understanding of the current state and future trajectory of cybersecurity education. The strengths of the research lie in its ability to bridge policy frameworks (e.g., ECSF, GDPR), institutional curricula, and practitioner realities, thereby contributing meaningfully to ongoing efforts to modernize digital education in the Western Balkans and beyond.

Findings and Discussion

This chapter presents the key findings from both components of the study: (1) the comparative curriculum review of eight European higher education institutions and (2) the structured expert focus group held in Tirana. These findings provide a nuanced understanding of Albania's current educational positioning relative to European benchmarks and offer evidence-based insights for future curriculum reforms in cybersecurity and data protection.

Curriculum Analysis Results

The analysis of eight postgraduate-level programs across European universities revealed a mix of promising practices and areas for growth, particularly when mapped against the European Cybersecurity Skills Framework (ECSF) and the priorities of the Digital Education Action Plan (2021–2027).

Regulatory Integration: Six out of eight programs included legal and regulatory components related to the General Data Protection Regulation (GDPR), and three offered dedicated courses on cybersecurity law or digital ethics. For instance, the MSc in Cloud Computing and IoT at Politehnica University of Timișoara includes a legal compliance module, while the University of Galway embeds GDPR within broader discussions on secure software development.

Hands-on Learning: A strong emphasis on practical experience was identified in all programs, through the use of cloud labs, simulated environments, and capstone projects. Several institutions, such as the University of East London and Newcastle University, offer access to industry tools and certifications (e.g., AWS, Azure) to prepare students for real-world cybersecurity challenges.

ECSF Role Mapping: While few programs explicitly referenced ECSF, analysis showed alignment with roles such as "Network Security Administrator," "Cybersecurity Analyst," and "Digital Forensics Specialist." However, roles requiring legal-technological integration, like "Cyber Legal Advisor" or "Privacy Officer," were largely missing—underscoring the underdevelopment of cross-disciplinary competencies.

Micro-credentials and Modularity: Institutions in the UK and Ireland demonstrated the most progress in implementing modular and stackable credentials. This was particularly evident in Dublin Business School and the University of Lincoln,

where short-term certificates were offered alongside longer degrees, enabling flexible and lifelong learning aligned with EU upskilling strategies.

Cross-disciplinary Integration: Despite the presence of technical and legal components in many programs, few offered true interdisciplinary coursework bridging computer science, law, ethics, and public policy. Programs remained mostly siloed within technical faculties, limiting broader comprehension of cybersecurity's societal and regulatory dimensions.

Focus Group Insights

The structured focus group conducted on March 10, 2025, brought together seven experts from academia, regulatory bodies, and the private sector. The thematic analysis of the discussion revealed several recurring concerns and priorities:

1. **Institutional Fragmentation**
   Participants emphasized the lack of coordinated efforts across university departments. Cybersecurity was often confined to IT faculties, while law and public administration programs had minimal technical content. This organizational structure hindered the development of comprehensive cybersecurity programs that reflect the multidimensional nature of real-world cyber risk.
2. **Practical Training Deficiencies**
   Stakeholders consistently pointed to the absence of practical infrastructure—labs, internships, and simulation platforms—within Albanian programs. While legal compliance content had increased since the adoption of Law No. 25/2024 (Cybersecurity) and Law No. 124/2024 (on GDPR), this had not yet translated into applied pedagogical reforms. Students were not sufficiently prepared to handle security incidents, perform risk assessments, or use penetration testing tools.
3. **Risk of Surface-Level Compliance**
   A strong consensus emerged that universities might be pursuing a "tick-box" approach to legal alignment—adding GDPR or cybersecurity laws to syllabi without redesigning curricula to incorporate applied or critical thinking elements. Experts stressed the need to avoid compliance-driven minimalism and instead foster active, engaged, and contextually aware learning.
4. **Forward-LookingCurriculum Needs**
   Participants highlighted emerging competencies not yet reflected in current academic programs—particularly those related to **quantum computing**, **machine learning in cybersecurity**, and **AI governance**. There was concern that Albania might fall behind in anticipating the next wave of cybersecurity threats unless curricula are continuously updated and faculty are supported in staying current.

Implications for Albania

The combination of curriculum analysis and focus group insights provides a comprehensive overview of Albania's digital education readiness:

- Compared to their European counterparts, Albanian programs show **foundational legal alignment** but are less mature in terms of **pedagogical innovation** and **cross-sector collaboration**.
- While European universities are moving toward **flexible, modular learning ecosystems**, Albanian programs remain rooted in traditional degree structures, limiting responsiveness to labor market and technological shifts.
- There is a general **lack of interdisciplinary synthesis**, both within Albania and, to a lesser extent, across Europe. However, Albania's starting point presents a unique opportunity: it can learn from EU innovations and **leapfrog structural inefficiencies** through targeted investment and policy support.

The dual-method approach employed in this study ensures that both the macro-level trends (from curricula) and micro-level realities (from stakeholders) are captured. This strengthens the validity of the recommendations and underlines the urgency of integrating **regulatory, technical, and experiential dimensions** in cybersecurity education

Conclusion and Recommendations

This study has examined the readiness of Albanian higher education institutions to integrate European cybersecurity competencies, using a triangulated methodology that combined comparative curriculum analysis and expert stakeholder consultation. By benchmarking eight postgraduate programs across Europe and conducting a focus group with national experts, the research has illuminated key gaps, emerging opportunities, and actionable priorities for aligning with the European Cybersecurity Skills Framework (ECSF) and the broader Digital Education Action Plan (2021–2027).

Summary of Key Findings

Three major insights emerged from the analysis:

- Partial Alignment with EU Competencies: While some Albanian institutions have begun introducing legal and technical cybersecurity topics, there remains a lack of systematic integration of ECSF role profiles and competency frameworks in curriculum design.
- Insufficient Interdisciplinary and Practical Components: Current programs tend to separate technical content from legal and ethical training, with limited opportunities for hands-on experience or cross-departmental collaboration.
- Policy Over Pedagogy: Although legislative progress (notably Law No. 25/2024 and Law No. 124/2024) provides a legal foundation for reform, curricula have not yet evolved in parallel, resulting in compliance without pedagogical transformation.

These findings suggest that Albania's academic system is still in the early phases of digital curriculum modernization and will require both structural and pedagogical investment to meet EU standards.

Policy and Institutional Implications

To ensure meaningful and sustainable integration of EU digital competencies into Albanian higher education, reforms must extend beyond legislative transposition. Effective change requires a whole-system approach involving academic leadership, faculty development, curriculum design, and cross-sector collaboration.

International models indicate that successful implementation is contingent on three pillars:

- Clear alignment with EU frameworks such as ECSF, DigCompEdu, and the European Skills Agenda.
- Active engagement with industry and cybersecurity stakeholders to ensure applied learning.
- Institutional coordination that bridges disciplinary silos and fosters modular learning.

The study also highlights the role of Erasmus+ and Horizon-funded projects as catalysts for curriculum innovation, offering strategic partnerships, mobility opportunities, and funding for educational reform.

Recommendations

Based on the evidence collected, the following recommendations are proposed:

Short-term (0–1 year)

- Curriculum Audit: Conduct internal reviews at Albanian universities to assess the presence of cybersecurity and data protection content, using ECSF as a benchmarking tool.
- Faculty Development Workshops: Train academic staff—especially in non-technical faculties—on GDPR, cybersecurity law, and emerging threat landscapes.
- Pilot Micro-Credentials: Launch small-scale credential programs (e.g., on cloud security or privacy engineering) that can be embedded within existing degrees.

Medium-term (1–3 years)

- Develop Interdisciplinary Programs: Create joint degree or certificate programs between computer science, law, and business faculties focused on digital risk management and governance.
- Establish Cyber Labs: Invest in university-based digital labs equipped with virtualized cybersecurity training platforms and cloud infrastructure tools (e.g., AWS Academy, Azure Sandbox).
- Formalize Academia-Government-Industry Collaborations: Establish advisory councils or joint task forces to regularly align education objectives with labor market needs.

Long-term (3–5 years)

- National Framework Adoption: Develop a national digital education framework aligned with ECSF and DigCompEdu, with dedicated funding for implementation.
- Support Research and Innovation in Cybersecurity: Foster applied research through academic-industry collaboration on areas such as AI-driven security and quantum-resistant cryptography.

- Mainstream Lifelong Learning Tracks: Institutionalize modular learning, stackable certifications, and continuous professional development for cybersecurity across all sectors.

Future Research Directions

This study opens several avenues for further research:

A broader curriculum review including non-English-speaking institutions would offer deeper comparative insight.
Quantitative surveys with students and faculty could complement qualitative findings and assess perception gaps.
Longitudinal studies tracking implementation of ECSF-aligned reforms in Albania would measure impact and progress.

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The progress of constructions in our country over the years and the reflection of technical requirements in them

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Abstract

All activities of human life are subject to and must respect various rules and norms, natural or social, which may be the result of individual experience, collective experience or elaborate Norms and Regulations, with value and obligation to be implemented for the entire group. The same applies and must be taken into account in the field of construction of various objects, from which we highlight the progress of construction and realization over the years of residential buildings and facilities in our country. Thus, through this material, we will follow some of the differences in this field, at different times of the development of our country, both economic and socio-political, through the treatment, highlighting of different characteristics or even the comparison of construction systems, etc. of their realization. Regarding the above, the treatment will summarize objects realized from the 1940s, in the years of the socialist system and onwards up to 1990. I would like to take this opportunity to especially thank the Central Technical Building Archive for the materials provided, which were necessary and indispensable for the development of this material.

***Keywords**: Constructions; buildings, residential buildings; rules; norms.*

Introduction

General Overview

In order to highlight the development of knowledge, and the application of experience achievements, "personal" conclusions, their generalization and, step by step, Recommendations or Technical Requirements from the Norms with

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legal force, etc. in the field of construction over time of various objects in our country, we will seek to take a "quick look", from year to year, through the treatment of constructions realized in different eras of the development of our country.

Through this "look", we will highlight their consideration of the norms or technical requirements of the time of realization as well as their compliance or not with recommendations, normative or current legal requirements.

Regarding the above, from the various construction objects, residential objects will be treated as follows:

The "Italian" influence:	year 1940	Laprake	2 floors	masonry
The "Russian" influence:	year 1958	TIP 2B	2 floors	masonry
The "Albanian period":	year 1959	TIP 59.1	4 floors	masonry
	year 1962	TIP 62_6	5 floors	m. silikate
	year 1979	TIP prefabricated	5 floors	b.a
	year 1983	TIP 83_2 – 7/8 grade	5 floors	masonry
	year 1983	Rr. Barikadave	8/9 floors	r.c. str.

Literature review

The typology

Field of use of treated objects

The objects treated in this study are residential buildings, with 2, 5 or more floors, separate or complex, realized in different periods of the development of our country, bringing with them and presenting the features of their conception, design and realization, both in materials, and even more in the architectural choice, the planimetric form, the supporting structure with the elements used for their realization, etc. Among them, we can distinguish structures with "traditional" masonry with red bricks, or with silicate bricks, according to the year of their realization. The supporting structure in most cases is simple masonry or, in some other cases, a masonry supporting structure, with red or silicate bricks, "reinforced" with connecting columns of b.a. at the joints/corners of the masonry. Furthermore, in the construction of these buildings, the load-bearing function is also ensured by the use of reinforced concrete structures, in the form of beam/column elements in reinforced concrete frames or in the form of prefabricated panels.

Seismic Load

The effect of the earthquake, through the seismic load, is considered or not, in accordance with the time or period of realization of these objects.

Thus, we have objects designed without taking into account the seismic action, this is valid for constructions in areas with lower seismicity or a maximum of 6 Ballë, just as following the earthquakes that occurred in our country and the lessons or experience gained from observing the respective effects, as well as contemporary achievements, we have objects designed taking into account the seismic action on them, for its different possible intensity, from 7 to 8 and up to 9 grade.

However, it is worth noting that in all cases, both for constructions in "Seismic Zones" and for constructions in "Zones with low or negligible seismicity", the layouts of the objects under study, as well as the various details in their realization, generally respect the required, necessary or even indispensable recommendations for constructions in seismic zones. Considering that our country is a country with high seismicity in every corner of it, the above has caused that over time, even under the action of these seismic loads, these objects react satisfactorily, without having or showing damage or weaknesses, both in functionality and, most importantly, in load-bearing capacity.

Characteristics of Materials

The objects under study are mainly realized with a masonry bearing structure, with red bricks or with silicate bricks. In special cases, and this after various seismic events, this structure has been "reinforced" with columns of lightly reinforced concrete, cast in place at the intersections of the bearing masonry, combined with reinforced concrete belts at the slab level.

Furthermore, we also have the realization of these objects with a bearing structure of reinforced concrete, in the form of columns and beams in the entirety of the frames often prefabricated, and even in the form of complete panels generally prefabricated of reinforced concrete.

The horizontal structure of the covering, in the case of the roof, has been realized with wooden trusses and tiled roofing, while the horizontal structure of the mezzanine or terrace, has been realized with reinforced concrete slabs. monolithic, cast in place, and in other cases through the use of prefabricated beams of b.a. and bricks with ears or through prefabricated panels of b.a., mainly those with round-holed voids.

The basic materials used, masonry, concrete or reinforcement, have had the following characteristics:

Masonry

(1) The masonry is made of M75 bricks and 1:2 mortar or M50 mortar;
(2) In the case of red brick masonry buildings with up to 6 floors could be built, while in the case of silicate brick masonry the construction of buildings was limited to 5 floors;
(3) In some cases, in the construction of 8 cm thick partition masonry, their connection is provided by placing 6 mm rods every 30 cm.

Concrete

(1) Monolithic concrete structures that are concreted in place are implemented with M-110 kg/cm^2 concrete;
(4) Prefabricated concrete structures are implemented with M-140 concrete or, in recent years, with M-200 kg/cm^2 concrete.

Reinforcement

(1) The reinforcement used in the various elements, in these periods of the realization of various objects, is smooth reinforcement, Ç-0 to Ç-3, i.e. with resistance values up to 2100 kg/cm^2.

Recommendations, Conditions and Technical Standards

In this material, we have focused on highlighting and comparing the different construction criteria applied to different objects over time, viewing them through the prism of the Recommendations or Basic Technical Requirements of the Norms, such as, mainly:

Technical Norms - KTP, legally in force in our country

FIG. 1: Technical Design Conditions KTP 1978 and KTP-N.2-89



based on and taking into account the emphasis required in the various points and sub-points therein, suchas: as well as in:

FIG. 2: Principles, Recommendations and Requirements from the 1978 CPC



FIG. 3: Principles, Recommendations and Requirements as per KTP-N.1-89

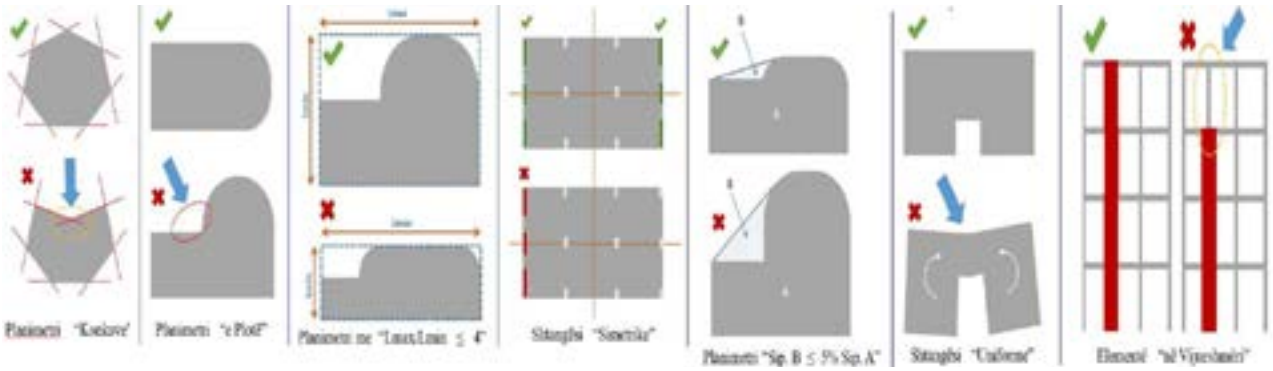


FIG. 4: EN 1990 (2002) and EN 1998-1 (2004) and Eurocode 8 / 1



based on and taking into account the Basic Principles of Structural Design, listed, highlighted, explained and required therein, as follows:

(1) Structural simplicity;
(2) Uniformity and symmetry;
(3) Bidirectional strength and stiffness;
(4) Torsional resistance and stiffness;
(5) Diaphragmatic behavior of the mezzanine;
(6) Adequate foundations (suitable).



Discussions: Characteristics and comparisons between the objects under study

Year 1940: Lapraka, 2nd Floor – masonry, Italian influence

FIG. 6: Plan and Longitudinal Section of the Facility

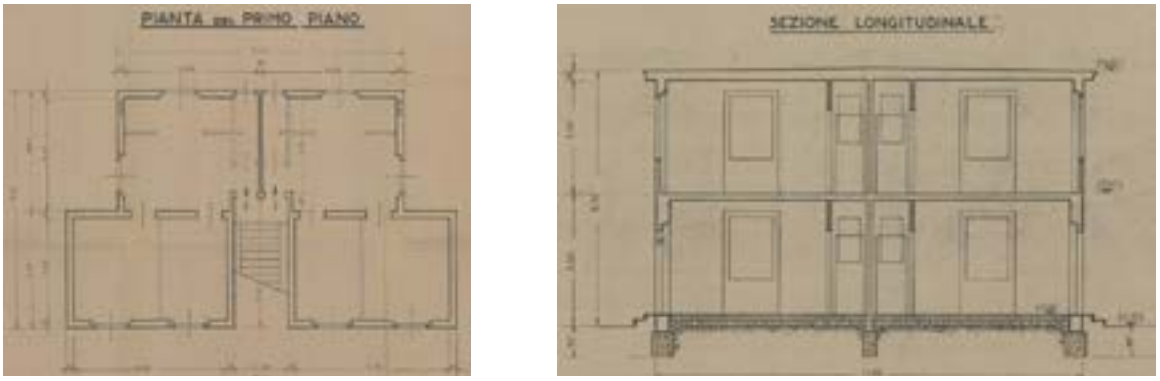


FIG. 7: TIP Morelli floor

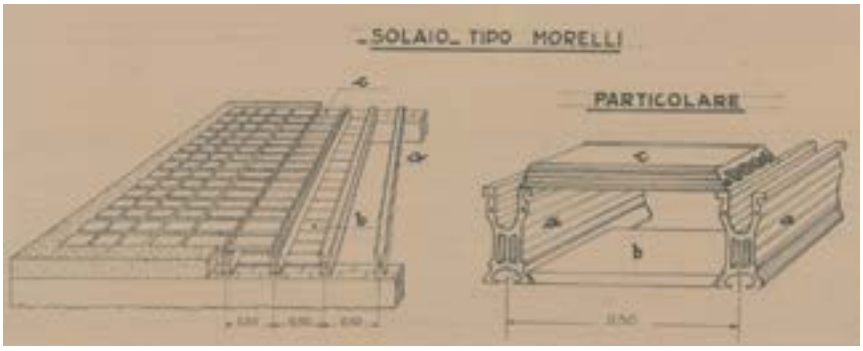
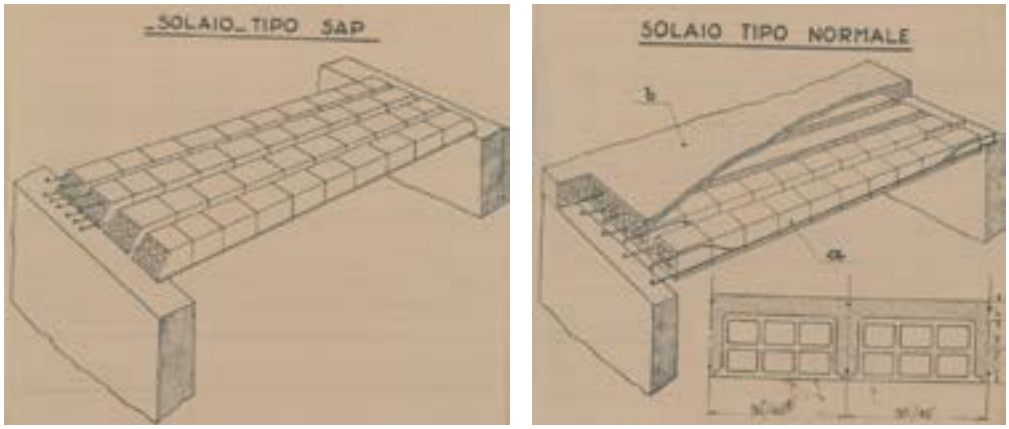


FIG. 8: TIP Varese floor



FIG. 9: TIP SAP as well as TIP 'Normal' floor



Year 1958: TYPE 2B, 2 Floor – masonry, Russian influence

FIG. 10: ½ Floor Plan of the First Floor and ½ Floor Plan of the Second Floor

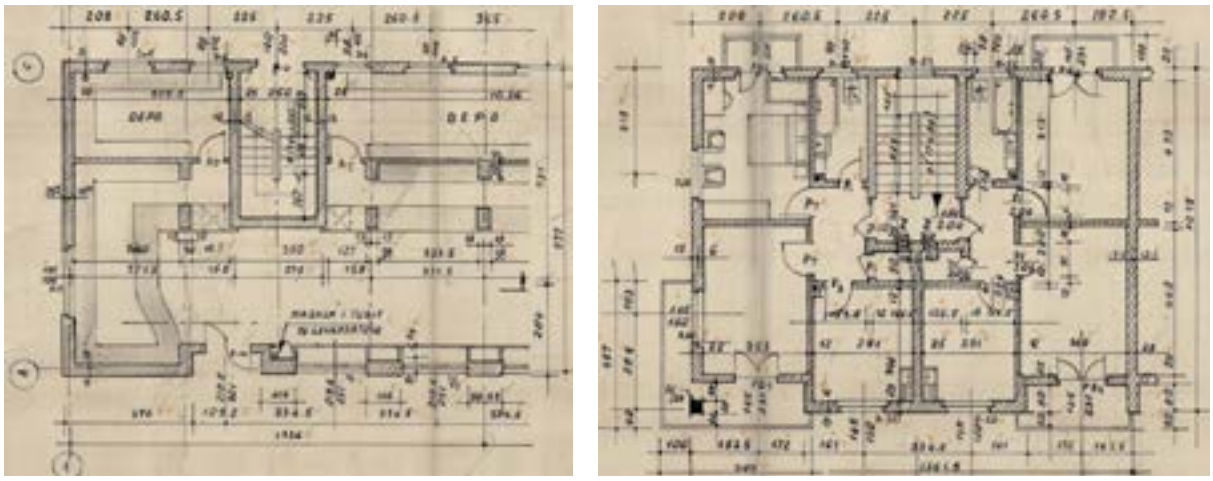


FIG. 11: Cross-section of the building foundation

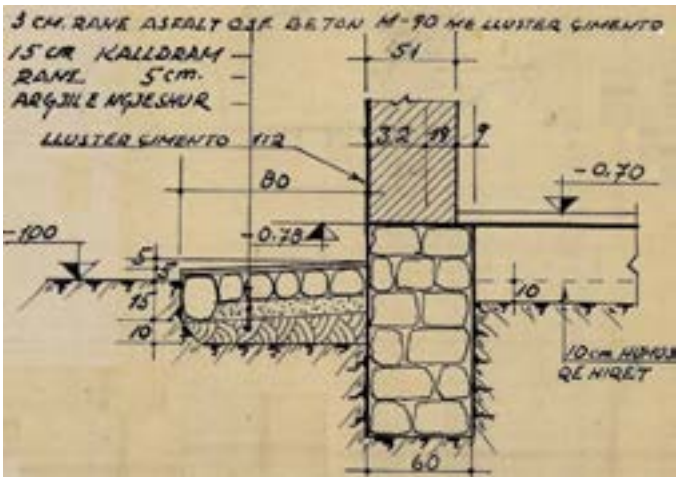


FIG. 12: Positioning, dimensioning and construction of one of the slabs

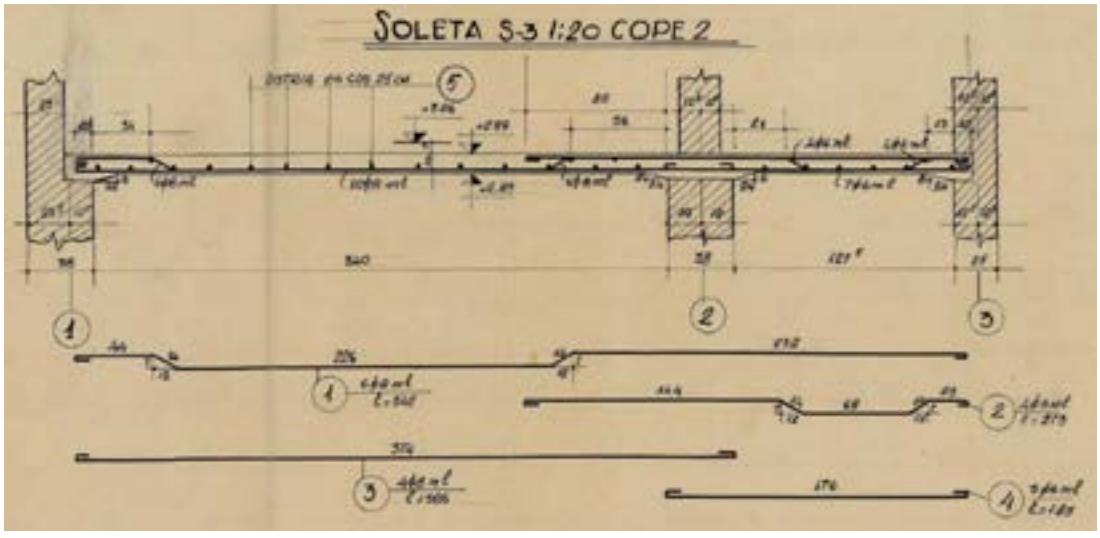
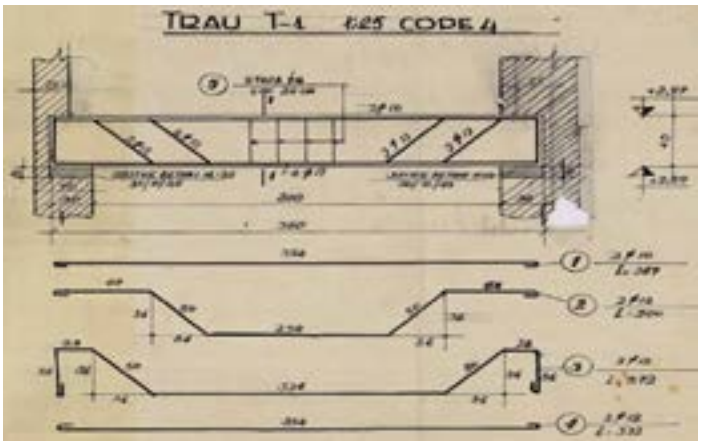


FIG. 13: Positioning, dimensioning and construction of one of the beams



Year 1959: TYPE 59.1, 4 Floor - masonry

FIG. 14: Different residential complexes with possible combinations of basic types.

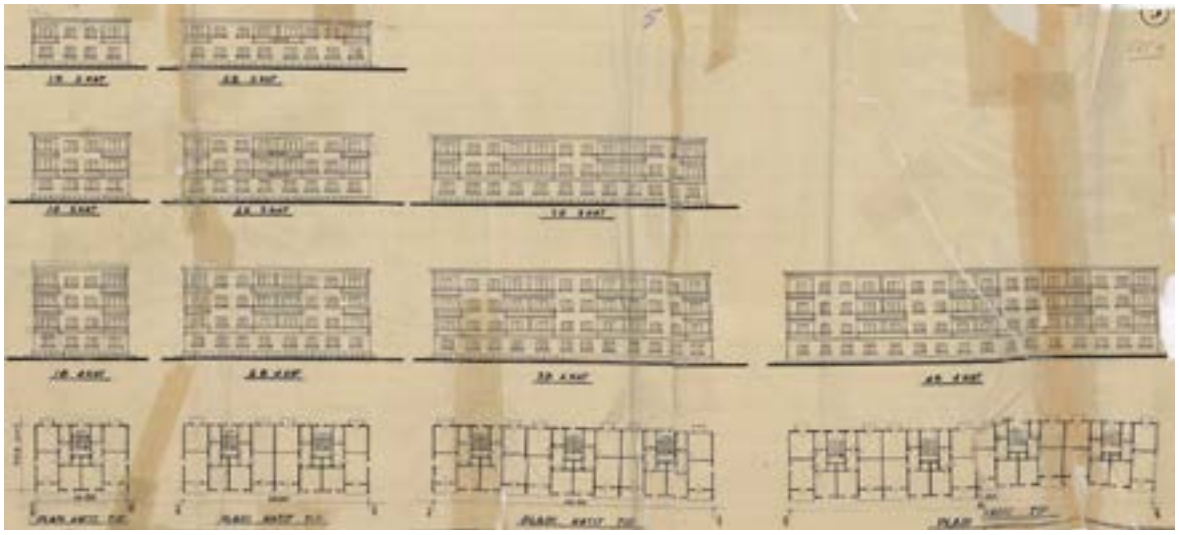
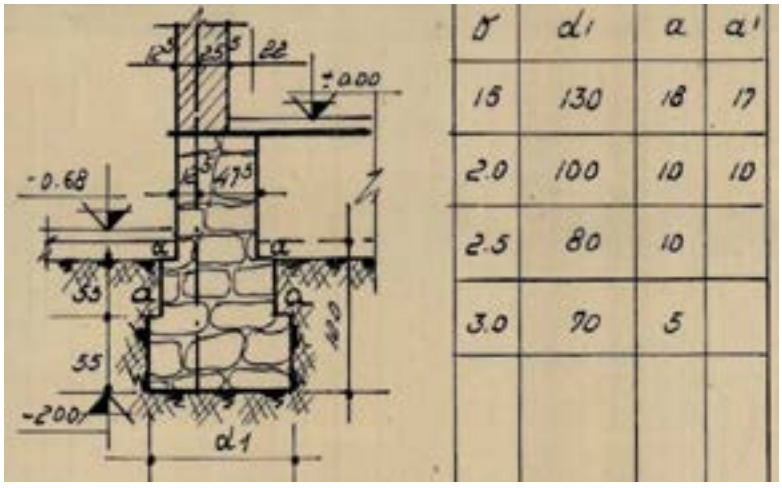


FIG. 15: Cross-section of the building foundation and table for parametric data



b	d1	a	a1
15	130	18	17
2.0	100	10	10
2.5	80	10	
3.0	70	5	

FIG. 16: Positioning, dimensioning and construction of one of the mezzanine floors

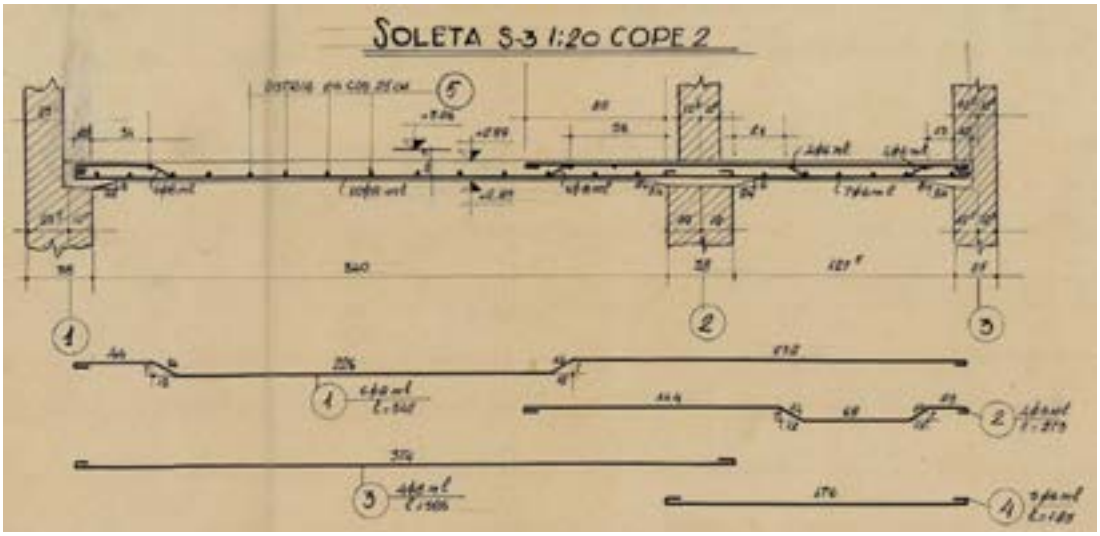


FIG. 17: Typology, shape, dimensions and reinforcement of the floor

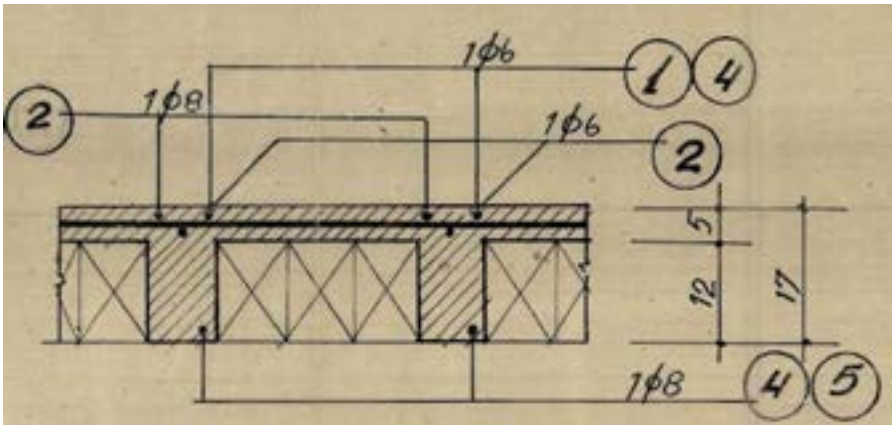
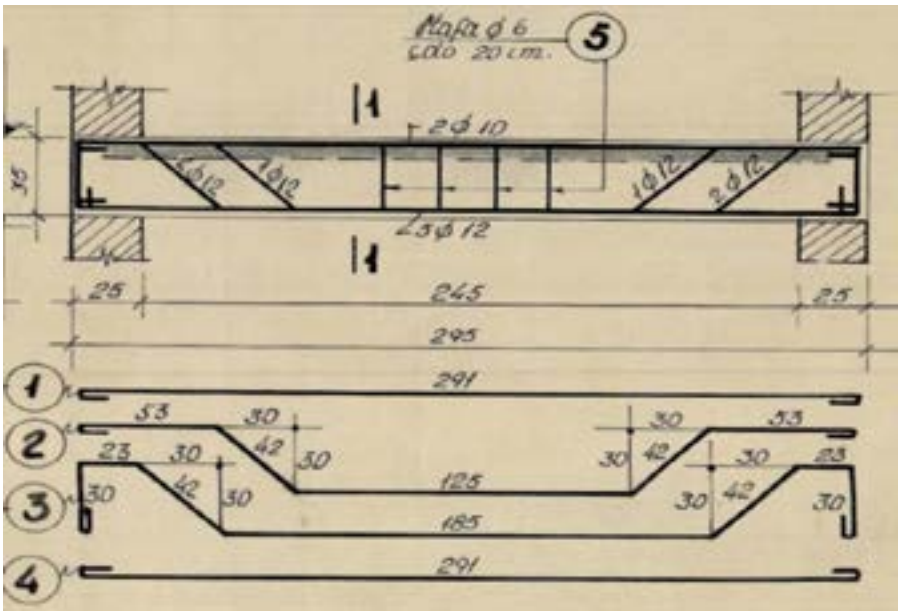
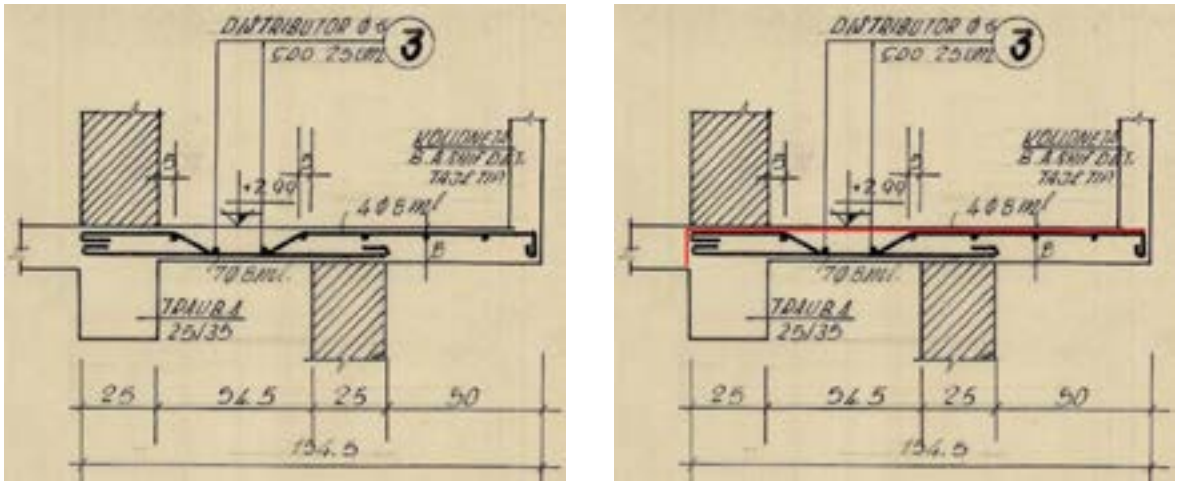


FIG. 18: Positioning, dimensioning and construction of one of the beams



Detail of 'neglecting' constructive logic

FIG. 19: Positioning, dimensioning and actual and proposed construction.



Year 1962: TYPE 62_6, 5 Floor – silicate masonry

FIG. 20: Different residential complexes with possible combinations of basic types.

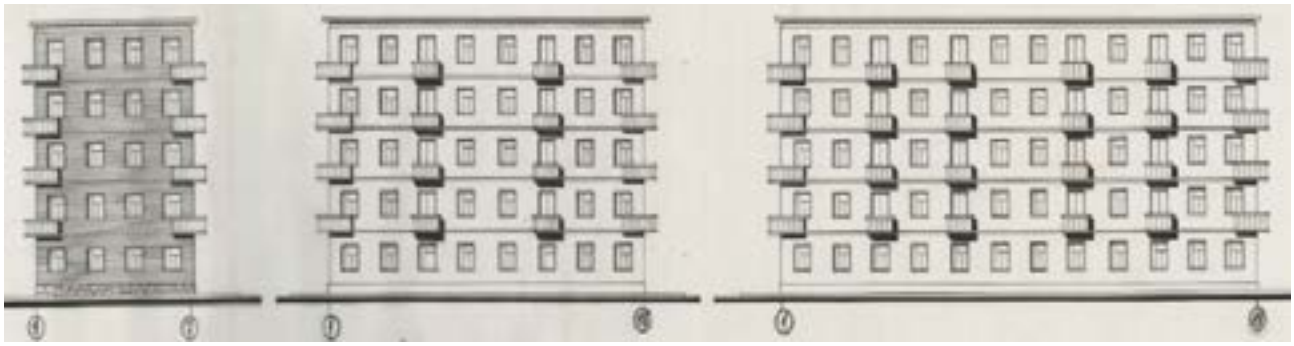


FIG. 21: Cross-section of the building foundation depending on the allowed stresses

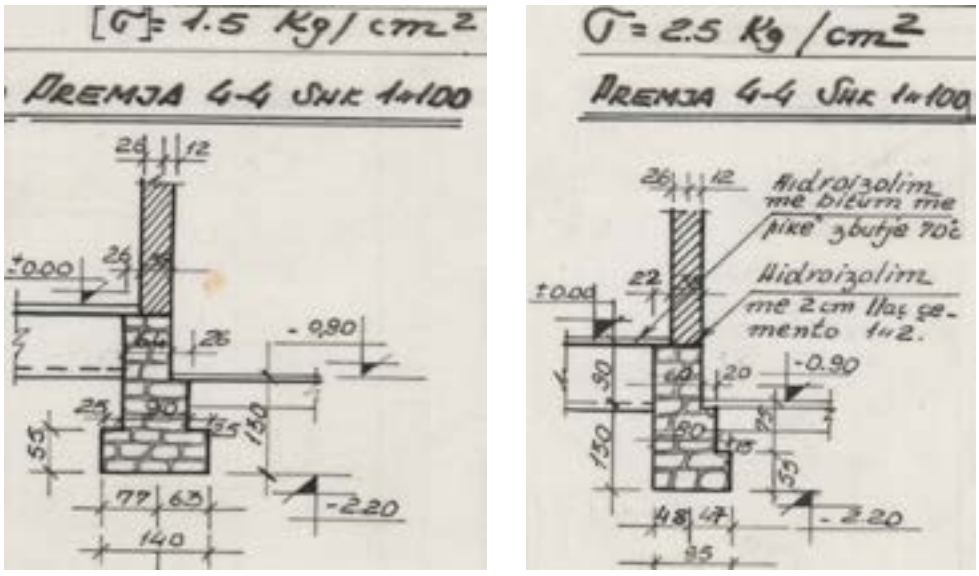


FIG. 22: Positioning, dimensioning and construction of one of the floors

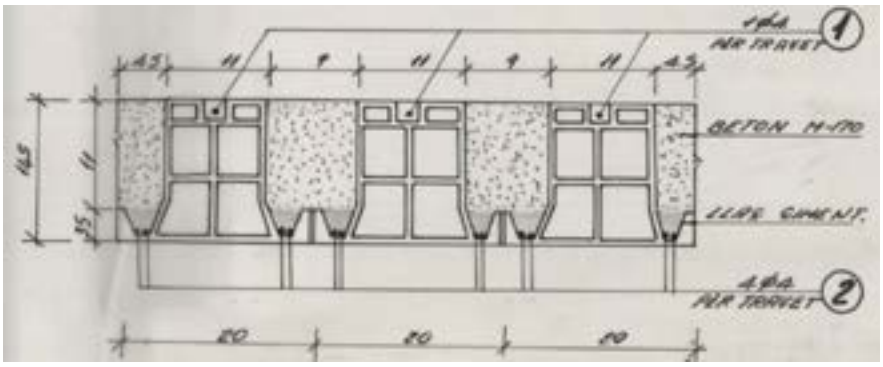


FIG. 23: Positioning, dimensioning and construction of one of the beams of the floor

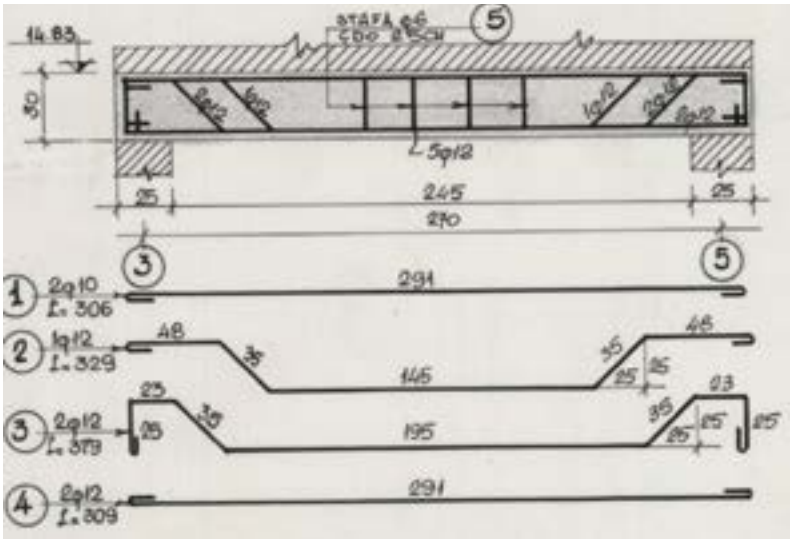


FIG. 24: Residential complex with a combination of 4 basic sections.

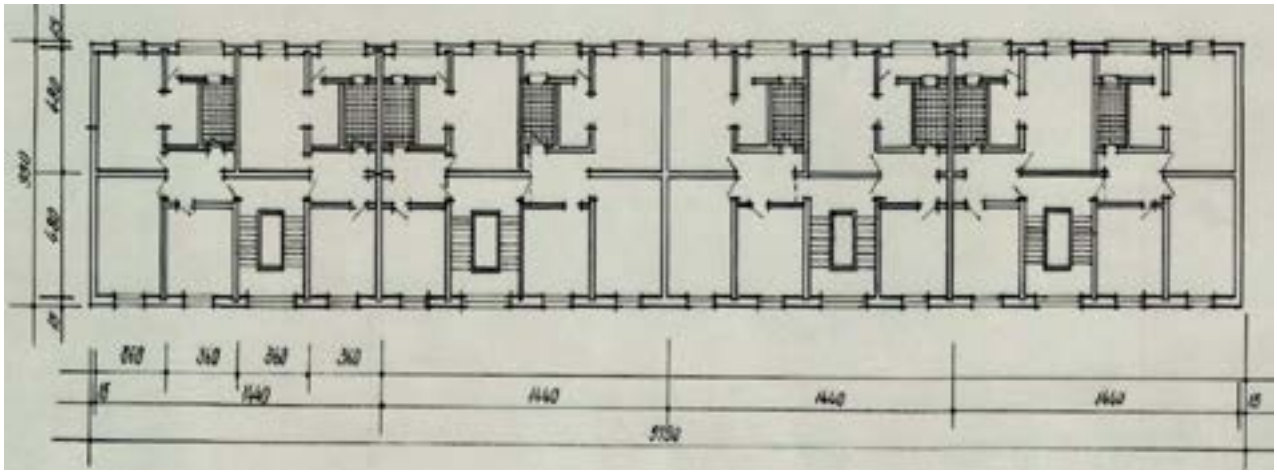
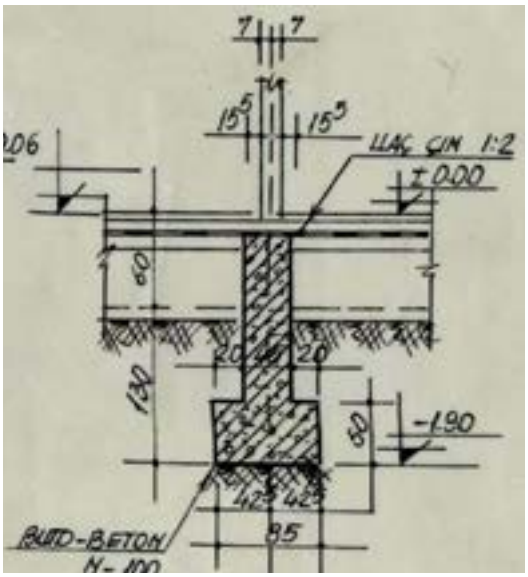


FIG. 25: Cross-section of the building foundation



Year 1983: TIP 83/2, 5th Floor – masonry for 7th and 8th sismic Grad

FIG. 26: TIP Floor Plan and Cross Section of the Residential Building.

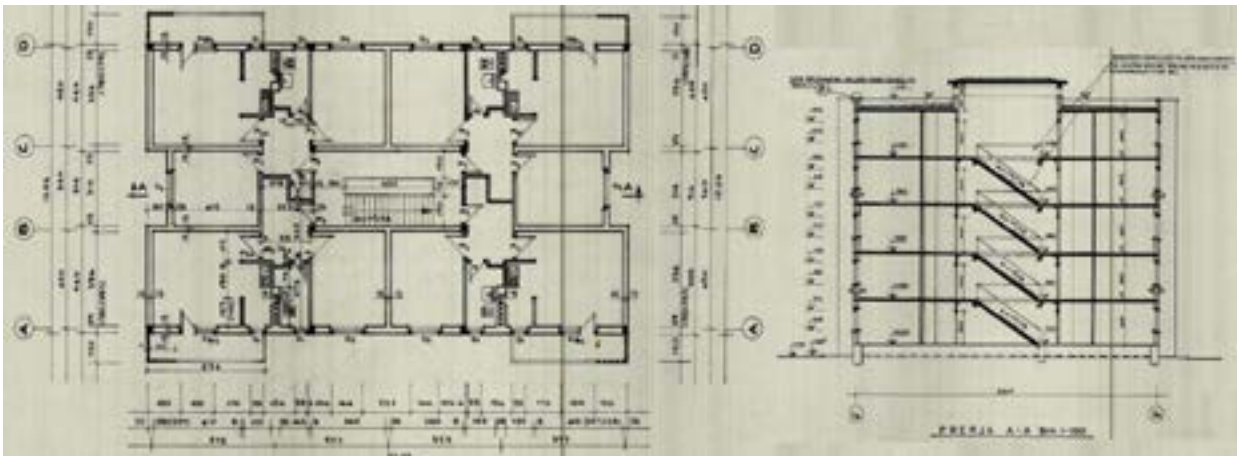


FIG. 27: Cross-section of the building foundation under a continuous wall or for r.c. columns

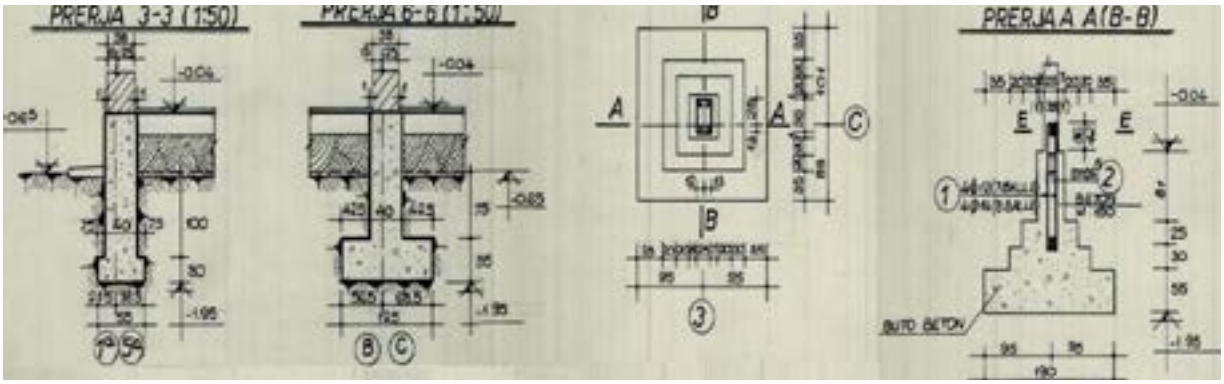
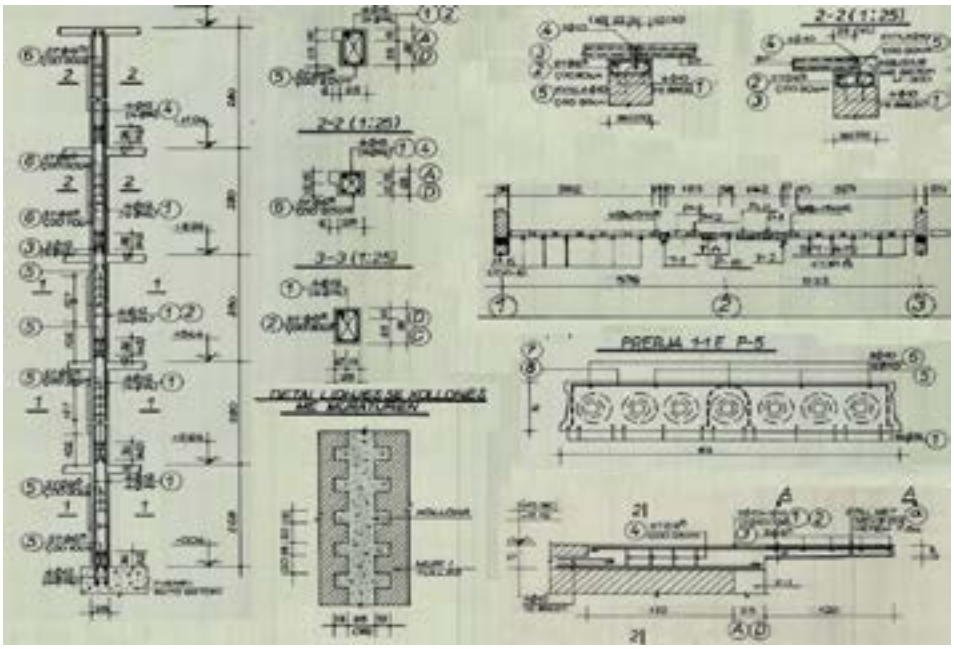


FIG. 28: Realization of the floor, with its complementary elements and connections



Year 1983: Residential building "Rr. Barikatave", 8-9 Floor – r. c. str

FIGURA 29: General view of the residential complex.

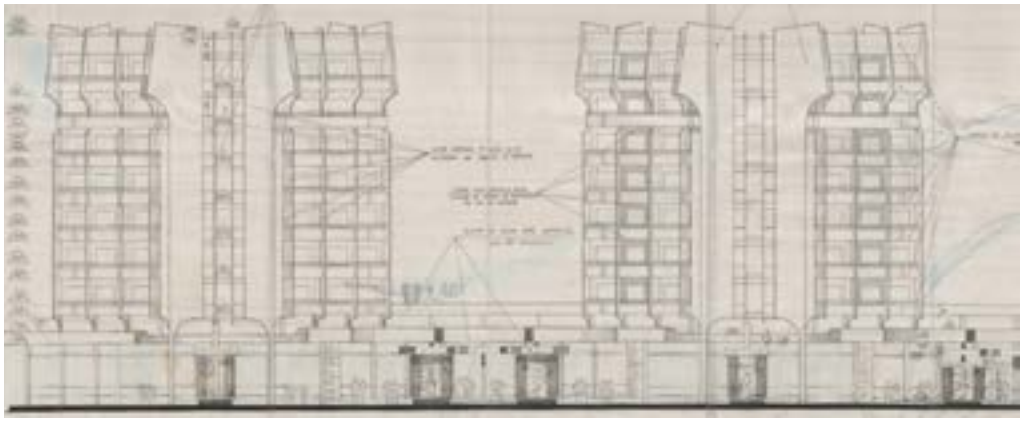


FIG. 30: TIP Floor Plan and Cross Section of the Residential Building.

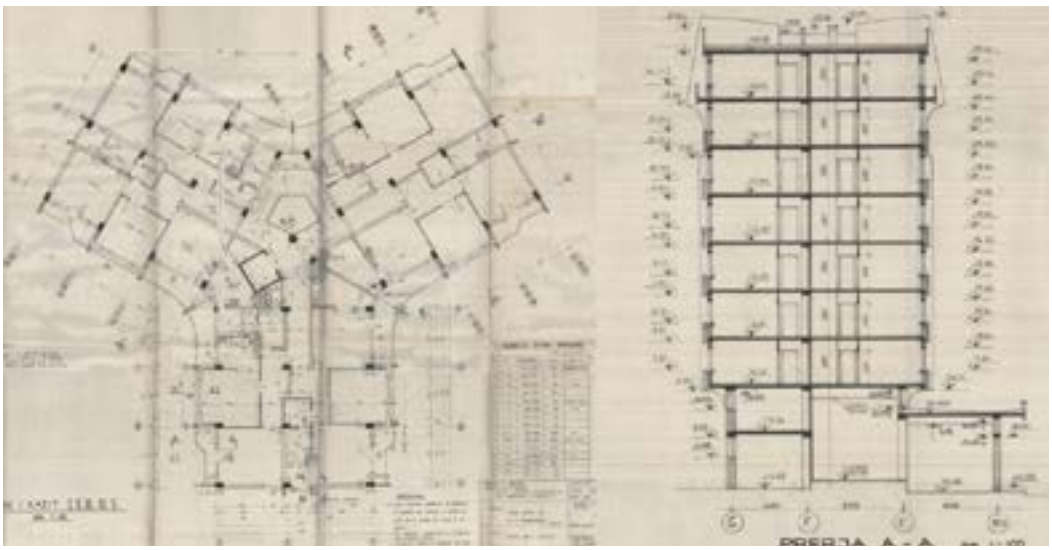


FIG. 31: Cross-section of the building foundation under a continuous wall or for r.c. columns.

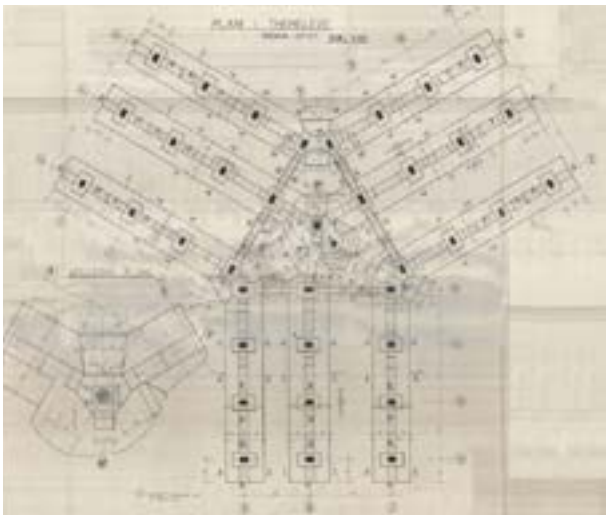


FIG. 32: R.c. Prefabricated frames of the vertical supporting structure

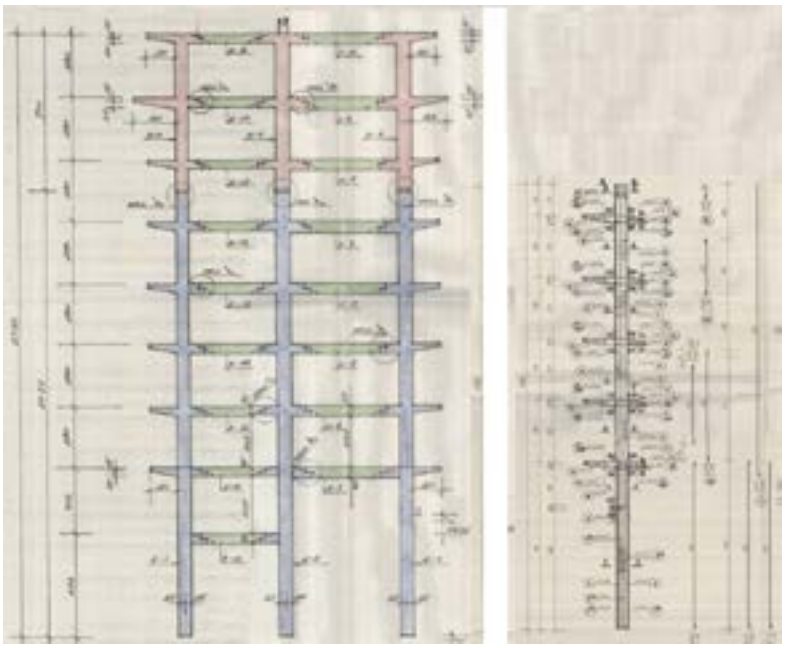


FIG. 33: Construction of the monolithic basement floor slab and its reinforcement

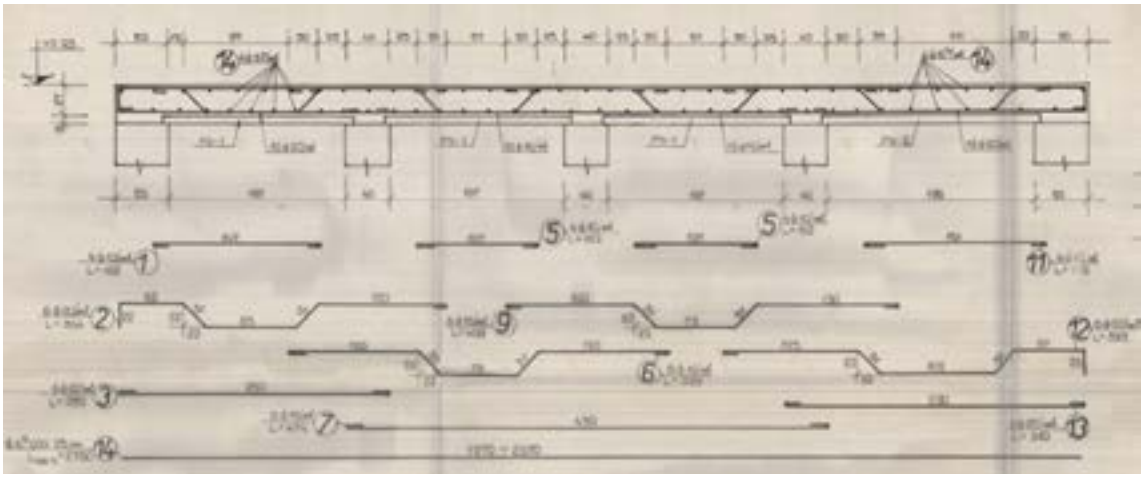
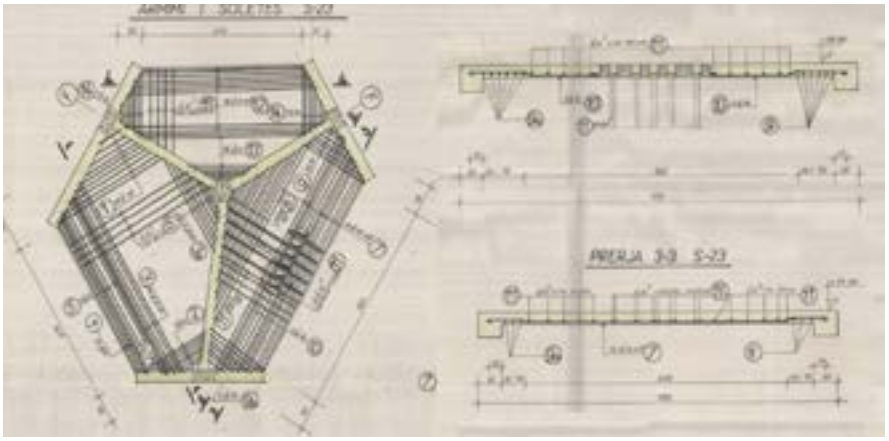


FIG. 34: Shape, component elements and their reinforcement, for the central core



Conclusions

The importance of regularity in construction

(1) So, building with:
the monolithic and cast-in-place floor slab, with a thickness of only 10 cm, can in itself be assessed as NOT positive in relation to the recommendation for a considerable thickness of the slab to form a sufficiently rigid horizontal slab;

as well as:

the presence of a broken stair ramp, i.e. with a landing area at half the height of the floor, in itself can be assessed as NOT recommended in terms of the behavior of the object against the action of horizontal loads; but, with regular structure, with brick masonry, with considerable thickness and positioned at not very large distances and quite well connected with masonry/diaphragms in the transverse direction, it performs well under both vertical and horizontal loads;

(2) So, building with:
the plan in the shape of a three-pointed "Star", with a ratio value of s / S = 180 / 410 = 44%, a value which does NOT respect the normative recommendations, s / S ≤ 5%, can in itself be assessed as NOT positive in relation to the relevant recommendation.;

as well as:

the presence of a broken stair ramp, i.e. with a landing area at half the height of the floor, in itself can be assessed as NOT recommended in terms of the behavior of the object against the action of horizontal loads;

but:

considering that the supporting structure is quite regular, both in plan and in height;
with a well-dimensioned reinforced concrete frame structure, taking into account the action of seismic loads for different possible action fronts;
with a relatively solid central core, consisting of stairs and elevator columns, with a considerable extension in plan, also completed with vertical walls of concrete;
it performs well under both vertical and horizontal loads;

(3) So, building with:
the presence in the concrete element of working reinforcement with a variety of diameters, in number much greater than two; which in itself is assessed as NOT positive based on the relevant recommendations;

as well as:

the presence in the concrete element of working reinforcement with several different diameters in consecutive values; which in itself can be assessed as NOT positive based on the relevant recommendations;

but:

considering the case of the r.c. structure with prefabricated elements, i.e. realized in the facility under proper control and the possibility of typification and standardization of works, etc;
it performs well under both vertical and horizontal loads;
And finally, a conclusion that is "contradictory" in itself:
the use of concrete M 110 kg/cm^2 in the construction of reinforced concrete structures, has values far lower than those normally accepted and allowed for concrete used in the construction of these structures according to contemporary recommendations;

but:

at the same time, the ratio between the design resistance value and the resistance of the specimen would be lower;

From this it is clear that it has a greater "reliability" and guarantee, ensuring the respective resistence taken into account in the calculation and design process of these elements, even with a low technological level or not very qualified workers in the process of making concrete and the corresponding reinforced concrete elements.

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Comparing Network Security Architectures: Traditional Models vs. Zero Trust Approach

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Abstract

In today's complex and increasingly decentralized digital ecosystems, traditional network security architectures are struggling to keep pace with emerging threats. These legacy models operate on the assumption of implicit trust within the network perimeter, employing static controls such as firewalls, VPNs, and access control lists. While historically effective, such approaches have proven inadequate in modern contexts where users, devices, and services are distributed across cloud environments, remote locations, and heterogeneous platforms. This study conducts a systematic literature review to compare traditional network security models with Zero Trust Architecture (ZTA) a modern, identity-centric framework designed to address the limitations of perimeter-based defenses.

Using PRISMA guidelines, forty peer-reviewed and high-quality sources published between 2018 and 2025 were analyzed. The comparison spans eight critical dimensions: access control, authentication, threat detection, insider threat mitigation, lateral movement, remote access, scalability, and operational complexity. Findings reveal that while traditional models provide simplicity and familiarity, they fall short in terms of visibility, adaptability, and containment. In contrast, ZTA introduces continuous verification, context-aware access decisions, and micro-segmentation, resulting in stronger defenses against credential theft, insider threats, and unauthorized lateral movement.

Despite its advantages, Zero Trust adoption presents challenges related to system integration, legacy compatibility, and policy orchestration at scale. However, phased implementation strategies and the emergence of telemetry-driven policy enforcement offer viable paths forward. This study concludes that while traditional models remain applicable in specific low-risk scenarios, ZTA represents a resilient and forward-compatible solution for securing dynamic IT infrastructures. The paper contributes a structured comparison, recent insights, and practical recommendations for both academic and enterprise stakeholders pursuing cybersecurity modernization.

Introduction

The rapid evolution of digital infrastructures and the widespread adoption of cloud computing, Internet of Things (IoT), and remote work have fundamentally transformed the threat landscape of network security. As organizations increasingly rely on distributed architectures and interconnected devices, the limitations of traditional perimeter-based security models have become more apparent, giving rise to novel paradigms such as Zero Trust Architecture (ZTA) (Rose et al., 2020). In this shifting environment, ensuring confidentiality, integrity, and availability of data and services requires a comprehensive rethinking of how trust and access are managed within enterprise networks.

Traditional network security models operate on the assumption that threats originate primarily from outside the network perimeter. These models employ firewalls, Virtual Private Networks (VPNs), Intrusion Detection and Prevention Systems (IDS/IPS), and Access Control Lists (ACLs) to secure the boundary between internal trusted users and external potentially malicious actors (Kim & Feamster, 2013). Once a user or device is authenticated and allowed access to the internal network, it is generally granted implicit trust—enabling lateral movement across resources. While this model was effective during the era of static infrastructure and on-premises data centers, it has proven inadequate in modern distributed, dynamic, and cloud-native environments (He et al., 2022).

Recent studies and real-world breaches have demonstrated that attackers increasingly exploit the weaknesses of perimeter security, including phishing, credential theft, and insider threats, to bypass traditional defenses. According to the Verizon Data Breach Investigations Report (2023), a significant proportion of security incidents involved internal actors or compromised accounts that were able to move laterally within a trusted network. These findings underscore the pressing need for a paradigm shift that does not rely on a rigid perimeter or implicit trust but instead enforces strict identity verification and least-privilege access control.

Zero Trust Architecture has emerged as a strategic response to these challenges. Unlike traditional models, ZTA assumes that no user, device, or network segment should be trusted by default—even if located inside the corporate perimeter. Rooted in the principle of "Never Trust, Always Verify," Zero Trust requires continuous authentication, micro-segmentation, and context-aware access control based on user behavior, device posture, and resource sensitivity (Cheng et al., 2023). It emphasizes reducing the attack surface, minimizing privilege escalation, and containing breaches before they cause systemic harm.

Adopting Zero Trust, however, is not without challenges. Implementation requires reconfiguration of existing systems, integration with identity and access management (IAM) platforms, and ongoing monitoring and policy enforcement. Moreover, there are concerns about scalability, performance overhead, and user experience disruptions during the transition phase (Mahdi et al., 2023). Nevertheless, the benefits of enhanced resilience, adaptive risk management, and improved compliance with cybersecurity standards have led many organizations and governments to prioritize Zero Trust in their security roadmaps.

This paper provides a comprehensive literature review of network security architectures with a particular focus on comparing traditional security models and Zero Trust Architecture. The objective is not to propose a new implementation or testbed but to systematically analyze existing research, highlight key security mechanisms, identify common weaknesses, and explore the practical and strategic considerations involved in transitioning from legacy models to ZTA. Through a structured review of recent academic articles, standards, and case studies, we aim to answer the following research questions:

- What are the core principles and security assumptions of traditional network security models compared to Zero Trust?
- How do these models perform in addressing common threat vectors, including insider threats, lateral movement, and unauthorized access?
- What lessons can be drawn from empirical studies and industry reports regarding the effectiveness and feasibility of ZTA?
- What are the open challenges and future research directions in network security architecture?

To address these questions, the paper employs a review methodology guided by PRISMA principles, filtering studies based on relevance, publication quality, and alignment with keywords such as "network security," "Zero Trust," "perimeter model," "access control," and "micro-segmentation." The scope of the review spans publications from 2018 to 2025 and draws from peer-reviewed journals, white papers, and public standards repositories.

The structure of the paper is as follows: Section 2 outlines the review methodology and selection criteria. Section 3 presents a synthesized analysis of traditional network security models, focusing on their operational characteristics and documented limitations. Section 4 provides a detailed overview of Zero Trust Architecture, including its conceptual foundations, core components, and real-world implementation challenges. Section 5 offers a thematic comparative analysis of the two models across key security dimensions. Section 6 discusses the implications of the findings and identifies gaps in literature. Finally, Section 7 concludes with a summary of key insights and recommendations for future research and practice.

In conclusion, as digital ecosystems become increasingly complex and interdependent, the evolution from traditional perimeter-based security to Zero Trust is not just a technological adjustment but a fundamental reorientation of trust, access,

and accountability in cybersecurity management. A thorough understanding of both approaches, grounded in empirical evidence and critical review, is essential for guiding secure digital transformation efforts in both private and public sectors.

Research Methodology

This study applies a structured, systematic literature review methodology to evaluate and compare traditional network security models with Zero Trust Architecture (ZTA). The review is grounded in the PRISMA 2020 framework (Page et al., 2021) and emphasizes a comparative analysis of architectural principles, security mechanisms, and implementation outcomes across a curated selection of studies published between 2018 and 2025.

Purpose and Orientation

The objective of this review is to synthesize and analyze existing literature on network security architectures, with a particular focus on contrasting traditional perimeter-based models and Zero Trust frameworks. The methodology excludes studies limited to cryptographic theory or application-layer protocols unless directly tied to the implementation of architectural security models. The review prioritizes works that describe, assess, or compare structural and operational aspects of these security paradigms.

Research Questions

The review is guided by the following research questions:

- What are the foundational principles that define traditional network security models and Zero Trust Architecture?
- How do these models address core security threats such as lateral movement, credential compromise, and insider attacks?
- What benefits, limitations, and implementation challenges are consistently highlighted in the literature for each model?
- What emerging trends and research gaps exist in the study of network security architectures up to 2025?

Search Strategy

The literature search was conducted across seven primary academic and open-access databases: IEEE Xplore, ACM Digital Library, ScienceDirect, SpringerLink, Google Scholar, arXiv, and ResearchGate. The search covered publications from January 2018 through May 2025. Keywords were carefully selected to target relevant studies, using Boolean logic to structure complex queries. Search terms included:

- “Zero Trust Architecture” OR “ZTA” AND “network security” OR “access control”
- “traditional security” OR “perimeter model” AND “lateral movement” OR “VPN” OR “firewall”
- “Zero Trust” AND “ZTNA” OR “IAM” OR “micro-segmentation”
- “network segmentation” AND “insider threats”

Each query was tested iteratively to refine relevance, reduce redundancy, and ensure comprehensive coverage of peer-reviewed and high-quality grey literature.

Inclusion and Exclusion Criteria

The following inclusion criteria were applied:

- Articles published between 2018 and 2025
- Peer-reviewed journals, conference papers, institutional white papers, and selected preprints
- English-language publications only
- Explicit discussion of traditional or Zero Trust network architecture
- Empirical studies, implementation analyses, or theoretical frameworks with architectural relevance

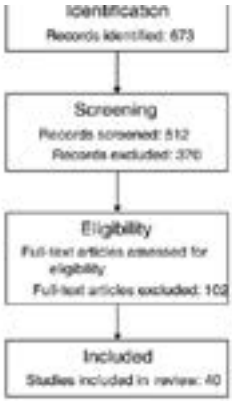
Exclusion criteria:

- Blog posts, editorials, vendor marketing material, and other non-academic content
- Articles lacking architectural or security framework focus
- Studies focused purely on encryption protocols without network context
- Publications without full-text access or appropriate citation metadata

Screening and Selection Process

The selection process followed the four-phase PRISMA protocol. In the identification phase, 673 total articles were retrieved. After duplicate removal and abstract screening, 512 records remained. Full-text eligibility assessment was applied to 142 studies, out of which 40 met the inclusion criteria and were incorporated into the final thematic analysis. The screening process was conducted independently by two reviewers to minimize selection bias. Discrepancies were resolved through discussion and consensus.

FIGURE 1. PRISMA Flow Diagram illustrates the literature selection process.



Thematic Framework and Analysis

Articles were reviewed using a thematic coding approach based on the principles of Braun and Clarke (2006). A preliminary coding scheme was developed to capture recurring concepts, which was refined during the review to ensure relevance and depth. The final analytical framework was organized into seven thematic dimensions:

1. **Access Control**: Comparison of static (role-based) versus dynamic (attribute-based, context-aware) models across traditional and ZTA implementations.
2. **Authentication Mechanisms**: Analysis of credential use, multi-factor authentication (MFA), and continuous identity verification.
3. **Threat Detection Capabilities**: Evaluation of intrusion detection/prevention systems (IDS/IPS), behavioral analytics, and real-time monitoring tools.
4. **Insider Threat Management**: Review of strategies and technologies to detect and contain threats originating from within trusted environments.
5. **Lateral Movement Prevention**: Assessment of micro-segmentation, network visibility, and internal traffic control.
6. **Cloud and Remote Access Readiness**: Examination of each model's adaptability to hybrid/multi-cloud environments and remote work infrastructures.
7. **Scalability and Operational Cost**: Discussion of deployment complexity, automation requirements, and resource constraints.

Each article was mapped to one or more of these categories. Findings were cross-compared to identify consensus, divergence, and underexplored issues. Thematic summaries were structured to enable clear comparison between the two architectures.

Integration of Recent Literature (2025)

Recent publications from 2025 significantly enriched the analytical scope of this review:

- Gambo and Almulhem (2025) conducted a comprehensive PRISMA-based literature review on ZTA, identifying key enabling technologies such as telemetry-based access control and identity-centric policy enforcement.
- Harris (2025) focused on Zero Trust segmentation strategies, arguing for their superiority in defending against insider threats compared to static VLAN-based models.
- Liman et al. (2025) proposed a practical roadmap for Zero Trust implementation in enterprise networks, highlighting the critical role of IAM integration and cross-platform interoperability.

- CISA (2025) released an updated federal implementation strategy, providing benchmarks and lessons learned from national-scale adoption of ZTA across public agencies.

These contributions were prioritized in the comparative framework and cited extensively in the Results and Discussion sections.

Limitations and Validation

While this review offers a comprehensive synthesis of current literature, several limitations remain. First, the exclusion of non-English studies may omit regional implementations and innovations. Second, there is potential bias in the published literature favoring positive outcomes of Zero Trust deployments, given its rising popularity. Third, the dynamic nature of cybersecurity means findings may evolve as technologies mature.

To address these concerns, multiple validation measures were adopted. Article selection and thematic coding were independently reviewed. A triangulated review approach across databases helped ensures representativeness. Only studies with clear methodological rigor and architectural focus were retained.

Traditional Network Security Models

Traditional network security models have long served as the foundation for protecting organizational IT infrastructures. These models were designed around a core assumption: that internal systems, users, and devices are inherently trustworthy, and that threats primarily originate from outside the network perimeter. This assumption gave rise to security architecture centered on boundary defense, where access controls and security mechanisms were concentrated at the network edge. While historically effective in contained, on-premises environments, traditional security architectures face increasing limitations in modern, distributed, and cloud-native infrastructures.

Core Components of Traditional Models

Traditional network security is typically characterized by the following core technologies and practices:

- **Firewalls**: Firewalls are network security devices or software that enforce policies to control incoming and outgoing network traffic. They inspect data packets based on configured rules and filter traffic by IP addresses, port numbers, protocols, and application-level data. Firewalls are deployed at network perimeters and internal segments to block unauthorized access while allowing legitimate traffic. Traditional firewalls use static rules and are typically limited to Layer 3 and Layer 4 filtering. Modern implementations may incorporate stateful inspection and basic anomaly detection, but they remain vulnerable to application-layer attacks and encrypted traffic unless combined with deep packet inspection tools (Kim & Feamster, 2013).
- **Virtual Private Networks (VPNs)**: VPNs provide secure communication channels between remote users and internal organizational networks by encrypting data using protocols like IPsec or SSL/TLS. They are extensively used in remote work scenarios to ensure confidentiality and data integrity. However, once authenticated, users often receive access to broad internal network segments, effectively flattening network boundaries. This overextended access poses a security risk if credentials are compromised. VPNs also struggle with performance in cloud-native architectures, introducing latency and complicating fine-grained access enforcement (Zhang et al., 2021).
- **Intrusion Detection and Prevention Systems (IDS/IPS)**: IDS systems passively monitor traffic for malicious activity and raise alerts, while IPS systems actively block identified threats. Detection is usually based on predefined signatures or behavioral anomalies. Signature-based systems excel at identifying known threats but fail against zero-day exploits or polymorphic malware. Anomaly-based systems attempt to establish behavioral baselines but can produce high false-positive rates. Traditional IDS/IPS systems also require centralized management and constant rule updates, limiting their effectiveness in decentralized or cloud environments (He et al., 2022).
- **Access Control Lists (ACLs)**: ACLs are rule-based filters configured on routers or switches that permit or deny traffic based on source/destination IP addresses, protocols, and port numbers. They are used to segment networks, restrict access between subnets, and enforce policy boundaries. While ACLs are efficient for static environments, they lack dynamic context awareness (e.g., user identity or device health). Updating ACLs in complex or cloud-based infrastructures is error-prone and operationally intensive, making them unsuitable for real-time access decisions (Cheng et al., 2023).
- **Network Address Translation (NAT)**: NAT conserves IP address space and provides basic obfuscation by translating internal private IP addresses to public ones. This translation adds a minor security benefit by hiding internal network structure from external actors. However, NAT does not authenticate users, inspect traffic content, or prevent insider threats. In environments with bidirectional traffic flows or peer-to-peer connections, NAT can introduce configuration challenges and break protocol compatibility. Additionally, it offers no role in segmentation or behavioral enforcement (Mahdi et al., 2023).

These mechanisms work together to enforce perimeter-based security policies. Access is typically granted based on location or IP, and once users or devices are authenticated at the perimeter, they are trusted throughout the network.

Architectural Philosophy

The architectural philosophy underpinning traditional network security models is based on the "trust-but-verify" paradigm. In this approach, once users or devices successfully authenticate and pass perimeter-level checks, they are granted implicit trust within the internal network. The underlying assumption is that threats predominantly originate from outside the organization, and thus, robust defenses at the perimeter are sufficient to protect internal assets. This leads to a concentration of security resources—such as firewalls, VPN gateways, and DMZs—at the edge of the network.

This model was effective in legacy environments characterized by static infrastructure, limited remote access, and well-defined network perimeters. Organizations that housed all critical systems within on-premises data centers and relied primarily on corporate-owned devices found this architecture straightforward to deploy and manage. It allowed for a relatively low-cost implementation, supported by mature technologies and established administrative practices.

However, the central flaw in this philosophy lies in the concept of "trust-by-location." Once an entity is inside the perimeter, it is rarely subject to further verification. This model assumes that internal actors are either inherently trustworthy or pose minimal risk. Consequently, lateral movement within the network is often unrestricted, with broad internal access granted based on location rather than identity or context.

In practice, this architectural flaw presents a significant risk. If an attacker manages to breach the perimeter—via phishing attacks, compromised VPN credentials, misconfigured remote services, or infected endpoints—they are typically able to navigate the internal network with minimal resistance. They can perform reconnaissance, escalate privileges, and access sensitive data without triggering alarms or hitting access control boundaries. This vulnerability has been a defining factor in numerous high-profile breaches, including advanced persistent threats (APTs) and ransomware campaigns.

Furthermore, traditional architecture often lacks visibility into east-west (internal) traffic flows, making it difficult to detect abnormal behavior or unauthorized access once inside. Log correlation and anomaly detection are typically deployed at the perimeter, leaving internal segments under-monitored. Security controls are often static and reactive, relying on signature-based detection or manually configured policies that fail to adapt to evolving attack techniques.

As enterprises expand their operations across hybrid cloud environments, remote workforces, and mobile endpoints, the limitations of this philosophy become more pronounced. Static perimeter boundaries no longer align with the dynamic nature of modern IT ecosystems. Trust-by-location fails in cloud scenarios where assets are distributed, and users connect from diverse, untrusted networks.

In summary, while the "trust-but-verify" model offered simplicity and operational efficiency in traditional environments, it introduces fundamental vulnerabilities in today's distributed digital landscape. Its continued use without complementary security layers exposes organizations to significant risk, particularly from insider threats and post-compromise activities that exploit the inherent trust granted within the internal network (Verizon, 2023).

Strengths of Traditional Models

Despite their limitations, traditional models offer several practical advantages that have made them dominant for decades:

- **Simplicity of Design**: Perimeter defenses are straightforward to design and maintain in centralized environments.
- **Cost-Effectiveness**: Legacy infrastructure components are widely available and relatively low-cost.
- **Operational Familiarity**: Most IT professionals are well-trained in managing firewall rules, VPNs, and ACLs.
- **Low Learning Curve**: Deployment and troubleshooting follow established patterns with predictable outcomes.

These strengths make traditional models especially appealing for small- to mid-sized organizations or those with limited IT maturity.

Key Limitations in Modern Contexts

The emergence of cloud computing, remote work, bring-your-own-device (BYOD) policies, and mobile access has revealed several critical flaws in traditional security models:

- **Implicit Trust of Internal Devices**: Once inside the perimeter, entities are often granted unrestricted access to network resources. This trust model is easily exploited by compromised insiders or malicious actors who gain a foothold.
- **Lack of Granular Access Control**: Traditional models are not designed for context-aware or role-specific access. This increases the risk associated with credential theft or user privilege escalation (Rose et al., 2020).

- **Weaknesses in Lateral Movement Defense**: Flat network structures and broad access rights allow attackers to traverse systems with minimal friction, as seen in incidents involving ransomware propagation or domain controller compromise (Liman et al., 2025).
- **Inadequacy in Multi-Cloud Environments**: Traditional tools are poorly suited for securing assets across cloud providers or in hybrid deployments. VPNs and firewalls often introduce latency and create administrative burdens when scaling across distributed environments (Gambo & Almulhem, 2025).
- **Static and Reactive Security**: Signature-based detection tools and manually updated rulesets struggle to keep pace with rapidly evolving threat vectors, such as fileless malware, AI-driven attacks, or zero-day exploits (He et al., 2022).

Security Use Cases and Failure Scenarios

To illustrate the limitations of traditional models, the literature presents several real-world case studies:

- In the 2021 Colonial Pipeline attack, a compromised VPN account lacking MFA allowed attackers direct access to internal control systems.
- A 2022 analysis by Harris (2025) identified multiple cases where traditional segmentation based on VLANs failed to prevent lateral movement once perimeter defenses were breached.
- Research by Zhang et al. (2021) demonstrated how ACL misconfigurations in hybrid infrastructures led to unintended exposure of sensitive data assets.

These examples demonstrate a common pattern: when a single perimeter defense is bypassed, the attacker encounters little to no internal resistance, enabling rapid escalation and widespread impact.

Evolving Perimeter-Based Models

In response to these weaknesses, some organizations have attempted to evolve their traditional models by layering additional technologies:

- **Next-Generation Firewalls (NGFWs)**: Offer deep packet inspection and application-layer filtering, improving visibility.
- **Network Access Control (NAC)**: Ensures that devices comply with security policies before allowing access.
- **Security Information and Event Management (SIEM)**: Centralizes log collection and enables better threat detection.
- **Micro-Perimeters**: In certain environments, internal firewalls are used to segment high-value systems.

While these enhancements provide incremental improvements, they do not fundamentally alter the architectural assumption of implicit internal trust. Thus, many organizations recognize the need for more radical redesigns such as Zero Trust.

Summary of Traditional Model Characteristics

The table below summarizes the key characteristics of traditional network security models across critical dimensions:

Dimension	Traditional Model Approach
Trust Model	Implicit trust inside the network
Authentication	One-time login; static credentials
Access Control	Role-based; static IP-based rules
Threat Detection	Signature-based IDS/IPS
Internal Segmentation	Limited; flat networks with broad lateral access
Cloud Readiness	Poor scalability; VPN-dependent
Response Capability	Reactive; incident-driven
Configuration Flexibility	Manual; rule-heavy
Visibility	Perimeter-focused; low granularity inside the network

Relevance and Legacy

Despite growing criticism, traditional models remain in widespread use, particularly in industries with legacy systems or low regulatory pressure. In such environments, the cost and complexity of transitioning to modern architecture is perceived as prohibitive. However, the increasing sophistication of cyber threats and the decentralization of IT infrastructures highlight the urgent need for organizations to reassess their reliance on perimeter-based defenses.

The subsequent section will examine the Zero Trust Architecture as a response to these limitations, exploring how its design philosophy and operational principles offer a more resilient alternative for contemporary security challenges.

Zero Trust Architecture (ZTA)

Zero Trust Architecture (ZTA) represents a fundamental shift in the approach to securing digital infrastructures. At its core, ZTA rejects the long-standing assumption that internal networks are inherently trustworthy. Instead, it promotes a security model that assumes breach by default and requires continuous verification for every user, device, application, and data flow, regardless of its origin or location. The principle of "Never Trust, Always Verify" defines every aspect of this architecture, making it more suitable for today's cloud-based, remote-access, and hybrid IT ecosystems.

Unlike perimeter-based defenses that rely on static controls at network entry points, ZTA integrates security enforcement throughout the network fabric. It leverages contextual data—such as user identity, device health, geolocation, and behavior—to make dynamic, risk-based access decisions in real time. This shift from static trust to adaptive control enables organizations to mitigate the risk of insider threats, lateral movement, and credential misuse more effectively than traditional models.

Core Principles

Zero Trust Architecture is founded upon several interdependent principles that collectively redefine how security policies are enforced across enterprise environments.

Least Privilege Access is central to ZTA. Instead of granting broad access based on user roles or locations, users and devices are only allowed access to the specific resources required for their tasks. Permissions are narrowly scoped and continuously reassessed based on real-time factors such as role changes, behavioral deviations, or environmental risks.

Micro-Segmentation involves breaking down the network into isolated zones with granular access controls. Each segment is protected by policy enforcement points, reducing the blast radius of a potential breach. Unlike VLANs in traditional networks, which segment traffic logically but often lack dynamic enforcement, micro-segmentation in ZTA is context-aware and policy-driven.

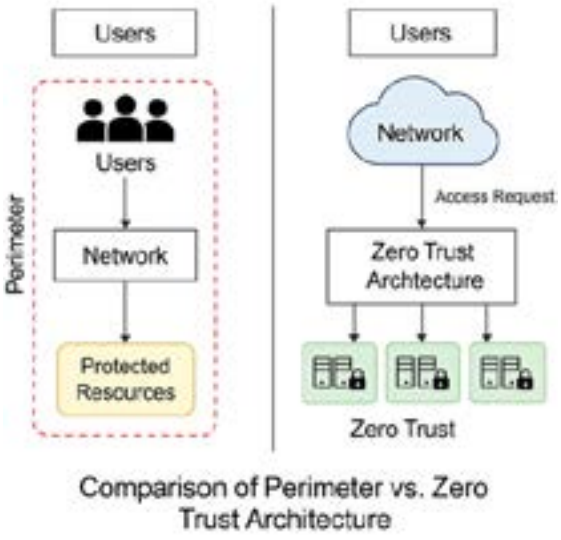
Continuous Authentication and Authorization ensures that identity verification does not stop after initial login. Instead, the system revalidates trust at regular intervals or when risk indicators arise. Techniques include multifactor authentication (MFA), adaptive risk scoring, and ongoing session monitoring.

Contextual Access Decisions enhance security precision by incorporating environmental variables—such as device compliance, user location, access time, and workload sensitivity—into access policies. This contextualization allows the system to apply risk-adaptive rules, such as restricting high-risk devices from accessing sensitive applications.

Security Automation and Orchestration enable ZTA to scale effectively and respond to emerging threats. Using centralized policy engines, automated enforcement systems, and integration with threat intelligence platforms, ZTA environments can dynamically adjust policies and remediation strategies without manual intervention.

Visibility and Analytics provide the foundation for informed access control. All user and system interactions are logged, monitored, and analyzed in real time. This telemetry is critical not only for detecting anomalies but also for meeting compliance requirements and conducting forensic investigations.

FIGURE 2. Conceptual comparison of Perimeter-Based and Zero Trust Architecture models



ZTA Components and Technologies

A comprehensive Zero Trust Architecture integrates a diverse set of technologies, structured into three primary operational layers.

The **Policy Engine (PE)** acts as the centralized authority that evaluates access requests. It processes signals from various systems—such as identity providers, device managers, and behavioral analytics—and makes policy-based decisions on whether to allow, deny, or escalate access requests.

The **Policy Administrator (PA)** implements the decisions made by the Policy Engine. It configures authentication services, deploys certificates, and ensures that enforcement components are properly synchronized with policy changes.

The **Policy Enforcement Point (PEP)** resides at the edges of protected assets. It enforces access rules by inspecting traffic, applying encryption, and verifying that both users and devices comply with the required trust conditions.

Supporting technologies include:

- **Identity and Access Management (IAM)**: Enables secure authentication and role-based access across cloud and on premises applications. It is essential for integrating user attributes into access decisions.
- **Multifactor Authentication (MFA)**: Enhances identity assurance by combining two or more verification methods something the user knows (password), has (token), or is (biometric).
- **Endpoint Detection and Response (EDR)**: Monitors endpoint activity, enforces compliance with security posture, and provides telemetry for threat detection.
- **Software-Defined Perimeters (SDP)**: Dynamically create encrypted and ephemeral communication tunnels between trusted endpoints, effectively cloaking services from unauthorized discovery.
- **Zero Trust Network Access (ZTNA)**: Offers granular, application-specific access policies that avoid exposing internal networks to the user, thereby reducing attack vectors significantly.

FIGURE 3. ZTA Logical Framework (Policy Engine, Admin, Enforcement Point)



Implementation Models

ZTA can be implemented through multiple models, each emphasizing a different aspect of security enforcement depending on organizational needs.

An **Identity-Based ZTA** model emphasizes user identity and access credentials. It relies on robust IAM systems, coupled with MFA and directory services, to validate each user interaction. This model is particularly useful in distributed workforces and SaaS-heavy environments.

A **Device-Based ZTA** model prioritizes endpoint health and compliance. Access is granted or denied based on factors like device patch status, antivirus presence, and MDM integration. This model is crucial in environments where unmanaged or BYOD devices are prevalent.

A **Network-Based ZTA** model focuses on controlling traffic flows through segmentation, inspection, and encryption. It typically leverages SDPs and network firewalls configured with contextual policies to prevent lateral movement within the infrastructure.

In practice, effective Zero Trust deployments combine elements of all three models to provide layered and adaptive defenses.

Benefits of ZTA

The adoption of Zero Trust Architecture provides several measurable benefits across cybersecurity, compliance, and operational efficiency domains.

Mitigation of Insider Threats: Continuous verification and least-privilege access limit the ability of compromised accounts to escalate privileges or exfiltrate sensitive data.

Enhanced Cloud and Remote Work Security: By decoupling access control from network topology, ZTA enables secure, scalable remote access without VPN dependency. This is particularly beneficial for hybrid or multi-cloud environments.

Reduced Attack Surface: Micro-segmentation and resource-level controls minimize the number of accessible services, restricting lateral movement and exposure.

Compliance Enablement: Real-time auditing, logging, and policy enforcement support regulatory frameworks such as NIST 800-207, GDPR, and HIPAA.

Proactive Threat Detection: Integration of analytics and telemetry allows the identification of unusual behaviors before they escalate into breaches.

Challenges in ZTA Adoption

While ZTA delivers numerous benefits, its implementation presents technical, organizational, and operational challenges.

Integration Complexity: Coordinating IAM, EDR, NAC, SIEM, and PEP components demands architectural planning and vendor interoperability.

Legacy Compatibility: Many older systems lack support for identity-centric or policy-driven access models, making retrofitting costly or unfeasible.

Increased Resource Demands: Real-time analysis and policy enforcement require additional processing power and network bandwidth, especially in high-throughput environments.

Cultural Resistance: Transitioning from implicit to explicit trust may introduce friction among users and administrators who are accustomed to traditional access workflows.

Policy Management at Scale: Maintaining dynamic, context-aware policies across a large enterprise without automation can quickly become unmanageable.

Recent Literature on ZTA

Recent academic and industry publications have significantly advanced the theoretical and practical understanding of ZTA.

Gambo and Almulhem (2025) conducted a systematic review highlighting the adoption of telemetry-based policy enforcement and the evolution of adaptive session control. Liman et al. (2025) presented phased implementation strategies tailored to hybrid infrastructures, providing practical roadmaps and integration guidelines. Harris (2025) emphasized the superior containment capabilities of Zero Trust segmentation versus VLAN-based controls in real-world breach scenarios. Meanwhile, the Cybersecurity and Infrastructure Security Agency (CISA, 2025) updated its ZTA maturity model, offering performance metrics and benchmarks for federal adoption programs.

These contributions collectively reinforce the position of Zero Trust not merely as a security model, but as a transformative architectural framework essential to modern cybersecurity resilience.

The next chapter presents a structured comparison of traditional and Zero Trust models across the key dimensions of access control, authentication, threat mitigation, scalability, and operational complexity.

Comparative Analysis of Traditional Network Security and Zero Trust Architecture

This section provides a comparative analysis between traditional network security models and Zero Trust Architecture (ZTA), focusing on their respective capacities to address key security challenges in contemporary IT environments. Drawing on the findings from the reviewed literature, the comparison is organized across several thematic dimensions: access control, authentication, threat detection, insider threat mitigation, lateral movement prevention, cloud and remote access compatibility, scalability, and operational complexity.

Access Control

Traditional network security implements access control primarily through static mechanisms such as Access Control Lists (ACLs) and VLAN segmentation. These tools often grant users or devices access based on IP addresses or physical location within the network, assuming that entities inside the perimeter are trustworthy. This model lacks dynamic context awareness and provides limited granularity, leading to overprivileged access (Zhang et al., 2021).

In contrast, ZTA enforces access control based on dynamic, identity-driven policies. Access decisions are context-sensitive, taking into account user roles, device health, behavior patterns, and environmental conditions. Permissions are continuously reassessed, and access is limited to only the necessary resources, significantly reducing the risk of unauthorized or excessive access (Rose et al., 2020).

Authentication

Traditional architecture typically relies on one-time authentication mechanisms at login. Once authenticated, users can access broad segments of the internal network, with minimal ongoing verification. This static approach creates vulnerabilities if credentials are compromised, allowing attackers to navigate the network freely (Verizon, 2023).

ZTA introduces continuous authentication and adaptive authorization. Multifactor authentication (MFA) is a baseline requirement, and sessions are monitored for behavioral anomalies. If deviations are detected, access can be downgraded or revoked in real time. This model ensures that authentication is an ongoing process rather than a single event (He et al., 2022).

Threat Detection and Response

In traditional models, threat detection is primarily based on signature-based Intrusion Detection and Prevention Systems (IDS/IPS). These systems rely on known attack patterns and often generate alerts that must be manually investigated. While effective against well-documented threats, they struggle with detecting novel or polymorphic attacks (Kim & Feamster, 2013).

ZTA integrates telemetry, behavioral analytics, and machine learning to detect threats proactively. Security information and event management (SIEM) platforms aggregate data from across the infrastructure to identify deviations from normal behavior. Automated responses are often triggered without requiring manual intervention, enhancing speed and effectiveness in mitigating threats (Gambo & Almulhem, 2025).

Insider Threat Mitigation

Traditional security models provide minimal defenses against insider threats. Once inside the network, users often face little resistance in accessing a wide range of systems. This lack of segmentation and monitoring enables malicious insiders or compromised accounts to operate with relative freedom (Cheng et al., 2023).

ZTA addresses this challenge by continuously validating user identity and applying least privilege principles. Micro-segmentation ensures that even authenticated users can only access narrowly defined resources. Continuous logging and user behavior analytics further enhance the ability to detect insider misuse before significant damage occurs (Harris, 2025).

Lateral Movement Prevention

In perimeter-based models, networks are often flat or segmented by function, but not by dynamic policy. Once an attacker breaches the perimeter, they can often move laterally through internal systems due to a lack of internal enforcement points (Mahdi et al., 2023).

ZTA's micro-segmentation and software-defined perimeter strategies prevent this movement. Each service or resource acts as its own perimeter, requiring re-authentication and policy verification before access is granted. Lateral movement becomes significantly more difficult, as each hop must be explicitly authorized and monitored (Liman et al., 2025).

Cloud and Remote Access Compatibility

Traditional models were not designed with cloud-native or remote-first environments in mind. VPNs and static ACLs offer limited scalability and introduce latency, often leading to poor user experience and high administrative overhead (Zhang et al., 2021).

ZTA natively supports hybrid and multi-cloud environments. Zero Trust Network Access (ZTNA) solutions provide granular, application-level access without exposing the broader network. This approach improves performance and security for remote users and distributed applications (Rose et al., 2020).

Scalability and Operational Complexity

While traditional models are relatively simple to deploy in small or static environments, they do not scale well. Manual rule management, policy inconsistencies, and hardware dependencies introduce operational overhead that grows exponentially with network complexity (Kim & Feamster, 2013).

ZTA introduces its own complexity, particularly during implementation. Integrating multiple technologies—IAM, EDR, SIEM, and policy engines—requires architectural coordination. However, once operational, automation and orchestration

tools reduce day-to-day complexity and enhance responsiveness. Scalability is achieved through software-defined components and policy abstraction layers (CISA, 2025).

Comparative Summary

The table below summarizes the key differences between the two models:

Dimension	Traditional Model	Zero Trust Architecture
Trust Model	Implicit trust inside network	No implicit trust; continuous verification
Authentication	One-time login	Continuous and adaptive
Access Control	Static, IP-based	Contextual, role- and risk-based
Threat Detection	Signature-based IDS/IPS	Behavioral analytics and real-time telemetry
Insider Threat Defense	Minimal	Strong via segmentation and monitoring
Lateral Movement Defense	Weak due to flat networks	Strong via micro-segmentation and SDPs
Cloud/Remote Readiness	Poor; VPN-dependent	High; native cloud support via ZTNA
Scalability	Limited in dynamic environments	High with automation and orchestration

This comparative analysis underscores that while traditional models still serve specific legacy use cases, Zero Trust Architecture provides a more robust, scalable, and context-aware framework suited for modern cybersecurity challenges.

The following chapter will discuss the broader implications of these findings, reflect on the maturity of ZTA adoption, and explore remaining gaps in the research landscape.

Discussion

The comparative analysis presented in the previous chapter reveals distinct differences in how traditional network security models and Zero Trust Architecture (ZTA) address the evolving demands of cybersecurity. This section interprets those findings, discusses their practical and strategic implications, and identifies gaps in the current literature and industry adoption.

Shifting Trust Boundaries

Traditional models rest on the assumption that internal users and devices can be trusted, an idea increasingly invalidated by modern threat vectors. The growing prevalence of insider threats, credential theft, and sophisticated phishing campaigns has rendered perimeter-based trust models obsolete. As demonstrated by multiple case studies, once an attacker penetrates the perimeter, traditional models often fail to prevent lateral movement or privilege escalation. ZTA's emphasis on continuous verification and least-privilege access marks a fundamental redefinition of trust—from location-based to identity- and behavior-based. This shift aligns security architecture with the realities of distributed, cloud-centric, and hybrid environments.

Architectural and Operational Realities

Although ZTA presents a compelling theoretical framework, its implementation introduces significant operational complexity. Coordinating IAM, EDR, ZTNA, policy engines, and telemetry systems across a diverse infrastructure requires advanced architectural maturity. Organizations with legacy systems often struggle to retrofit these environments into a Zero Trust model without substantial investment. Moreover, policy orchestration and management at scale can become bottlenecks without automation.

Despite these challenges, ZTA enables organizations to move away from static controls and manual enforcement toward adaptive, data-driven decision-making. The operational transition from implicit to explicit trust, although complex, is critical for resilience in modern networks.

Security Maturity and Organizational Readiness

The successful deployment of ZTA depends not only on technical infrastructure but also on organizational culture and security maturity. Resistance to change especially from users accustomed to unrestricted access—can undermine implementation. Moreover, institutions lacking centralized identity governance or real-time monitoring may find it difficult to maintain the dynamic controls ZTA requires.

This highlights a need for phased implementation models, starting with identity unification, policy enforcement in critical systems, and telemetry integration. The literature supports hybrid strategies, where elements of Zero Trust are layered onto existing architectures to build maturity progressively.

Research Gaps and Emerging Themes

Although ZTA is increasingly discussed in both academic and professional domains, gaps remain in empirical evaluations of its effectiveness. Most existing literature is conceptual or based on vendor-driven case studies. There is a lack of large-scale, longitudinal research analyzing ZTA's impact on incident reduction, compliance outcomes, and user experience.

Furthermore, the role of artificial intelligence (AI) and machine learning (ML) in augmenting ZTA remains underexplored. These technologies could enable predictive access control, behavioral baselining, and automated policy tuning, but few studies have operationalized such integrations.

Another emerging concern is the need for ZTA models tailored to specific sectors, such as healthcare, finance, or education. These domains have unique regulatory, privacy, and access control requirements that generic ZTA frameworks may not fully address.

Strategic Implications for Future Adoption

The transition to Zero Trust is not merely technical it is strategic. For security leaders, adopting ZTA represents a commitment to adaptive, identity-centric governance. As regulatory bodies increasingly reference Zero Trust principles (e.g., NIST 800-207, CISA guidelines), compliance-driven adoption is likely to accelerate. Future implementations must prioritize modularity, interoperability, and automation. Vendors and solution architects must design tools that align with Zero Trust principles without demanding wholesale infrastructure replacement. Additionally, research and development should focus on creating standardized maturity models and benchmarking tools that can guide adoption pathways. In summary, while traditional models continue to offer value in specific, low-risk scenarios, Zero Trust Architecture provides a forward-looking framework equipped to handle the threats and complexities of modern IT ecosystems. Successful implementation demands not only technological capability but also organizational transformation, continuous research, and community collaboration.

Conclusion

This study has examined and compared traditional network security models with Zero Trust Architecture (ZTA) through a structured literature review. The findings confirm that traditional perimeter-based models, although still present in many legacy systems, no longer align with the complexity and distribution of modern IT environments. The implicit trust model on which they rely creates significant vulnerabilities, especially in handling lateral movement, insider threats, and access control. Zero Trust, by contrast, introduces a more dynamic and resilient approach. It replaces static defenses with continuous verification, identity-driven access, and context-aware policies. Through mechanisms like micro-segmentation, multifactor authentication, and behavioral analytics, ZTA offers organizations greater visibility, adaptability, and breach containment capabilities. The shift from traditional to Zero Trust models represents more than a technological upgrade—it reflects a fundamental change in how trust and access are managed in digital systems. While the transition poses integration and operational challenges, the benefits in terms of improved security posture, regulatory alignment, and strategic adaptability are substantial. In conclusion, Zero Trust Architecture provides a forward-looking security framework that addresses the shortcomings of legacy models and meets the demands of a cloud-based, remote, and threat-intensive landscape. As cybersecurity threats evolve, so too, architectures designed to defend against them. ZTA stands as a viable and necessary path forward for modern network security.

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Comparative analysis of reinforced concrete columns using M-N interaction diagrams, according to Albanian Norms and Eurocodes

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Abstract

In a reinforced concrete structure, a column, is a vertical element which primary function is to carry the loads from beams (floors) to the structure's foundation, also, during earthquakes (lateral seismic load) together with shear walls, they provide the lateral resistance of the structure. Under gravity loads, columns are subject to high values of axial compressive force, especially the lower levels of the structure and relatively small bending moments, but, during earthquakes, they also undergo high values of bending moments on both directions. For this type of loading (axial compressive force with bending moment) we can derive the equilibrium equations of the element cross section, but calculating the reinforcement area from these equations is very impractical, so as an alternative, are used the M-N interaction diagrams. Even though Eurocodes are still not officially in force in Albania, the Albanian structural designers are using Eurocodes as their primary design code. The Authors considered helpful to determine the M-N interaction diagrams according to both the codes, in order to point out the similarities and differences between Albanian norms and Eurocodes. The Albanian norm that determines the method of calculation of reinforced concrete columns is "Kushti teknik i projektimit të konstruksioneve betonarme me metodën e gjendjeve kufitare, K.T.P.-N30, 1991"

Key-words: *Reinforced concrete columns, M-N interaction diagrams, "Kushti teknik i projektimit të konstruksioneve b.a. me metodën e gjendjeve kufitare K.T.P.-N30, 1991, Albanian norms, Eurocodes.*

Introduction

An interaction diagram for reinforced concrete columns, is a graphic plotted on a M-N coordinative system which shows the relationship between the axial compressive force and bending moment bearing capacity of a reinforced concrete column, also it shows how the given column will behave under various combination of axial load and bending moment. Since is very difficult with demanding calculations in order to calculate the reinforcement quantity needed for a reinforced concrete column by using the equilibrium equation, the interaction diagram is a very helpful alternative in order to determine the quantity of the reinforcement needed. Eurocode 2, together with other coherent Designs Codes, offer a clear explanation of how to build an interaction diagram and for Eurocode 2 (also others Codes) this is the main procedure for the design of reinforced concrete columns. From the other hand, for *K.T.P.-N30, 1991* the concept of interaction diagram is completely unknown and the design of reinforced concrete columns is done with the help of design formulas, which are different for different cases of working condition (no eccentricity, small eccentricity or large eccentricity). In order to fill this gap, for

the design of reinforced columns, between Eurocode 2 and *K.T.P.-N30, 1991,* the authors, elaborating the formulas given on *K.T.P.-N30, 1991*, are presenting in this article a way of how to build an interaction diagram according to the Albanian Norm, and compare the results with Eurocode 2. Since the rectangular reinforced columns, with a symetric arrange of reinforcement are widley used on reinforced concrete structures, this article is focused only on these type of colums, but the filosophy is also the same for square, circular, and in general for any shape of cross section. The article is organised in two part. In the first part is given the theoritcal approches according to both codes including the philosopy of design and the respective formulas for the building of an interaction diagram, while the second part is focused on a numerical solution, which is presented in order to point out the differences also numerically. The numerical solution is very helpful to quantify the differences between the two Codes. The authors are confident that Eurocodes are a very advanced design code compared with Albanian Norms, and the procedure explained on Eurocode 2 will be more comprehensive compared to the addapted procedure of *K.T.P.-N30, 1991.*

Eurocode 2 approach

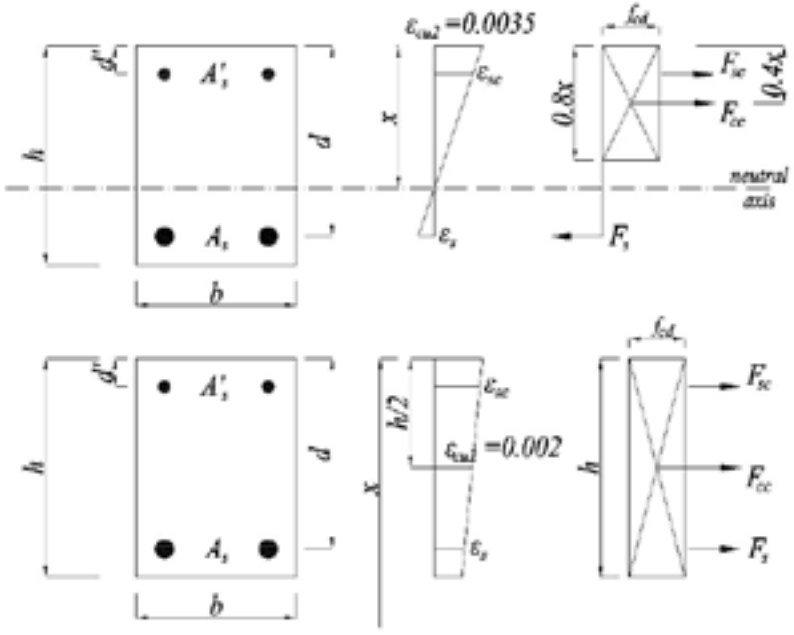
In order to derive the equilibrium equations for evaluating the column strength under bending and axial load and so, to build the M_{Rd} - N_{Rd} interaction diagram for a rectangular concrete column, Eurocode 2 take in consideration two cases of stress distribution on the cross section:

Case 1 – This is the case where there is tension on the cross section, meaning $x<h$ so the neutral axis falls inside the section. In this case the limiting concrete strain is taken $\varepsilon_{cu2} = 0.0035$.

Case 2 – This is the case where there is no tension on the cross section or all the section is under compression, meaning $x>h$ so the neutral axis lies outside the section. In this case the limiting concrete strain is taken $\varepsilon_{cu2} = 0.002$ calculated at a level of *0.5h* (mid-section).

For both the sections, the stress – strain relationship on the cross section and the acting forces on each element (tension reinforcement, compressive reinforcement and compressive concrete) are illustrated in Figure 1.

FIGURE 1. Stress-strain relationship on a cross section for two cases of stress distribution [2]



F_{cc} – the compressive force developed in the concrete

F_{sc} – the compressive force developed in the reinforcement A'_s

F_s – the tensile (or compressive force depending on the case studied) force developed in the reinforcement A_s.

As we can see, the stress block is accepted as the rectangular equivalent with a depth *0.8x* and the centroid at *0.4x*. This assumption is done to facilitate the calculations. Also, the strains relationship is linear which will help in determine the stresses on reinforcement.

The equilibrium equations for each of the above case are given by the following expressions:

$$N_{Rd} = F_{cc} + F_{sc} - F_s$$
$$M_{Rd} = F_{cc} \cdot \left(\frac{h}{2} - \frac{0.8x}{2} \right) + F_{sc} \left(\frac{h}{2} - d' \right) + F_s \left(\frac{h}{2} - d \right) \quad (1)$$

After some transformation done on the above equations the following expression are derived:

$$N_{Rd} = f_{cd} \cdot 0.8 \cdot x \cdot b + f_{sc} \cdot A'_s - f_s \cdot A_s$$
$$M_{Rd} = f_{cd} \cdot 0.8 \cdot x \cdot b \cdot \left(\frac{h}{2} - \frac{0.8x}{2} \right) + f_{sc} \cdot A'_s \cdot \left(\frac{h}{2} - d' \right) + f_s \cdot A_s \cdot \left(\frac{h}{2} - d \right) \quad (2)$$

As we can see from the above equations, the sum of moments is taken against the mid depth of the section. This is very helpful for facilitating the calculations.

The steel stresses f_s and f_{sc} on both the tension reinforcement and compressive reinforcement are calculated with the help of the following expressions based on the Hook's law (linear stress-strain relationship):

$$f_s = E_s \cdot \varepsilon_{st} \text{ and } f_{sc} = E_s \cdot \varepsilon_{sc} \quad (3)$$

Where E_s is the elasticity modulus for steel and ε_{st}; ε_{sc} are the respective steel strains calculated with the help of the following expressions:

Case 1 where there is tension on the section, so the neutral axis falls inside the section, $x<h$:

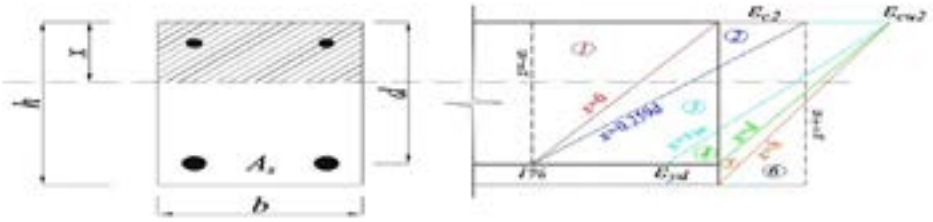
$$\varepsilon_{st} = 0.0035 \cdot \left(\frac{d - x}{d} \right) \text{ and } \varepsilon_{sc} = 0.0035 \cdot \left(\frac{x - d'}{x} \right) \quad (4)$$

Case 2 where there is no tension, so the neutral axis falls outside the section, $x>h$:

$$\varepsilon_{st} = 0.002 \cdot \left(\frac{x - d}{x - 0.5h} \right) \text{ and } \varepsilon_{sc} = 0.002 \cdot \left(\frac{x - d'}{x - 0.5h} \right) \quad (5)$$

The expression (4) and (5) are derived from the triangle similarity on the Figure 1. (Since a linear relationship between the strains is accepted). As it is explained above, for a given value of x and with the help expressions (2), (3), (4) or (5), we can calculate the values of N_{Rd} and M_{Rd} and so to build the interaction diagram. With the help of the following figure, we can determine the values of x:

FIGURE 2. Values of x used for the interaction diagram [Authors]



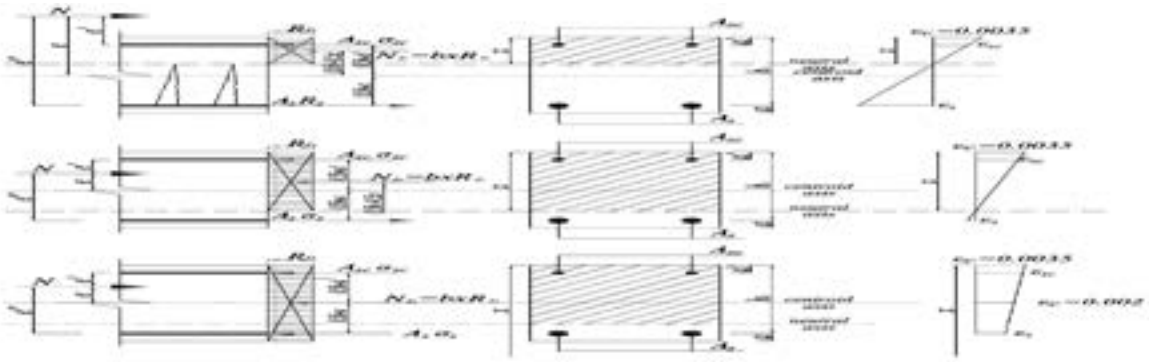
On Figure 2 are given the 'key' values of x that separates the various conditions of stress distribution on the cross section. As it seen from the above figure, there are six different stressed conditions of the cross section, each of them connected to specific position of the neutral axis. Based on these specific positions of the neutral axis, the interaction diagram is built. As it seen, the neutral axis varies from pure tension to pure compression with some characteristic positions in between which express different states of cross section stresses.

K.T.P.-N30, 1991 approach

According to K.T.P.-N30, 1991, the design of a reinforced concrete column under axial compressive force and bending moment is performed for two different cases of cross section stresses conditions:

Case 1 – the case of large eccentricity (which is a case that is similar to a cross section under bending), determined by the condition $x \leq \xi_y \cdot h_0$. In this case, the concrete section under the neutral axis has cracked (failed) and all the tensile force is carried from the tensile reinforcement which has reached R_s (reinforcement designed yield strength), the compressed concrete above neutral axis has reached R_b (concrete compressive designed strength). This case is explained on the following Figure 3 where are shown the forces acting on the tension reinforcement, compressive reinforcement and also on the compressive concrete. Also, as it seen, the strain distribution is accepted linear.

FIGURE 3. Case 1, large eccentricity. [Authors]



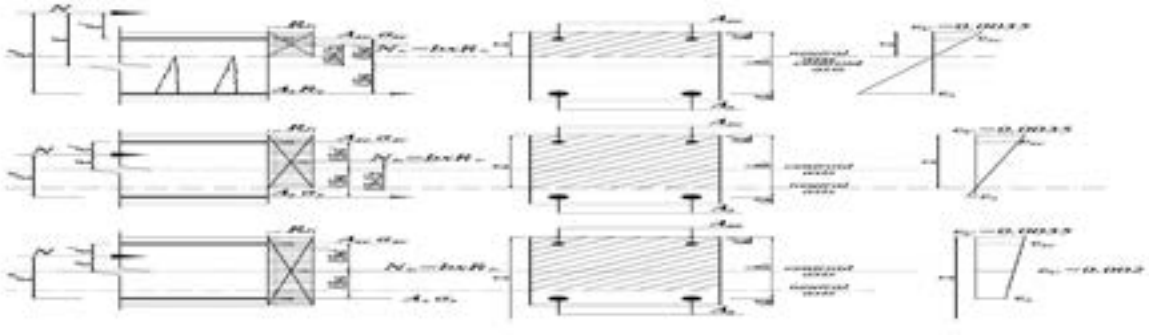
Writing the equilibrium equations based on the above figure:

$$N \cdot e \leq b \cdot x \cdot R_b \cdot (\frac{h}{2} - 0.5 \cdot x) + A_{sc} \cdot \sigma_{sc} \cdot \left(\frac{h}{2} - a'\right) + A_s \cdot R_s \cdot \left(\frac{h}{2} - a\right)$$
$$N \leq b \cdot x \cdot R_b + A_{sc} \cdot \sigma_{sc} - A_s \cdot R_s \quad (6)$$

The sum of moments is taken against the mid depth of the section in similarity with Eurocode 2. Originally, on K.T.P.-N30, 1991 the sum of moments for deriving the equilibrum equations is taken according to the tension reinforcement centroide.

Case 2 – the case of small eccentricity determined by the condition $x > \xi_y \cdot h_0$. This case has two different subcases based on the tension part of section. The first, Case 2.1 is when there is tension on the section, as is given in the following figure:

FIGURE 4. Case 2.1. Small eccentricity with tension on section [Authors]

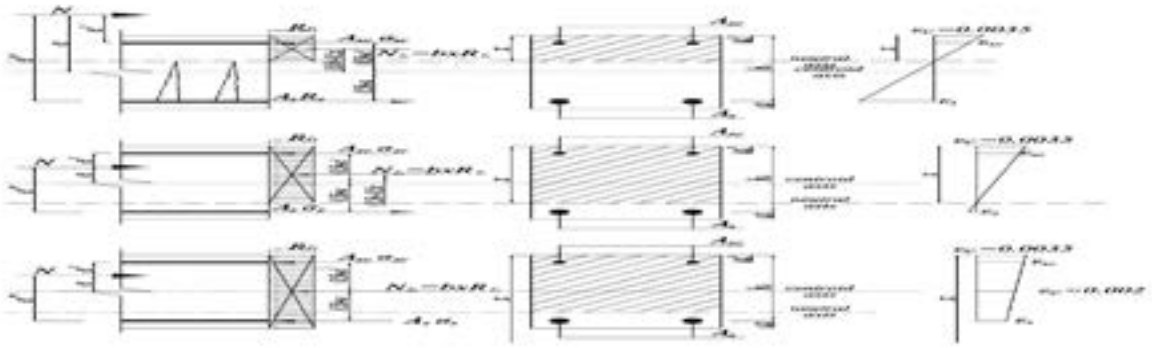


The equilibrium equations for the Case 2.1. of small eccentricity, as it is showed on Figure 4, are determined by the following expressions:

$$N \cdot e \le b \cdot x \cdot R_b \cdot (\frac{h}{2} - 0.5 \cdot x) + A_{sc} \cdot \sigma_{sc} \cdot \left(\frac{h}{2} - a'\right) + A_s \cdot \sigma_s \cdot \left(\frac{h}{2} - a\right)$$
$$N \le b \cdot x \cdot R_b + A_{sc} \cdot \sigma_{sc} - A_s \cdot \sigma_s \quad (7)$$

The second, Case 2.2 is when there is no tension on the section, so all the section is under compression, as is given in the following figure:

FIGURE 5. Case 2.2. Small eccentricity without tension on section [Authors]



The equilibrium equations for the Case 2.2. of large eccentricity, as it is showed on Figure 5, are determined by the following expressions:

$$N \cdot e \le A_{sc} \cdot \sigma_{sc} \cdot \left(\frac{h}{2} - a'\right) - A_s \cdot \sigma_s \cdot \left(\frac{h}{2} - a'\right)$$
$$N \le b \cdot x \cdot R_b + A_{sc} \cdot \sigma_{sc} + A_s \cdot \sigma_s \quad (8)$$

For the Case 2, the case of low eccentricity, the stresses on steel are unknown and in the similar way as Eurocode 2, the authors, will calculate the steel stresses with the help of expressions based on the Hook's law (linear stress-strain relationship):

$$\sigma_s = E_s \cdot \varepsilon_s \text{ and } \sigma_{sc} = E_s \cdot \varepsilon_{sc} \quad (9)$$

And so, we have:
For the Case 2.1. the strains are given by the following expression:

$$\varepsilon_s = 0.0035 \cdot \left(\frac{h_0 - x}{h_0}\right) \text{ and } \varepsilon_{sc} = 0.0035 \cdot \left(\frac{x - a'}{x}\right) \quad (10)$$

For the Case 2.2 the strains are given by the following expression:

$$\varepsilon_s = 0.002 \cdot \left(\frac{x - h_0}{x - 0.5h}\right) \text{ and } \varepsilon_{sc} = 0.002 \cdot \left(\frac{x - a'}{x - 0.5h}\right) \quad (11)$$

In the same way as in the Eurocode 2 approach, expression (10) and (11) are derived from the triangle similarity shown on Figure 4 and Figure 5. As it seen, the product $\xi_y \cdot h_0$ is used as a border value for differencing the two cases of eccentricity (large or small) according to K.T.P.-N30, 1991. ξ_y is a coefficient given by the following expression:

$$\xi_y = \frac{\omega}{2 - \frac{\omega}{1.1}} \quad (12)$$

Where ω is a coefficient which represent the plastic values of concrete which depends from the concrete classes, and is given by the following expression:

$$\omega = 0.85 - 0.008R_b \quad (13)$$

On expression (13) R_b is given is MPa.

Also, if $\xi_y<1$ there is tension on the reinforcement A_s (Case 2.1) and if $\xi_y>1$ there is compression on the reinforcement A_s (Case 2.2)

On the above expression:

R_b – concrete compressive strength

R_s; R_{sc} – reinforcement tensile and compressive strength

σ_s; σ_{sc} – stresses on tensile and compressive reinforcement

ε_s; ε_{sc} – strains on tensile and compressive reinforcement

h – section depth

a' – depth of compressive reinforcement

a – depth of tensile reinforcement

h_0 – effective depth of the section

Comparison assumptions

Based on the recomandations of both Eurocode 2 and K.T.P.-N30, 1991, the ultimate strains in concrete are accepted $\varepsilon_{cu2}=\varepsilon_c=0.2\%$ for pure compression and $\varepsilon_{cu2}=\varepsilon_c=0.35\%$ for compression from bending. Also the design strain on reinforcement is accepted $\varepsilon_{syd}=\varepsilon_s=0.187\%$.

Based on Figure 2, the 'key' values of x used according to Eurocode 2 are as follow:

- $x=0$ meaning that all the section is under tension with $\varepsilon_{syd}(\varepsilon_s)=1\%$
- $x = \dfrac{0.35\%}{0.35\%+1\%}d$ the balanced section, meaning that concrete and reinforcement has reachd simultaneous their design resistance.
- $x = \dfrac{0.35\%}{0.35\%+0.187\%}d = x_{\lim}$ is the depth of neutral axis when the reinforcement steel has reached ε_{syd} $(\varepsilon_s)=0.187\%$
- $x=d$ the case when $\varepsilon_s=0$ % and $\varepsilon_{cu2}(\varepsilon_c)=0.35\%$
- $x=h$ when $\varepsilon_{cu2}(\varepsilon_c)=0.2\%$ all the section under compression.

The same values of x will be used for building the interaction diagram also for K.T.P.-N30, 1991 keeping in mind the value $\xi_y \cdot h_0$ which separate the two cases of eccentricity.

Calculation

As is previously stated on the article begging, the numerical comparison between the two Codes, Eurocode 2 and K.T.P.-N30, 1991, will be done based on calculations for a rectangular cross section reinforced concrete column with dimensions *30x50 cm, d'=a'=3.5 cm* and $d=h_0=46.5$ *cm*, the concrete class used is *C25/30* with $f_{cd}=113$ daN/cm^2 for Eurocode 2 calculations and *B30* with $R_b=160$ *daN/cm*^{2} for K.T.P. Nr.30 – 1991 calculations, $\varepsilon_{cu2}=\varepsilon_c=0.2\%$ for pure compression and $\varepsilon_{cu2}=\varepsilon_c=0.35\%$ for compression from bending. The section is reinforced simetrically with $A_s=A'_s=8.04$ *cm*^{2} (*4Ø16* per side). The steel used is with $f_{yd}=R_s=3739$ *daN/cm*^{2}, $E_s=2000000$ *daN/cm*^{2} and $\varepsilon_{syd}=\varepsilon_s=0.187\%$.

The results of the calcualations performed are displayed graphically on the following figures:

FIGURE 6. Interaction Diagram according to Eurocode 2

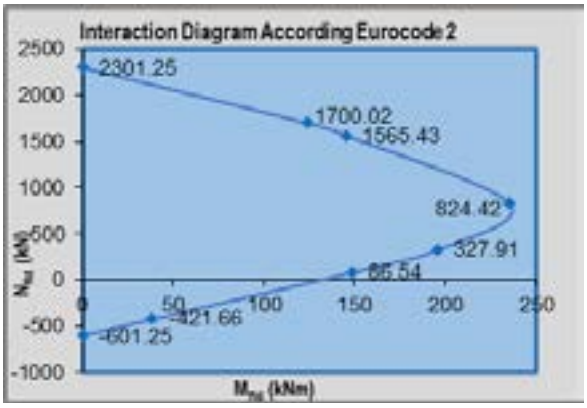


FIGURE 7. Interaction Diagram according to K.T.P.89 – N.30

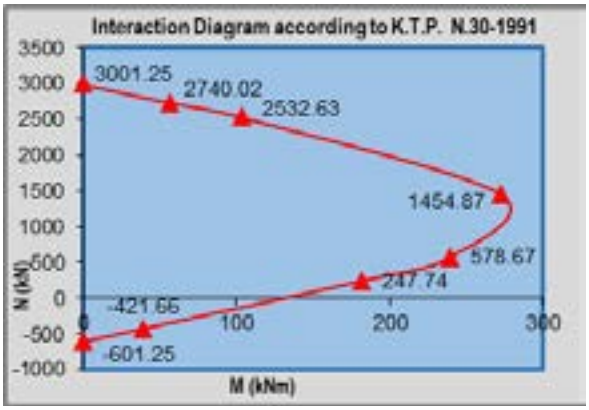
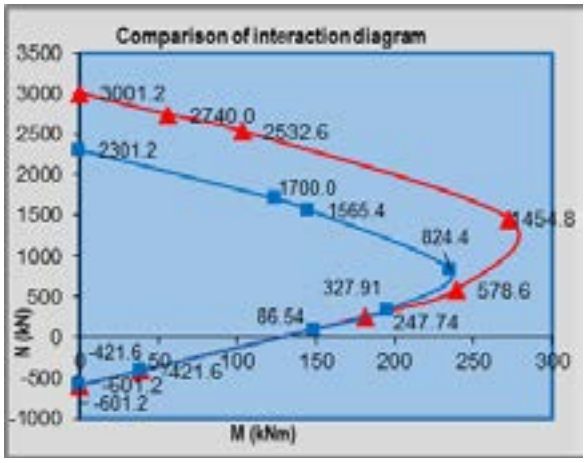


FIGURE 8. Comparison of interaction diagrams



Results

Based on Figure 7, where the two interaction diagrams are compared (blue line Eurocode 2 and red line K.T.P. N30-1991) the following conclusions are deducted:

- Eurocode 2 has a very concise method for building an interaction diagram done with the help of equilibrium equations and stress-strain relationship.
- For KTP N.30-1991 the concept of integration diagram is unknown, even though the equilibrium equations analyzing the section are very similar with Eurocode 2, KTP N.30-1991 do not take in consideration the stress-strain relationship for evaluating the stresses on concrete and reinforcing steel.
- In order to build the interaction diagram, Eurocode 2 take in consideration various positions of neutral axis (Figure 2) corresponding to different states of stress-strain distribution across the section. KTP N.30 – 1991 only uses the border value of $\zeta_y \cdot h_0$ for differencing tow cases of eccentricity.
- In order to compare the two codes, the authors, adapted the formulas of KTP N.30 – 1991.
- Both the codes demonstrate the same bearing capacity for compressive force and bending moment in the first part of the interaction diagram (first 4 points on the lines the diagrams are overlapped). This is explained because in this part the section is dominated from tensile failure, corresponding to large eccentricities, and the concrete contribution is low.
- With the increasing of neutral axis depth, reaching the balanced section, corresponding to low eccentricities, the contribution of concrete compressive strength increases, and in this part KTP N30.1991 offers higher bearing capacity for both compressive and bending moment. This is explained because KTP N.30 – 1991 accepts higher concrete compressive resistance compared to Eurocode 2.

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The hydraulic analysis of the transmission main pipeline with self-flow, in the case of branching a pipeline into two separate pipelines

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Abstract

The design of a water supply system for a residential area involves the study and sizing of different parts of the system, such as intake from sources, possible water treatment plants, potential pump stations, water distribution or transmission main pipelines, and distribution networks within residential centers or residential and industrial complexes that must supply water to the users of the settlement. The transmissin main pipeline of a water supply system serves to transport water from the source(s) to the reservoir(s) of the residential area. Depending on the case, the transmission pipeline can be gravity-fed (with or without pressure), mechanically lifted, or combined. The most common case, which will be addressed in this article is the gravity-fed transmission line, where the water level at the source is higher than the level of the reservoirs in the residential center. In the design practice of water supply systems for residential areas, due to the configuration of the water supply system, the number of sources, and the number of reservoirs, there is often the case where the water transmission pipeline from a source branches off, and the water is then transported through separate pipelines to two different reservoirs of the residential area. The hydraulic analysis of the transmission main pipeline for the aforementioned case will be addressed for a specific water supply system project.

Key-words: *Water supply system, transmission main pipeline, reservoir.*

Introduction

The hydraulic analysis of the transmission main pipeline, in the case where the water transmission pipeline from a source branches off, and the water is then transported through separate pipelines to two different reservoirs of the residential area, will be addressed for a specific case, which is the water supply system of Himara City. The transmission line for the water supply of Himara City starts from the water intake at the Lëpusha spring, continues near the Himarë-Pilur road, and then branches into two lines: one leading to the regulating reservoir of Himara Village,

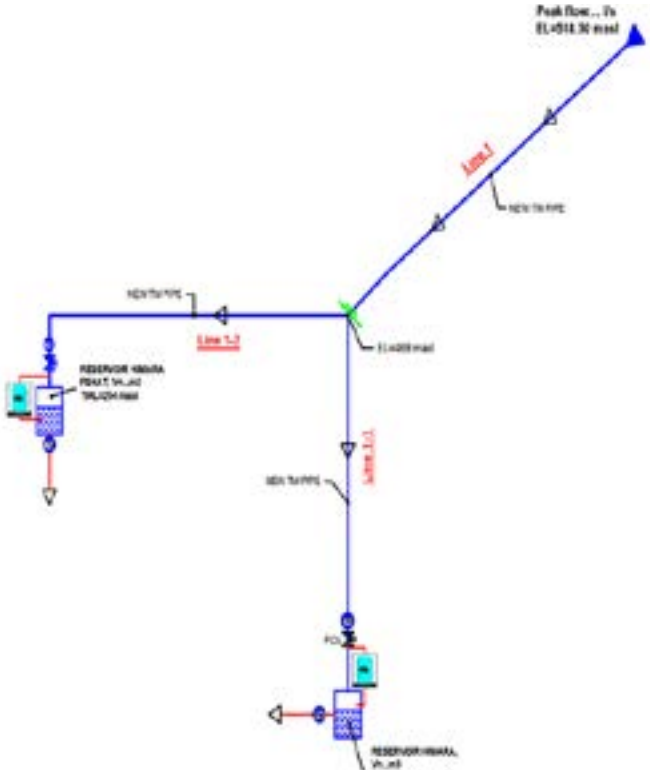
and the other to the reservoir of Himara City. This network will operate based on a gravity flow system. The pipeline profiles have been selected based on the primary criterion that water should be transported from the Lëpusha spring to the final point solely by gravity.

FIGURE 1. Layout of the Transmission Network of the Water Supply System of Himara City and Himara Village [Authors]



Complete hydraulic scheme of the transmission line

FIGURE 2. Complete Hydraulic Scheme of the Transmission Line [Authors]



Hydraulic calculations of the transmission line

The sizing of the pipelines in the water supply system is carried out to convey the maximum daily flow over a 24-hour period. In this case, we have a pipeline that branches into two transmission lines, supplying water to the reservoirs of each residential center. The design flow rate is considered known, and the problem to be solved relates to determining the diameters of the pipelines in the water supply system scheme. This solution is obtained by assuming a specific pressure at the junction point of the transmission pipelines. It is required that the minimum pressure in the water transmission line be 5 meters. The ground elevation at the branching point of the transmission line is 463 meters above sea level (m.a.s.l.). In the hydraulic calculations, we will assume a final piezometric line elevation of 468 m.a.s.l., maintaining a 5-meter pressure reserve. It is recommended that the hydraulic calculations for the pipelines in the water supply system be performed by considering them as aged pipes, with higher wall roughness than when they are new. For this reason, in the dimensioning of the transmission line, according to the ductile iron DI pipe table, we will use a hydraulic slope value for k = 0.10 mm. It should be noted that this roughness level will be reached after many years, practically in the final years of the structure's operational period. In the initial years, when the pipeline roughness is lower than the value assumed in the calculations, the hydrodynamic energy line will be positioned higher, resulting in an increase in flow rate (higher kinetic energy) and pressure. The formulas that can be used for the sizing of the transmission line are:

1- Manning's formula for flow in closed pipelines:

$$Q = A\left(\frac{1}{n}\right)R^{\left(\frac{2}{3}\right)}s^{\left(\frac{1}{2}\right)} \quad => Determine\ D$$

2- Darcy-weisbach's formula:

$$ih = \left(\frac{\lambda}{d}\right)\left(\frac{V^2}{2g}\right) \quad => Determine\ D$$

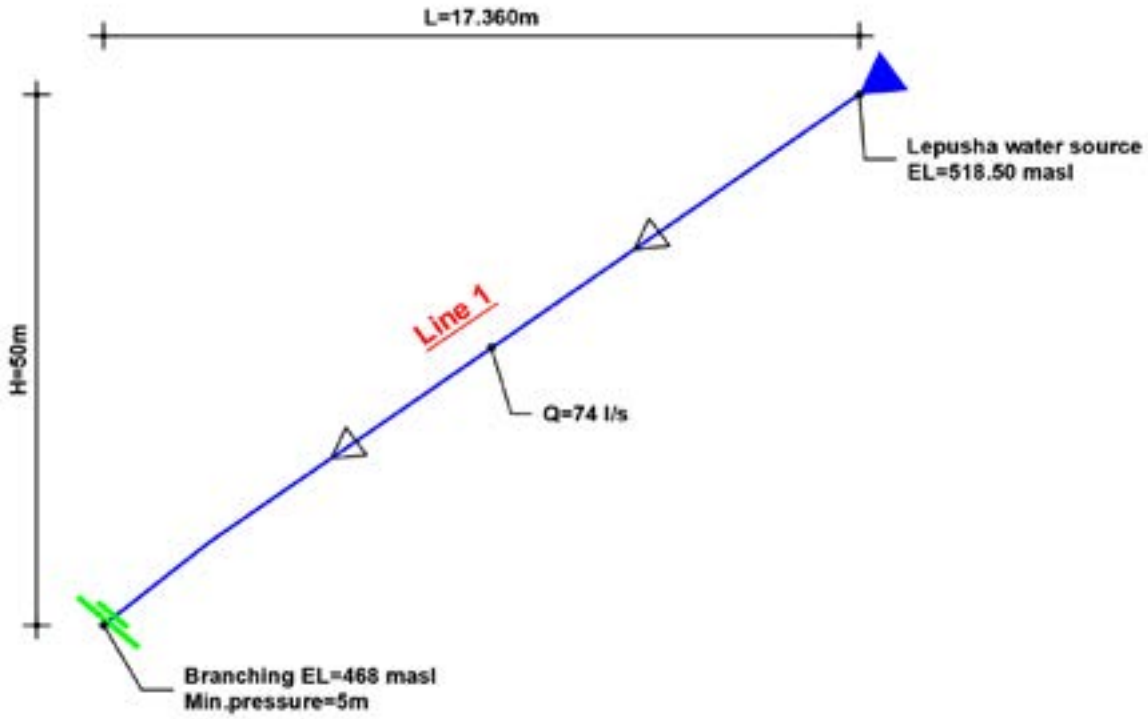
Since the diameter values obtained from the use of formulas do not correspond to the standard fixed sizes of manufactured pipelines, we use pre-established tables for dimensioning: d = f(q, v, ih). The pipeline material will be ductile iron DI.

TABLE 1. Table for diameter calculation according to the function d = f (q, v, ih) [2]

Q (l/s)	NATURAL C40 DN 125			NATURAL C40 DN 150			NATURAL C40 DN 200		
	j (m/km)*		V (m/s)	j (m/km)*		V (m/s)	j (m/km)*		V (m/s)
	k = 0.03 mm	k = 0.10 mm		k = 0.03 mm	k = 0.10 mm		k = 0.03 mm	k = 0.10 mm	
7.00	2.832	3.070	0.57						
7.50	3.209	3.490	0.61						
8.00	3.607	3.936	0.65						
8.50	4.027	4.408	0.69						
9.00	4.469	4.906	0.73	1.844	1.984	0.51			
9.50	4.931	5.429	0.77	2.034	2.193	0.54			
10.00	5.415	5.977	0.81	2.232	2.412	0.57			
10.50	5.920	6.552	0.86	2.438	2.641	0.59			
11.00	6.445	7.151	0.90	2.653	2.880	0.62			
11.50	6.992	7.777	0.94	2.876	3.129	0.65			
12.00	7.559	8.428	0.98	3.107	3.388	0.68			
12.50	8.147	9.104	1.02	3.347	3.656	0.71			
13.00	8.756	9.806	1.06	3.595	3.935	0.74			
13.50	9.385	10.533	1.10	3.852	4.224	0.76			
14.00	10.035	11.285	1.14	4.116	4.522	0.79			
14.50	10.705	12.063	1.18	4.389	4.830	0.82			
15.00	11.396	12.867	1.22	4.669	5.149	0.85			
15.50	12.107	13.695	1.26	4.958	5.477	0.88			
16.00	12.838	14.549	1.30	5.255	5.814	0.91	1.297	1.389	0.51
16.50	13.590	15.429	1.34	5.560	6.162	0.93	1.371	1.471	0.53
17.00	14.362	16.333	1.39	5.873	6.519	0.96	1.448	1.555	0.54
17.50	15.154	17.263	1.43	6.194	6.887	0.99	1.526	1.641	0.56
18.00	15.966	18.219	1.47	6.523	7.264	1.02	1.606	1.729	0.57
18.50	16.799	19.199	1.51	6.861	7.651	1.05	1.688	1.820	0.59
19.00	17.651	20.205	1.55	7.206	8.047	1.08	1.772	1.913	0.60
19.50	18.524	21.237	1.59	7.559	8.454	1.10	1.858	2.008	0.62
20.00	19.416	22.293	1.63	7.920	8.870	1.13	1.945	2.105	0.64
20.50	20.329	23.375	1.67	8.289	9.296	1.16	2.035	2.204	0.65
21.00	21.262	24.482	1.71	8.665	9.732	1.19	2.126	2.306	0.67
21.50	22.214	25.614	1.75	9.050	10.177	1.22	2.219	2.410	0.68
22.00	23.187	26.772	1.79	9.443	10.633	1.24	2.314	2.516	0.70

Sizing of line 1

FIGURE 3. Hydraulic Computational Scheme of Line 1 [Authors]



H=50m
L=17360m (The pipeline is longer than: L=1000*Dj[m] => We will consider local losses = 10 – 20% Longitudinal losses) Accept $h_{w\ \text{Local}} = 15\%\ h_{w\ \text{Longitudinal}}$ (Valve, air vent, bend, inlet losses…etc)
Q=74 l/s
H=$h_{w\ \text{Longitudinal}} + h_{w\ Local} = 1.15\ h_{w\ \text{Longitudinal}}$ => $h_{w\ Longitudinal} = 50/1.15 = 43.5$m

h_w *=43.5m It will be utilized for longitudinal losses (i*l)*

Ih=h_w /L=43.5/17360=0.0025m/m=2.5m/km
Q=74 L/s

For $\begin{cases} \text{Ih} = 2.5\text{m/km} \\ \text{Q} = 74\ \text{L/s} \end{cases}$ *In the pipeline table, it is between two slope values*

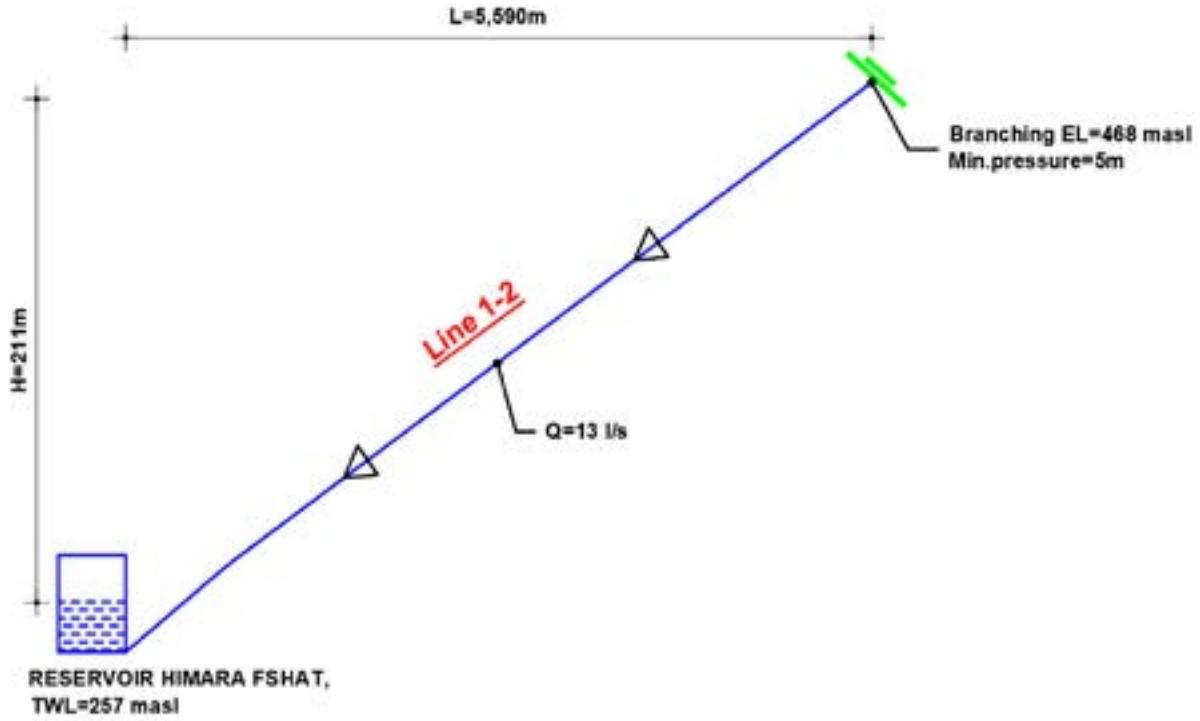
Taken from the table $\begin{cases} \text{Ih1} = 3.269\text{m/km};\ \text{D1} = 300\text{mm};\ \text{V} = 1.05\text{m/s} \\ \text{Ih2} = 1.513\text{m/km};\ \text{D2} = 350\text{mm};\ \text{V} = 0.77\text{m/s} \end{cases}$

Line 1 will be laid out with a single pipeline consisting of two sections with different diameters (D1 and D2) and their respective lengths (L1 and L2).

$$\begin{cases} \text{L1} + \text{L2} = 17360 \\ 0.003269 * \text{L1} + 0.001513 * \text{L2} = 43.5 \end{cases} \Rightarrow \begin{cases} \mathbf{L1 = 9815m\ \ D = 300mm} \\ \mathbf{L2 = 7545m\ \ \ D = 350mm} \end{cases}$$

Sizing of line 1-2

FIGURA 4. Hydraulic Computational Scheme of Line 1-2 [Authors]



H=211m
L=5590m (The pipeline is longer than: L=1000*Dj[m] => We will consider local losses = 10 – 20% Longitudinal losses) Accept $h_{w\ \text{Local}} = 15\%\ h_{w\ \text{Longitudinal}}$ (Valve, air vent, bend, inlet losses…etc)
Q=13 l/s
H=$h_{w\ \text{Longitudinal}} + h_{w\ Local}$=1.15 $h_{w\ \text{Longitudinal}}$ => $h_{w\ Longitudinal}$=211/1.15=183.5m

h_w *=183.5m It will be utilized for longitudinal losses (i*l)*

Ih=h_w /L=183.5/5590=0.03282m/m=32.82m/km
Q=13 L/s

For $\begin{cases} \text{Ih} = 32.82\text{m/km} \\ \text{Q} = 13\ \text{L/s} \end{cases}$ *In the pipeline table, it is between two slope values*

Taken from the table $\begin{cases} \text{Ih1} = 30.302\text{m/km};\ \text{D1} = 100\text{mm};\ \text{V} = 1.66\text{m/s} \\ \text{Ih2} = 94.716\text{m/km};\ \text{D2} = 80\text{mm};\ \text{V} = 2.59\text{m/s} \end{cases}$

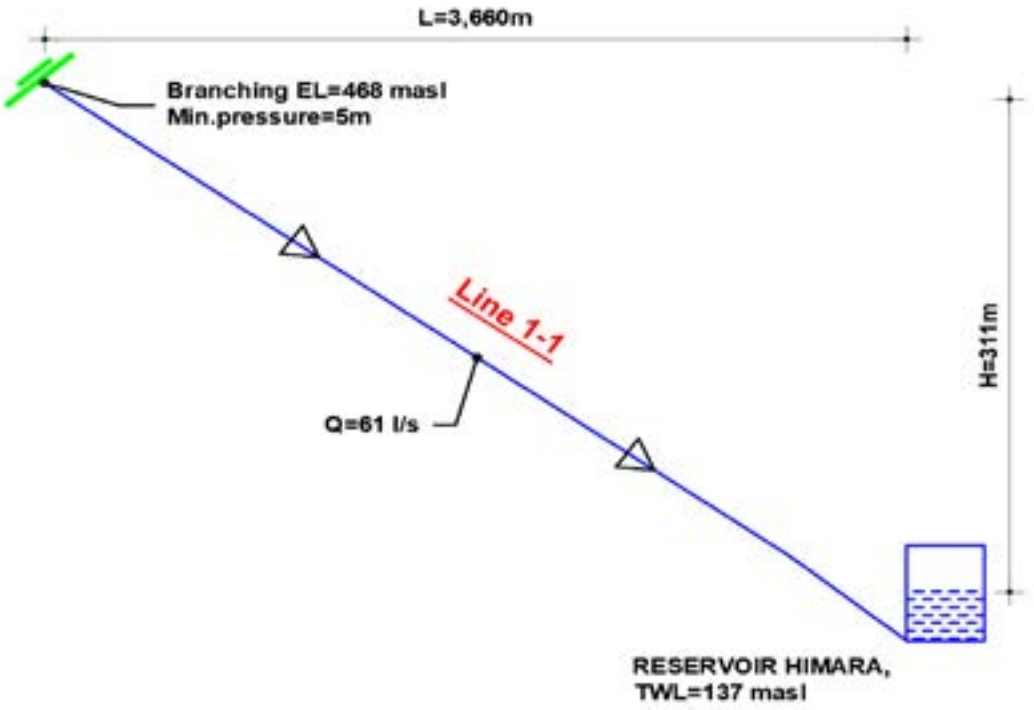
Line 1 will be laid out with a single pipeline consisting of two sections with different diameters (D1 and D2) and their respective lengths (L1 and L2).

$$\begin{cases} \text{L1} + \text{L2} = 5590 \\ 0.0303 * \text{L1} + 0.09471 * \text{L2} = 183.5 \end{cases} \Rightarrow \begin{cases} \mathbf{L1 = 5371m\ \ D = 100mm} \\ \mathbf{L2 = 219m\ \ \ D = 80mm} \end{cases}$$

7

Sizing of line 1-1

FIGURA 5. Hydraulic Computational Scheme of Line 1-1 [Authors]



H=331m
L=3660m (The pipeline is longer than: L=1000*Dj[m] => We will consider local losses = 10 – 20% Longitudinal losses) Accept $h_{w\ \text{Local}} = 15\%\ h_{w\ \text{Longitudinal}}$ (Valve, air vent, bend, inlet losses…etc)
Q=13 l/s
H=$h_{w\ \text{Longitudinal}}$ + $h_{w\ Local}$ =1.15 $h_{w\ \text{Longitudinal}}$ => $h_{w\ Longitudinal}$ =331/1.15=287m

h_w *=287m It will be utilized for longitudinal losses (i*l)*

Ih=h_w /L=290/3660=0.0079234m/m=79.23m/km
Q=61 L/s

For $\begin{cases} \text{Ih} = 79.23\text{m/km} \\ \text{Q} = 63\ \text{L/s} \end{cases}$ =>**D200; ih=0.017228m/m; V=1.91m/s**

=>$h_w = Ihxl = 0.01728 * 3660 = 63m$

So, if we install this pipeline for line 1-1, we will have a pressure that needs to be dissipated at the value of (287-63) 224m. This pressure value can be reduced using pressure-reducing valves or dissipation chambers, which will be placed along the length of line 1-1 to ensure that the pressure values remain within the limits that the pipeline can withstand while also maintaining a pressure reserve to account for hydraulic surges. To ensure greater accuracy in the calculations of the transmission line, the WaterCad software is used to verify the results.

Modeling of the transmission line in the watercad calculation software

The hydraulic scheme of the water transmission line has been modeled according to the actions performed analytically, and the obtained results are presented in the table below:

TABLE 2. Summary Table of Results for the Water Transmission Line [Authors]

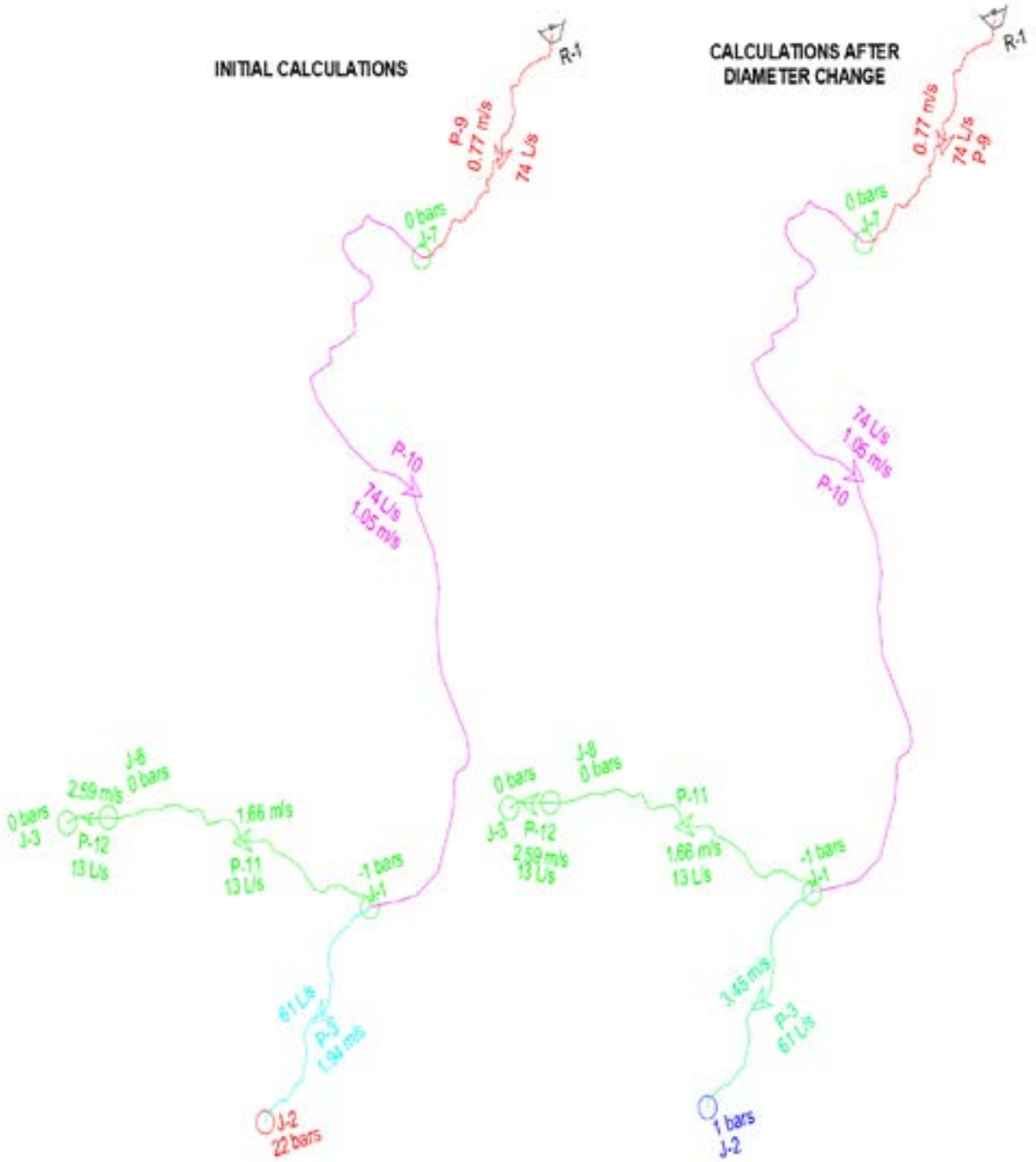
Element	Material	Diameter (mm)	Length (m)	Start Node	Stop Node	Flow (l/s)	Velocity (m/s)	Headloss Gradient (m/m)	Headloss (m)	Pressure Start (Bar)	Presioni Stop (Bar)
P-3	Cast iron	200	3,660	J-1	J-2	61	1.94	0.01854069	67.9	-0.56	21.52
P-9	Cast iron	350	7,545	R-1	J-7	74	0.77	0.00173650	13.1	0.00	-0.17
P-10	Cast iron	300	9,815	J-7	J-1	74	1.05	0.00367936	36.1	-0.17	-0.56
P-11	Cast iron	100	5,371	J-1	J-8	13	1.66	0.03097672	166.4	-0.56	-0.28
P-12	Cast iron	80	219	J-8	J-3	13	2.59	0.09185099	20.1	-0.28	-0.22

We observe that the results obtained from the computational program are approximately the same as those derived from the analytical method using the standard tables for ductile pipes. A pressure value of 21.52 bar is noted, which is significantly high (as also observed in the analytical method). This corresponds to the pipeline supplying Himara City, where for a flow rate of 61 l/s, according to the table, a diameter smaller than DN200 could not be selected. However, now that the scheme has been modeled in the computational program, we accept a slightly smaller diameter to induce greater pressure losses, ensuring that the maximum velocity does not exceed the range of 4-5 m/s. E përmasojë tubacionin me DN150 dhe rezultatet e marra nga programi llogaritës i paraqesë në tabelën e mëposhtëme:

TABLE 3. Summary Table of Results for the Water Transmission Line After Changing the Diameter of Line 1-1 [Authors]

Element	Material	Diameter (mm)	Length (m)	Start Node	Stop Node	Flow (l/s)	Velocity (m/s)	Headloss Gradient (m/m)	Headloss (m)	Pressure Start (Bar)	Presioni Stop (Bar)
P-3	Cast iron	150	3,660	J-1	J-2	61.0	3.45	0.075283974	275.5	-0.56	1.198
P-9	Cast iron	350	7,545	R-1	J-7	74.0	0.77	0.001736496	13.1	0.00	-0.165
P-10	Cast iron	300	9,815	J-7	J-1	74.0	1.05	0.003679357	36.1	-0.17	-0.559
P-11	Cast iron	100	5,371	J-1	J-8	13.0	1.66	0.030976715	166.4	-0.56	-0.279
P-12	Cast iron	80	219	J-8	J-3	13.0	2.59	0.09185099	20.1	-0.28	-0.216

FIGURA 6. Planimetric Presentation of the Transmission Line Result [Authors]



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Urban design and residents' perception: How do spaces influence well-being and urban identity

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Abstract

Urban design plays a key role in shaping the quality of urban life, significantly affecting the psychological, social, and economic well-being of residents. This study explores the relationship between spatial structure and the sense of belonging by analyzing how public spaces and architecture influence urban identity. The theoretical framework is based on concepts such as Sense of Place by Edward Relph and Image of the City by Kevin Lynch, emphasizing the importance of spatial perception in urban experience.

The study focuses on the impact of urban aesthetics on safety and social interaction, examining public spaces and their effects on mental health and community connections. By analyzing case studies such as the square near the city market of Korça, the Vlora Promenade , and Skanderbeg Square in Tirana, the research evaluates the influence of urban design on residents' identity and sense of belonging. A well-designed urban environment not only strengthens the sense of community but also enhances the quality of life and promotes social and economic activities.

The study employs both qualitative and quantitative methodologies, including surveys with residents, and spatial data analysis, to identify the key factors shaping urban perception. An accessible, inclusive, and functional public space can significantly improve urban experiences and positively contribute to the sustainable development of the city. The study aims to:

- *Analyze how urban design affects residents' identity and well-being.*
- *Examine the key factors influencing the perception of public spaces.*
- *Provide recommendations for improving urban design in the Albanian context.*
- *Assess the role of architectural and functional elements in urban development.*

Keywords: *urban design, public space, identity, community, well-being, spatial perception, sustainable development, urban safety.*

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Introduction

Urban design constitutes a key factor in determining the quality of life in urban spaces, influencing not only the aesthetic aspect of the city but also social interactions, psychological perceptions, and the sense of belonging among residents. According to Lynch (1960), the way an individual perceives the city is affected by the spatial organization and the visual elements of architecture. In the context of rapid urbanization and socio-economic transformations, the creation of functional, sustainable, and adequate spaces for the needs of the urban population emerges as an essential requirement (Gehl, 2011). Thoughtful urban planning significantly impacts the well-being of residents, while the lack of a strategic vision can result in social isolation, collective dissatisfaction, and a decline in the quality of life (Jacobs, 1961).

Some of the research questions for the paper include:

- How do the design, accessibility, and safety of public spaces influence the perception, experience, and well-being of citizens?
- What are the key elements that contribute to the sense of belonging, cultural identity, and social inclusion of the community in public spaces?
- How do citizens evaluate the functionality and need for improvements in public spaces, and how important is participation in social and cultural activities for them?

The Impact of Spatial Structure on Urban Dynamics

The spatial structure and physical organization of cities fundamentally determine the use of public spaces and the formation of social relationships. According to Alexander (1977), urban design should be based on the needs of users, creating a connected network of spaces that encourage interaction and ensure equal access for all citizens. Architecture and urban planning influence how individuals perceive their environment, impacting their sense of safety, comfort, and social integration (Montgomery, 1998). This study analyzes various empirical cases to identify how urban design affects urban identity and the quality of social interactions.

Psychological Aspects of Urban Design

The impact of urban design extends beyond physical functionality, directly influencing the psychological well-being of residents. According to Ulrich (1984), the presence of green spaces has a positive effect on stress reduction and the improvement of mental health. Similarly, later studies have shown that the design of public spaces can affect perceptions of safety and reduce anxiety levels among residents (Whyte, 1980).

Psychological Component: Open, green spaces with natural light have a direct impact on reducing anxiety and improving mood (Whyte, 1980).

Social Impact and Community Cohesion

Effectively organized public spaces constitute the cornerstone of social interaction and the strengthening of community ties. According to Oldenburg (1999), the existence of "third places"—spaces that are neither home nor work, such as cafés, parks, or libraries—contributes to the establishment of durable social connections and enhances the sense of community. Inclusive urban planning takes into account the needs of diverse social groups, promoting equity in access and social inclusion (Talen, 2019).

Economic Impact and Sustainable Development

Effective urban planning also has direct implications for the economic development of a city. According to Florida (2002), cities with well-organized infrastructure and attractive spaces experience greater economic growth and attract new talent. Similarly, Glaeser (2011) argues that successful urbanization is a catalyst for innovation and economic development.

Literature review

Urban design is an interdisciplinary field that focuses on the organization of urban spaces, aiming to create functional, aesthetically pleasing, and sustainable environments for communities. According to Carmona (2019), urban design influences the quality of life for residents by integrating architectural elements, public spaces, and infrastructure.

In the contemporary literature on urban design, several key approaches are distinguished:

- Sustainable Urbanism: This approach aims to reduce the environmental impact of cities and incorporate ecological elements into urban design. Farr (2008) argues that sustainable planning involves creating compact cities with low energy use and integrated green spaces.
- Livable Cities: This approach emphasizes the necessity of creating environments that are accessible, safe, and conducive to social interaction. Gehl (2011) highlights the importance of including pedestrian-friendly areas and public spaces to promote interaction and improve the quality of life in cities.
- Community-Oriented Urbanism: This approach focuses on the need for community involvement in urban planning and design processes. According to Talen (2019), community engagement enhances the sense of belonging and ensures that urban spaces reflect the needs of residents.

How Individuals Experience Space

Spatial perception refers to how people understand and experience urban space, influencing orientation, interaction, and the sense of safety within the city. Lynch (1960), in his book "The Image of the City", identified five key elements of spatial perception:

(1) Paths: The routes and corridors of urban movement.
(2) Nodes: Significant points for social interaction.
(3) Landmarks: Architectural structures that assist in orientation.
(4) Districts: Areas with shared characteristics.
(5) Edges: Distinct boundaries within urban spaces.

Montgomery (1998) argues that well-designed public spaces facilitate orientation and reduce urban stress. Studies on spatial perception indicate that a clearly structured environment enhances the sense of safety and improves psychological well-being (Kaplan & Kaplan, 1989).

Urban Identity: The Connection Between Residents and Physical Environment

Urban identity refers to the sense of belonging and emotional connection that individuals develop with urban spaces. Relph (1976), in his theory of "Sense of Place," emphasizes that this connection develops at three levels:

(1) Existential Belonging: When individuals feel fully connected to a space.
(2) Sense of Exclusion: When individuals lack a connection to a particular environment.
(3) Subjective Belonging: When spaces are experienced as significant through history and culture.

Lynch (1960) argues that urban identity is shaped by the visual and structural elements of the city, which help residents form an emotional bond with their environment.

Theories on Psychological Experience of Space

The psychological experience of space relates to how individuals feel in an urban environment and how they interact with it. Some key theories include:

- Sense of Place Theory (Relph, 1976): Highlights the importance of emotional connections to space.
- Image of the City Theory (Lynch, 1960): Argues that spatial orientation influences urban perception.
- Third Places Theories (Oldenburg, 1999): Emphasize the significance of communal spaces in community building.

The Role of Urban Design in Creating Spaces

Urban design directly influences the creation of spaces that promote well-being and social inclusion. Gehl (2011) argues that a human-centered city should include:

- Pedestrian and Bicycle-Friendly Pathways
- Common Spaces for Social Interaction
- Friendly and Accessible Architecture for all

How Architecture Has Influenced Urban Identity in Cities Such as Barcelona, Paris, and Amsterdam

Architecture has a profound impact on the creation and preservation of urban identity. Cities such as Barcelona, Paris, and Amsterdam serve as examples of urban centers that possess distinctive architecture contributing to the formation of a unique and recognizable identity.

Barcelona is one city that has maintained a unique architectural identity, thanks to the works of Antoni Gaudí and Catalan modernism. His architecture, exemplified by the Sagrada Familia, Park Güell, and Casa Batlló, has made the city a symbol of innovation and the preservation of cultural heritage (Prats, 2018).

FIGURE 1: Public space in Barcelona



Source: https://pedestrianspace.org/public-spaces-of-barcelona

The urban planning structure of the city, particularly the geometric layout of Eixample, has created a balance between modernity and tradition.

Paris is renowned for its monumental architecture that creates a distinct urban identity. Elements such as the Eiffel Tower, Notre-Dame, and the Champs-Élysées are not only tourist attractions but also integral parts of the city's history and identity (Lefebvre, 2014). The urban planning of Baron Haussmann in the 19th century significantly influenced the organization of the city and how residents experience public space.

FIGURE 2: Public space in Paris



Source: www.planetizen.com/node/63833

Amsterdam has preserved a unique identity due to its canal structure and distinctive architecture from the 17th and 18th centuries. The narrow-fronted houses with Dutch classical style make the city well-known worldwide. This combination of historical architecture with modern initiatives, such as the new Zuidas district, maintains the city's identity while integrating it with new urban developments (Searle, 2019).

FIGURES 3 and 4: Public space in Amsterdam



Source: www.planetizen.com/node/63833Methodology

Methodology

This study is based on a combined qualitative and quantitative approach to understand the impact of urban design on residents' perceptions, well-being, and urban identity in various Albanian contexts, focusing on the City Market of Korça, Lungomare, and Skanderbeg Square.

Qualitative Analysis

This involves examining residents' perceptions of urban spaces through content analysis and case studies.

Quantitative Analysis

This includes surveys of the local population, measuring satisfaction with public spaces, and using statistical analysis to identify key trends. The study focuses on three significant urban cases in Albania, analyzing how elements of urban design affect residents' well-being and sense of belonging:

- Square near City Market of Korça: A model of restoring historical spaces and preserving cultural identity in a city with a rich architectural heritage.
- Lungomare, Vlorë: An example of urban transformation that has brought tourist development and changed the use of public space.
- Skanderbeg Square, Tirana: A major urban intervention that has altered the functionality of public space and the experience of citizens.

The main research question

How do the design, organization, and functionality of public spaces influence citizens' perceptions, experiences, and well-being, considering urban, social, and cultural factors?

Hypotheses of the Study

- Null Hypothesis (H_0): The design, organization, and functionality of public spaces positively influence citizens' perceptions, experiences, and well-being, enhancing their sense of belonging and urban identity.
- Alternative Hypothesis (H_1): There is no significant effect between the design and organization of public spaces and the perception, experience, or sense of belonging of citizens.

Results. Qualitative Analysis

The Square near the City Market of Korça

The Market of Korça is a monument of cultural heritage in Korça, categorized under "Architecture," officially recognized in June 1973. Its typology consists of shops, built around the 18th century. The market encompasses 33 blocks with approximately 150 shops. Among these blocks, six are khans: the Khan of Elbasan, the Khan of Monastir, the Khan of Gjel, the Khan of Oparak, the Khan of Kiço, and the Khan with Two Doors.

FIGURE 5. Area and Market Plan of Korça

Source:https://korcaplus1.weebly.com/korcaplusnet/pazari-i-vjeter-i-korces-epiqendra-e-zhvillimit-ekonomiko-urbanistik-te-qytetit-historiku



The buildings form an architectural ensemble, which are parcelled among each other by cobblestone-paved streets. The structures exhibit a uniform architectural style, typically two stories high, with basements and an average height of about 8 meters. The windows are long, narrow, and adorned with metal railings.

FIGURE 6. Photo of the Area and Market of the City of Korça, After Interventions



Source: https://ata.gov.al/2021/04/09/pazari-i-vjeter-i-korces-peleshi-eshte-kthyer-ne-shpirtin-e-gjalle-te-qytetit-per-turizmin-dhe-zhvillimin-ekonomik/

Many remember how "the Old Market" appeared a few years ago; it had only that name and was an area of disarray, with street vendors selling haphazardly, stalls covered with plastic and rags, muddy pathways, and dilapidated buildings. For many years, it was considered one of the darkest spots in Korça. A concept, a project, and passion were needed to transform it completely.

With funding from the Albanian-American Fund, the area began to undergo transformation. The buildings, water system, cobblestones, lighting, and everything else were reconstructed. However, this was just the first challenge, as the "Market" also needed to be populated.

A well-prepared business plan and an intensive program of activities were sufficient to bring life, art, culture, and services to the space. Everyone was looking for a place in the market to start a business; discussions about the market were prevalent, social media check-ins at the market were common, and the market was bustling from morning to night.

FIGURES 7 and 8. Photos of the square near the city market of Korçë, before and after restoration.



Source: Instituti Kombetar i Trashegimise Kulturore

FIGURES 9 and 10. . Photos of the square near the city market of Korçë, before and after restoration.



Source:Instituti Kombetar i Trashegimise Kulturore

FIGURES 11 and 12. Photos of the area and shops before and after interventions.



Source: https://alpenews.al/https://alpenews.al

FIGURES 13 and 14. Photos of the alleys before and after interventions.



Sources:https://triptoalbania.al/portal/te-gjitha-rruget-te-cojne-ne-korce-pazari-i-vjeter-atraksion-turistik-i-fundjaves/
https://commons.wikimedia.org/wiki/File:2014_Kor%C3%A7%C3%AB_,_Pazari_i_Vjet%C3%ABr_01.JPG

Vlora Promenade

The Vlora Promenade is one of the most significant urban transformation projects in Albania. This coastal area has been transformed into a modern promenade that connects the city to the sea, becoming both a tourist attraction and an important space for residents. The promenade extends along the coastline of Vlorë, from Uji i Ftohtë to the city center, creating a long walkway for pedestrians and cyclists. This project aims to revitalize the coastal area, making it more functional, aesthetic, and environmentally friendly.

FIGURE 15. Vlora Promenade



Source:https://www.booking.com/hotel/al/lungomare-rira-vlore.html?activeTab=photosGallery

Key Changes and Transformations

- Infrastructure Reconstruction: Prior to the intervention, the area had narrow roads and damaged sidewalks. The new project has created wide spaces for pedestrians and bike lanes.
- Green Spaces and Urban Furniture: New trees have been planted, benches, modern lighting, and decorative elements have been installed to create a more appealing environment.
- Public Beaches and Tourist Services: Areas dedicated to public beaches have been constructed, improving access for citizens and tourists.
- Traffic Regulation: Traffic has been reorganized to avoid vehicle congestion along the coastline, creating more space for pedestrians and alternative transport vehicles.
- Local Business Development: The opening of bars, restaurants, and small shops has contributed to the growth of the local economy.
- Connection with Other Projects: The Vlora Promenade is integrated with other city development projects, such as the Port of Vlorë and investments in tourism.

Benefits and Impact
The project has improved the quality of life for residents through new recreational spaces. Construction of the Vlora Promenade began in 2014 and was completed in various phases, with the main inauguration taking place in 2017. This project was part of a broader plan for coastal modernization and tourism development in the city.

FIGURE 16. Vlora Promenade



Source: (https://www.booking.com/hotel/al/lungomare-rira-vlore.html?activeTab=photosGallery)

Main Construction Phases

- 2014-2015: Beginning of works with the reorganization of infrastructure and removal of some old structures.
- 2016: Intensive work on the main promenade, installation of bike lanes, green spaces, and public lighting.
- 2017: Completion of the main phase and official opening to the public.
- Post-2017: Further additions and improvements, including the development of spaces for businesses and connections with other city projects.

Skanderbeg Square of Tirana

Skanderbeg Square is an important example of urban requalification. Once an area burdened by traffic, it has transformed into an open center for pedestrians, reflecting a modern model of European cities. Its current use as a multifunctional space for cultural and social events makes it a significant point of public life in Tirana.

FIGURE 17. Skanderbeg Square



Source: (https://www.aa.com.tr/sq/ballkani/tirana-evoluimi-i-nj%C3%AB-kryeqyteti-100-vjecar/1730520)

How It Used to Be

- Pre-World War II Period:
  The square lacked clear urban organization but served as an important space for pedestrian circulation and commercial activities. Surrounding architecture included Ottoman buildings, such as the Et'hem Bey Mosque, the old bazaar, and other smaller structures.
- During the Communist Period (1945-1990):
  The square was transformed into a monumental space in the socialist style. It was expanded by demolishing several historic buildings, such as the Orthodox Church (where the Tirana Hotel is today) and the Executive Committee building (former Town Hall). Initially, the monument to Stalin was erected in the square (1953). Later, this monument was relocated, and in its place, the monument to Skënderbej was installed (1967), giving the square its name. In 1986, a monument to E. Hoxha was also placed in the square before the National Museum. The square was surrounded by administrative buildings and government institutions, becoming the epicenter of political and ceremonial activities.
- Post-1990s:
  Following the fall of communism, the square underwent minor changes, including the removal of the Enver Hoxha monument. It became primarily traffic-oriented, characterized by large roundabouts and a lack of pedestrian spaces.

Transformation and Requalification of the Square (2016-2017)
Designed by the Belgian firm "51N4E," the square was transformed into a large pedestrian area, completely changing its function.

FIGURE 17. Skanderbeg Square



Source: (https://shqiptarja.com/lajm/sheshi-skenderbej-merr-cmimin-sheshi-me-i-bukur-ne-europe-ne-2018)

Key Features of the Project:

- Motor vehicle traffic was eliminated from the central square, creating an exclusive pedestrian space.
- The surface was covered with stones from all Albanian territories, creating a national identity.
- Natural elements such as trees, fountains, and seating were integrated, making it a green and fresh space.
- A slight slope was created to mimic the topography of the Albanian terrain.
- The square was illuminated with modern lighting and became an open space for public activities.

How Does It Serve Today as a Public Space?

- Cultural and Social Center:
  It is used for concerts, exhibitions, fairs, and other public activities. It has become a gathering point for citizens and tourists.
- A Space Dedicated to Pedestrians:
  The elimination of vehicles has created a safer and quieter environment. The open space allows citizens to relax and enjoy the urban surroundings.
- Ecological Impact:

The planting of trees and the integration of green spaces have helped reduce temperatures during the summer. Irrigation systems and fountains contribute to increasing humidity in a city overwhelmed by concrete.

Discussions

All of these spaces serve as important social zones for citizens, where people gather, communicate, and connect with the urban environment. Skanderbeg Square, Vlora Promenade, and the square near the city market of Korça are also meeting points for community activities.

Integration of Nature and Environment

All three urban projects aim to integrate nature and green spaces within the city. For example, the Promenade is closely connected to the beach and the natural expanse of the coastline, while Skanderbeg Square and the center of Korça feature greenery that creates a relaxing and inviting atmosphere for citizens.

Infrastructure Improvements and Mobility Enhancements

All these spaces have undergone infrastructural improvements to enhance pedestrian movement and access. They have been reorganized and often transformed into pedestrian areas or expanded for walking and transit, favoring greater mobility and safety for citizens.

Utilization of Spaces for Cultural and Commercial Activities

These spaces have diverse uses that include cultural activities (such as events, exhibitions, and performances) and commercial activities (including restaurants, cafés, and shops). This aspect of utilization can create economic opportunities for the city and stimulate the development of tourism and other community activities.

Symbolism and Urban Identity

Each of these spaces holds special significance for the urban identity of the city. Skanderbeg Square is a key historical and symbolic point for Tirana, the Vlora Promenade has a strong connection to the coast and nature, while the center of Korça is a cultural and historical hub reflecting the city's traditional character.

Need for Cultural Heritage Preservation

All three spaces have had, or require, careful treatment to preserve the historical and architectural elements that give the city its identity. This often necessitates balancing modern development with heritage protection.

Quantitative analysis

This study is based on a quantitative approach, using surveys as the main data collection tool. The survey was conducted with a sample of approximately 130 individuals from the local population, aiming to identify their perceptions and experiences regarding public spaces in the city.

Data Collection Techniques

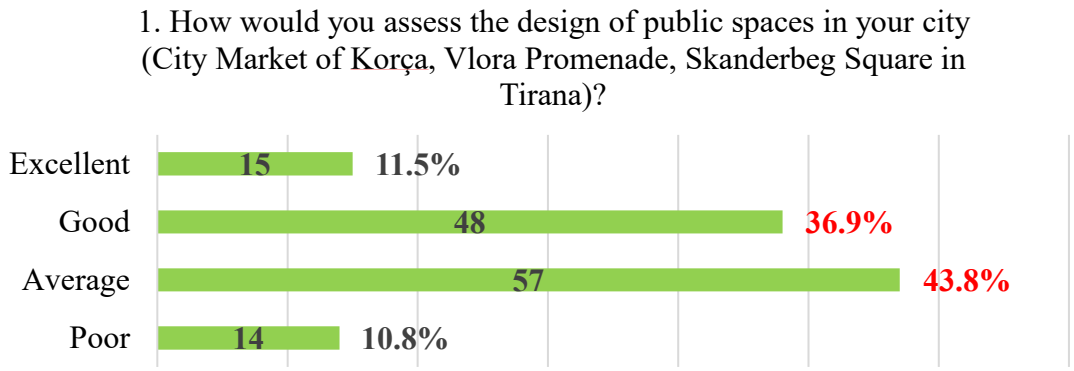
- Survey: A structured questionnaire was used to gather data on citizens' assessments and perceptions of the design, functionality, and impact of public spaces.
- Sample Selection: Participants were randomly selected from different areas of the city to ensure a balanced demographic representation.
- Data Processing: The collected data was statistically analyzed to identify key trends and tendencies related to the use and impact of public spaces.

Data Analysis Techniques

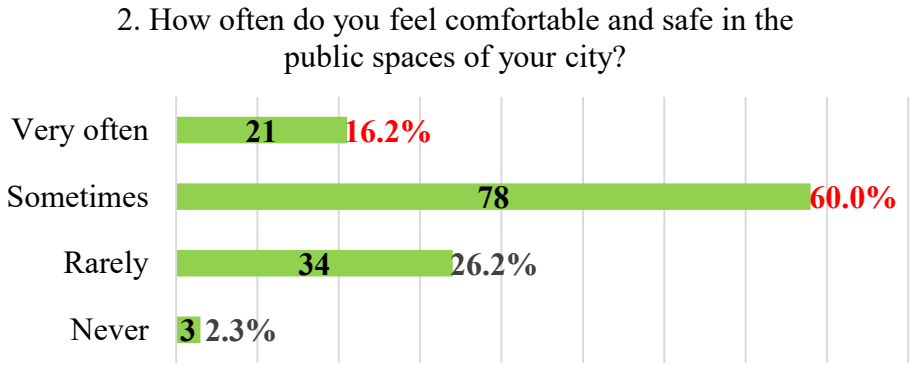
- Statistical Analysis: Data processing through the distribution of percentages and interpretation of graphs to understand key trends.

- Comparative Analysis: Examination of citizens' perceptions regarding various factors of public spaces and evaluation of their impact on quality of life.
- Interpretative Analysis: Assessment of citizens' feelings and experiences to understand the psychological and social dimensions of public spaces.

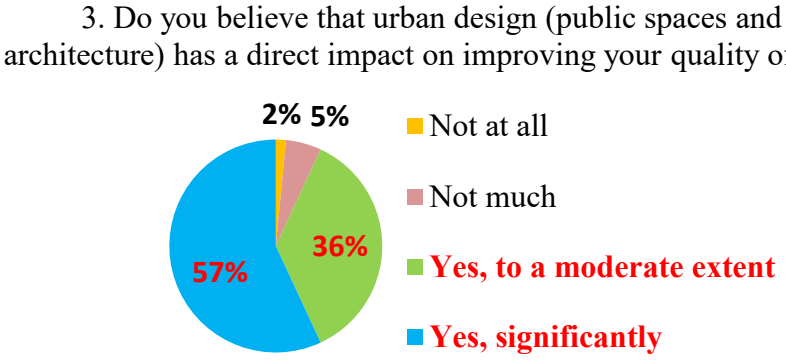
Graphs



Commentary: The design of public spaces is rated as average by 43.8% of respondents and as good by 36.9% of them. Therefore, it has a positive impact on the citizens.

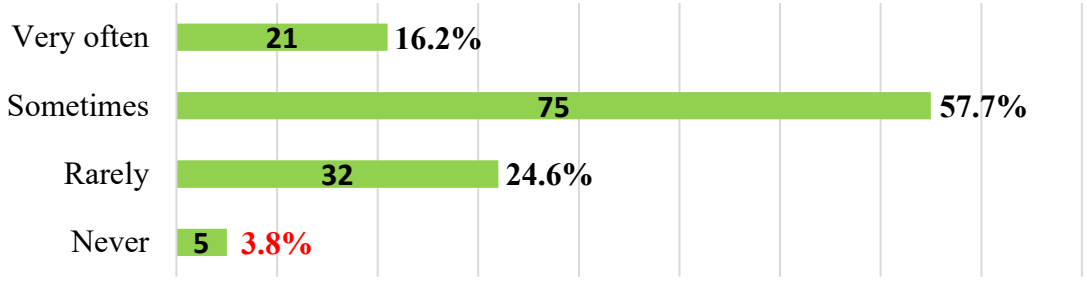


Commentary: Over 76% of respondents feel very safe and comfortable in the public spaces of the city.



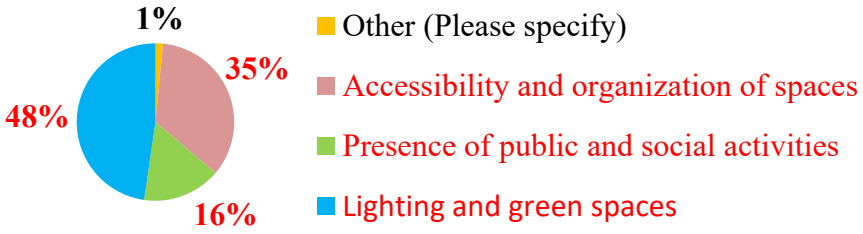
Commentary: Approximately 57% of respondents believe that public spaces enhance their quality of life in the city, while around 36% think they have a moderate impact.

4. How often do you experience a sense of belonging to your city when visiting public spaces *such as the City Market, Lungomare, and Skanderbeg Square*?



Commentary: Only 3.8% of citizens do not experience a sense of belonging when visiting public spaces.

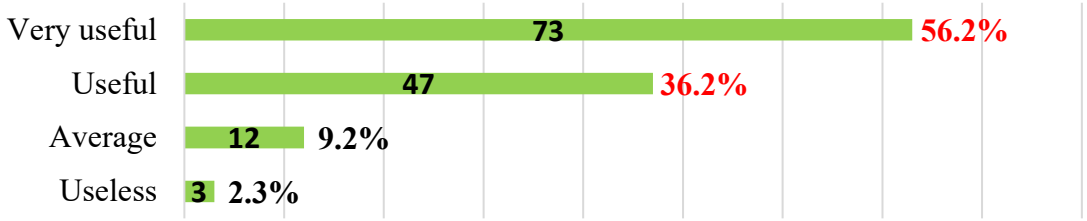
5. Which aspects of urban design do you believe most influence your feelings of safety and well-being?



Commentary: Regarding the aspects of public space design, respondents believe that the most significant impacts come from:

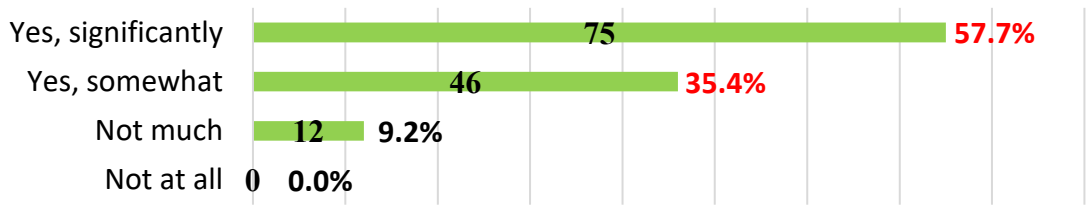
- Lighting and green spaces (48%)
- Accessibility and organization of spaces (35%)
- Public and social activities (16%)

6. How would you evaluate the impact of public spaces on creating opportunities for social interaction among residents?



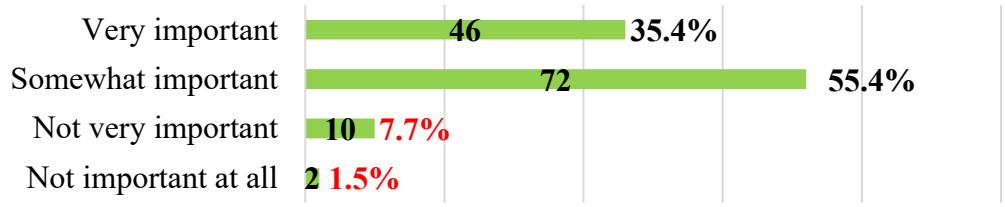
Commentary:: Over 92% of respondents believe that public spaces influence social interaction among residents.

7. Do you think that the design of public spaces helps in preserving the cultural and historical identity of your city?



Commentary: Over 93% of respondents believe that public spaces help preserve the cultural and historical identity of the city.

8. How important is it for you to have the opportunity to participate in cultural and social activities held in these public spaces?



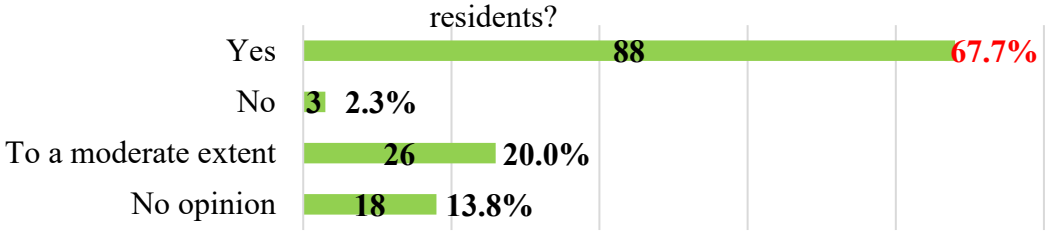
Commentary: Only about 10% of respondents believe that participation in cultural and social activities organized in public spaces is not important.

9. How do you believe urban design can be improved to enhance the sense of belonging and improve the well-being of residents?

Commentary: Residents believe that urban design can be improved by influencing the enhancement of their well-being through:

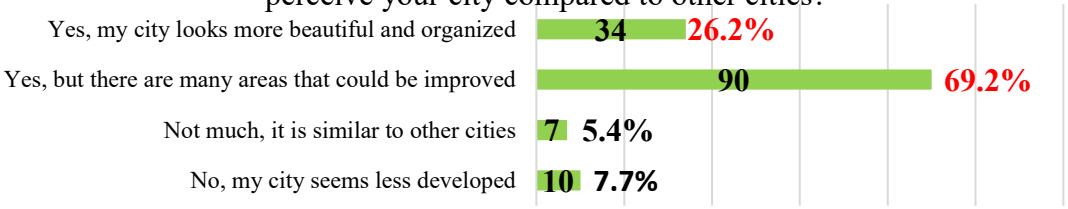
- Increasing green spaces
- Facilitating accessibility and refining organization
- Preserving cultural and historical identity
- Expanding both the quantity and quality of activities, etc.

10. Would you suggest other improvements in the design of public spaces to enhance perception and the sense of belonging among residents?



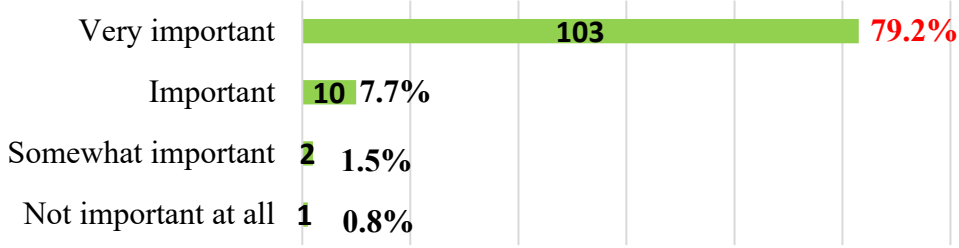
Commentary: 67.7% of respondents believe that public spaces require improvements.

11. Do you believe that the design of public spaces affects how you perceive your city compared to other cities?

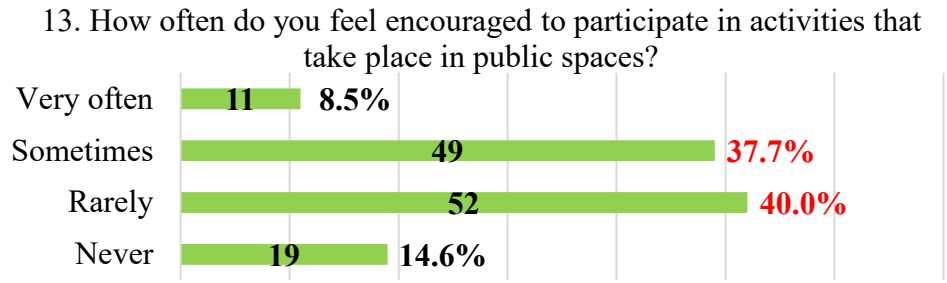


Commentary: Over 95% of respondents express the opinion that public spaces influence the perception of their city compared to other cities.

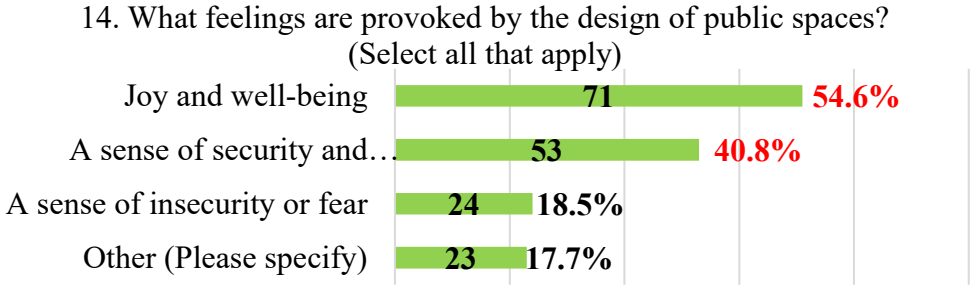
12. How important is it for you that public spaces are accessible to everyone *(children, the elderly, and persons with disabilities)?*



Commentary: Approximately 79% believe that public spaces should be accessible to all age groups.

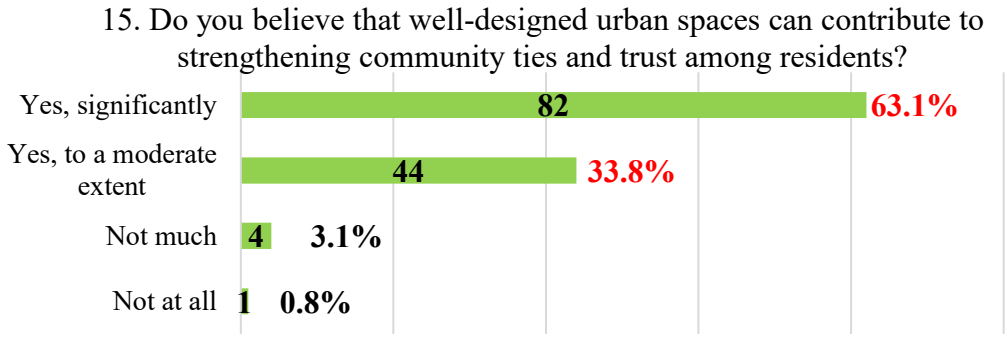


Commentary: Participation in activities organized in public spaces is often (37%) or rarely (40%) felt by residents.



Commentary: The primary feelings created by public spaces are:

- Joy and well-being (54.6%)
- Security and protection (40.8%)



Commentary: Over 96% believe that public spaces influence the strengthening of community ties and the increase of trust among citizens.

Discussions

Arguments Supporting the Hypothesis

Urban Design Has a Positive Impact

- 43.8% of citizens rate the design of public spaces as average, while 36.9% consider it good. This demonstrates an overall positive perception, albeit with room for improvement.

Safety and Comfort Are Key Factors

- Over 76% of respondents feel safe and comfortable in public spaces.

Public Spaces Improve Quality of Life

- 57% of respondents believe that public spaces enhance quality of life, while 36% view their impact as average.
- Most Important Factors in Design
- 47.7% of respondents consider lighting and green spaces as the most important design elements.
- 34.6% identify access and organization as key factors.
- 16.2% emphasize the importance of public and social activities.

Cultural Identity and Sense of Belonging

- 93% of respondents believe that public spaces preserve the cultural identity of the city.

Need for Improvements

- 67.7% of respondents feel that public spaces require improvements, suggesting an increase in green areas, enhanced accessibility, and better organization.

Enhancing Community Connections

- 96% of respondents believe that public spaces contribute to strengthening community ties and increasing trust among citizens.

Conclusions and recommendations

Conclusion

(1) The data support the conclusion that well-designed and organized public spaces contribute to enhancing the perception of the city, increasing citizen well-being, and strengthening the sense of belonging, thereby affirming the null hypothesis (H_0) and rejecting the alternative hypothesis (H_1).
(2) Integrated Approach to Urban Design: Urban design should integrate environmental, social, and economic factors to create spaces that meet the physical, mental, and social needs of residents.
(3) Improvement of Well-Being and Urban Identity: Well-designed public spaces positively influence the mental well-being of individuals and help in the construction of a strong and sustainable urban identity.
(4) Urban Planning Policies: Urban planning policies and measures should support the development of cities that are functional, sustainable, and promote social and cultural activities to improve quality of life.
(5) Challenges of Contemporary Urbanization: Enhancing urban planning is a strategic tool for addressing the challenges of urbanization, providing sustainable solutions for healthier and more integrated urban living.
(6) Integration of Detailed Analyses: Detailed analyses of environmental, social, and economic factors are necessary for creating urban environments that support well-being and promote social and community activity.

Recommendations

(1) Improvement of Urban Design: Urban planners should incorporate elements that favor access to green spaces, safety, and public activities, creating environments that support mental and physical well-being.
(2) Promotion of Social and Cultural Activities: Public spaces should be designed and organized to provide opportunities for social and cultural activities that engage all age groups and social strata.
(3) Enhancement of Cultural Identity: The cultural identities of the city should be protected and promoted through urban design that reflects the local history and heritage.
(4) Sustainable and Inclusive Planning: Urban planning should be inclusive and sustainable, integrating environmental factors and ensuring access for all demographic groups, including those with disabilities and the elderly.
(5) Dialogue Among Experts, Communities, and Policymakers: Ongoing dialogue among urban planners, experts, the community, and policymakers should be encouraged to ensure the development of cities that are functional, psychologically enriched, and socially connected.
(6) Continuous Monitoring and Evaluation: Mechanisms for the continuous monitoring and evaluation of public spaces and urban design should be implemented to ensure that they continue to meet the needs of citizens and create a positive and inclusive environment.

Recommendations for Future Studies:

Future studies are recommended to deepen interdisciplinary research examining the long-term impacts of urban interventions on mental health, including the analysis of cultural and socio-economic variables that may modify these impacts. Additionally, the development of new methodologies to measure mental well-being in urban contexts will contribute to establishing a strong empirical foundation for future policies.

Limitations of the Study

The limited sample may not fully reflect the perceptions of the entire population. The survey is based on self-reported data from citizens, which may influence the subjectivity of responses. Qualitative measures, such as interviews or behavioral analyses in public spaces, were not included and could have provided a deeper perspective.

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The Impact of Augmented Reality on Education: A Comprehensive Review of Student Engagement, Knowledge Retention, and Learning Outcomes

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Abstract

Augmented Reality (AR) is transforming contemporary education by offering immersive and interactive learning experiences that surpass the limitations of traditional teaching methods. This paper presents a comprehensive literature review on the educational benefits of AR, critically examining its impact on student engagement, knowledge retention, and academic performance across various learning contexts. Numerous empirical studies indicate that AR enhances learning by enabling multimodal interactions, fostering experiential learning, and bridging abstract theoretical concepts with real-world applications. Furthermore, AR supports differentiated instruction, catering to a wide range of learning styles and cognitive abilities, including visual, kinesthetic, and auditory learners. To complement the theoretical framework, an empirical component was integrated into this study through the administration of a structured questionnaire to 151 respondents from different academic disciplines and age groups. The survey aimed to assess user experiences and perceptions regarding the use of AR in educational settings. Findings from the data analysis corroborate the literature, demonstrating that AR significantly improves student engagement, learning satisfaction, knowledge retention, and overall academic outcomes. Respondents reported high levels of motivation and active participation when engaging with AR-enhanced content, especially when the material was interactive and contextually relevant. Despite these benefits, the review also addresses critical challenges associated with AR implementation, including technological limitations, high development and maintenance costs, time constraints, and the need for targeted educator training. The study concludes by offering practical recommendations for effective and sustainable integration of AR technologies in education. This dual approach—literature-based and empirical—provides a nuanced understanding of AR's transformative role in education and offers a roadmap for its future adoption and integration in diverse learning environments. By presenting both a literature-based analysis and empirical evidence, this study contributes to a deeper understanding of how AR can be effectively harnessed to enrich teaching and learning processes. The findings offer valuable insights and practical recommendations for educators, curriculum designers, and policymakers seeking to implement AR technologies in a sustainable, inclusive, and pedagogically meaningful manner.

Keywords: *Student Engagement, Knowledge Retention, Learning Outcomes, Interactive Learning,Technology in Education, AR in Education.*

Introduction

The rapid evolution of technology is reshaping educational practices by introducing innovative tools designed to enhance student learning experiences and academic outcomes. Among these emerging technologies, Augmented Reality (AR) has garnered increasing attention for its ability to overlay digital information onto the physical environment through mobile devices, head-mounted displays, or other platforms (Basta & Zarpalas, 2020). As an interactive, three-dimensional medium, AR enables immersive experiences that engage multiple senses, allowing students to manipulate virtual objects superimposed on real-world contexts. This interaction supports a deeper understanding of abstract and complex concepts, while simultaneously fostering active and collaborative learning environments (Cakir & Cebi, 2019; Lee & Kim, 2020).

For instance, AR allows learners to explore the internal structures of biological organisms, visualize intricate scientific mechanisms, or engage with complex mathematical models. These applications enhance conceptual comprehension and support long-term knowledge retention by connecting theoretical content to tangible experiences. The COVID-19 pandemic further accelerated the adoption of AR technologies in both remote and in-person learning, as educators sought engaging, adaptable instructional tools to overcome the limitations of traditional approaches.

Despite its potential, the implementation of AR in education remains an evolving area of research. Challenges such as the need for compatible technological infrastructure, specialized teacher training, and the development of pedagogically aligned content continue to hinder widespread adoption. These barriers are particularly pronounced in inclusive education, where AR has shown promise in supporting learners with disabilities by improving engagement, accessibility, and interaction. However, much of the existing research in this domain is limited by small sample sizes and a lack of standardized evaluative frameworks.

This study aims to address these gaps by employing a dual approach—combining a systematic literature review with empirical data collected through a structured questionnaire administered to 151 participants. The research focuses on evaluating the impact of AR on student engagement, knowledge retention, and academic performance, while also capturing educators' perspectives on its practical implementation. This integrated approach offers a comprehensive understanding of AR's role in education and provides evidence-based recommendations for educators, policymakers, and researchers interested in the sustainable integration of AR technologies in diverse learning environments.

The aim of the paper

The primary aim of this paper is to conduct a comprehensive and integrative review of existing research on the implementation of Augmented Reality (AR) in educational contexts, combined with an empirical investigation to validate and enrich the findings. This study critically analyzes the impact of AR on student engagement, knowledge retention, and learning outcomes across various academic disciplines and educational levels. By synthesizing results from a diverse body of literature and supporting them with data gathered through a structured questionnaire, the paper seeks to evaluate the effectiveness of AR as a pedagogical tool and to explore the practical conditions that enhance or hinder its educational value. The study is guided by the following research questions:

- What is the effect of Augmented Reality on students' knowledge retention across both immediate and delayed assessment intervals?
- How does the application of Augmented Reality impact learning outcomes across various disciplines and educational levels?
- What are the perceived advantages and limitations of implementing Augmented Reality technologies from the perspectives of both learners and educators?

Literature Review

Historical Context and Evolution of Augmented Reality

The concept of Augmented Reality (AR) has evolved considerably since its early conceptualizations in the 1950s. Morton Heilig's Sensorama laid foundational ideas, which were expanded through military applications such as Head-Up Displays (HUDs). Notably, Ivan Sutherland's development of the first head-mounted display (HMD) in 1966 and Myron Krueger's Videoplace in 1975 marked pivotal moments, introducing interactive virtual environments (Carmigniani et al., 2011). The term "Augmented Reality" was later coined by Tom Caudell and David Mizell at Boeing in 1990. Since then, AR has undergone rapid technological advancement, including tools like ARToolkit (1999), ARQuake (2000), and popular applications such as Google Glass (2013) and Pokémon Go (2016).

Contemporary AR systems are built on advanced architectures combining hardware components, sensors, tracking algorithms, and user interfaces. These systems utilize scene capture (via cameras and inertial sensors), scene identification

(through marker-based or markerless tracking), and real-time processing to enable immersive visualizations (Alkhamisi & Monowar, 2013). These technological foundations support diverse applications across sectors such as architecture, construction, healthcare, and, increasingly, education.

Applications of Augmented Reality

AR technology has found widespread use in fields including tourism, archaeology, art, commerce, industrial manufacturing, emergency management, entertainment, and medical services (Chen, Wang & Song, 2019). In tourism, AR enhances cultural heritage sites by overlaying digital content onto real-world views. Archaeologists use AR for real-time augmentation of artifacts within excavation environments. In commerce, AR enables interactive product visualization, offering personalized and detailed consumer experiences.

Industrial applications include guided maintenance procedures, 3D simulations, and enhanced design workflows, as seen in automotive manufacturing. The arts leverage AR for immersive installations that merge physical and virtual realities. Similarly, AR contributes to public safety through search-and-rescue systems that project geographic data in real time. In the medical domain, AR facilitates surgical precision and real-time fetal monitoring. These diverse applications underscore AR's expanding potential across disciplines (Chen, Wang & Song, 2019).

Student Engagement

The incorporation of AR into educational environments has attracted growing interest, particularly regarding its impact on student engagement, motivation, and participation. A systematic review of 30 studies conducted between 2010 and 2025 reveals consistent evidence that AR significantly enhances student engagement, especially in subjects perceived as difficult or abstract (Cakir & Cebi, 2019; Lee & Kim, 2020). AR's capacity to provide immersive, multisensory learning experiences deepens students' involvement and stimulates curiosity, contributing to more active classroom participation.

To complement and validate findings from the literature, an empirical component was integrated into this study. A structured questionnaire was distributed to 151 participants, including students and educators, to assess their direct experiences with AR in educational contexts. The survey results corroborate the literature, affirming that AR contributes positively to engagement, motivation, and attention during learning activities.

Knowledge Retention

Numerous studies suggest that AR contributes to improved knowledge retention when used alongside traditional pedagogical methods. For instance, Basta and Zarpalas (2020) demonstrate that AR supports cognitive processing by allowing learners to manipulate interactive 3D objects within meaningful contexts. This multimodal learning approach aligns with established cognitive theories, which emphasize that deeper engagement and visualization enhance long-term memory formation.

Learning Outcomes

AR also exerts a positive influence on academic performance. Studies conducted across both secondary and higher education levels show that students exposed to AR-enhanced instruction outperform those using conventional methods, particularly in subjects that benefit from spatial reasoning, simulation, or interaction (Lee & Kim, 2020; Cakir & Cebi, 2019). These improvements in learning outcomes are attributed to AR's ability to present abstract or complex information in an intuitive and engaging manner.

Limitations and Barriers to Implementation

Despite its promise, several barriers hinder the widespread adoption of AR in education. High financial costs associated with AR hardware and software can be prohibitive for many institutions. Additionally, successful implementation requires significant investment in educator training and ongoing technical support (Basta & Zarpalas, 2020). Integration within existing curricula also presents challenges, as educators must align AR applications with learning objectives to ensure that technological novelty does not detract from pedagogical goals.

Recent Trends and Future Directions

Emerging research (2023–2025) has begun to explore the convergence of AR with artificial intelligence to enable adaptive, personalized learning environments. Moreover, the fusion of AR with virtual and mixed reality technologies is expanding the possibilities of immersive education. Current investigations also emphasize the importance of longitudinal studies to assess the sustained impact of AR interventions. Researchers are exploring cost-effective solutions, intuitive design

principles, and scalable models that can democratize AR access and ensure equitable integration across educational systems (Smith et al., 2024; Garcia & Patel, 2025).

Synthesis of Literature and Empirical Insights

This dual approach—literature-based and empirical—provides a comprehensive perspective on the role of AR in education. By synthesizing findings from a wide range of scholarly studies and integrating direct feedback from participants in the field, the study offers a balanced evaluation of AR's benefits and limitations. This fusion of data not only reinforces the reliability of key findings but also highlights real-world experiences that are often absent in purely theoretical analyses.

Methodology

Research Design

This study employed a sequential exploratory mixed-methods design, integrating a systematic literature review with a quantitative questionnaire-based survey to comprehensively examine the impact of Augmented Reality (AR) on educational outcomes. This approach enables a nuanced understanding by first synthesizing existing literature and then collecting primary data to validate and expand upon those findings.

Systematic Literature Review

The initial phase involved a systematic review of peer-reviewed literature published between 2010 and 2025. The review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure methodological rigor and transparency. Searches were conducted across four major academic databases—ERIC, PubMed, Scopus, and Web of Science—using a combination of controlled vocabulary (e.g., MeSH terms) and free-text keywords such as "Augmented Reality," "education," "student engagement," "learning outcomes," and "technology-enhanced learning." Inclusion criteria consisted of empirical studies published in English that directly investigated the application and outcomes of AR in educational settings. Studies focusing exclusively on Virtual Reality (VR), lacking empirical data, or not peer-reviewed were excluded. The systematic review process followed PRISMA's structured approach to literature identification, screening, eligibility assessment, and data extraction, ensuring a comprehensive and unbiased synthesis of existing research. The findings from this review informed the development of the survey instrument.

Participants

The empirical phase targeted a purposive sample of 151 participants, including both students and educators from secondary and tertiary education institutions with prior experience in AR-enhanced learning environments. Participants were selected to ensure relevant exposure to AR technology within educational contexts.

Data Collection Instrument

A structured questionnaire was developed based on insights gained from the literature review to collect primary quantitative data. The survey included closed-ended questions utilizing Likert scales and multiple-choice formats to quantify participants' perceptions and experiences, alongside open-ended questions designed to capture qualitative insights. The questionnaire focused on core themes such as the frequency and context of AR usage in learning environments, perceived impact on student engagement and motivation, effectiveness of AR in enhancing understanding of abstract or complex subjects, and perceived benefits and limitations of integrating AR into curricula.

Data Collection Procedure

The questionnaire was distributed online via educational platforms and social media during the study period. Participants were informed about the study's purpose and assured of confidentiality and voluntary participation. Data were collected and processed securely and anonymously.

Data Analysis

Quantitative data from closed-ended questions were analyzed using descriptive statistics (means, percentages) to summarize participants' perceptions. Qualitative data from open-ended questions were analyzed using thematic analysis,

a widely accepted qualitative research method that involves identifying, analyzing, and reporting patterns (themes) within the data. This method provides rich, detailed insights into participants' experiences and perceptions of AR integration in educational settings.

To gain a comprehensive understanding of participants experiences and perceptions regarding (AR) in education, the questionnaire was designed to address several key themes:

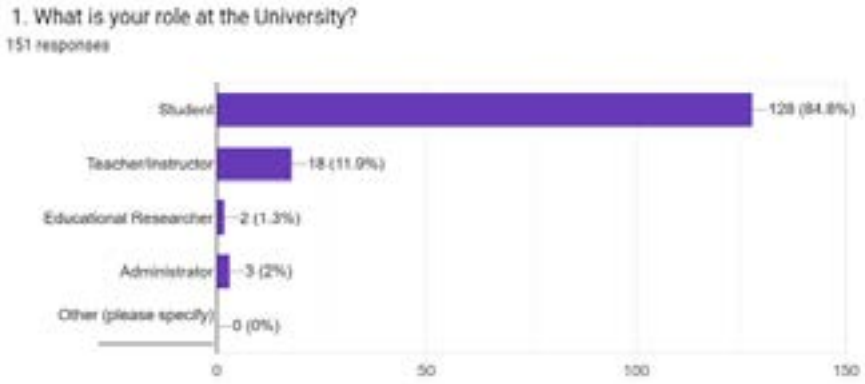
- The frequency and context of Augmented Reality (AR) usage within learning environments
- The perceived impact of AR on student engagement and motivation
- The effectiveness of AR in enhancing comprehension of abstract or complex subjects
- The perceived benefits and limitations of integrating AR into educational curricula

Quantitative data collected through closed-ended questions were analyzed using descriptive statistics to summarize participant responses. Open-ended responses were examined through thematic analysis, a qualitative research method that involves identifying, analyzing, and reporting recurring patterns or themes within the data. This approach facilitates an in-depth organization and detailed description of the dataset, offering rich insights into participants' experiences and perceptions. Thematic analysis is particularly suited to exploring complex phenomena such as AR integration in education, where understanding the subjective experiences of learners and educators is essential.

Results

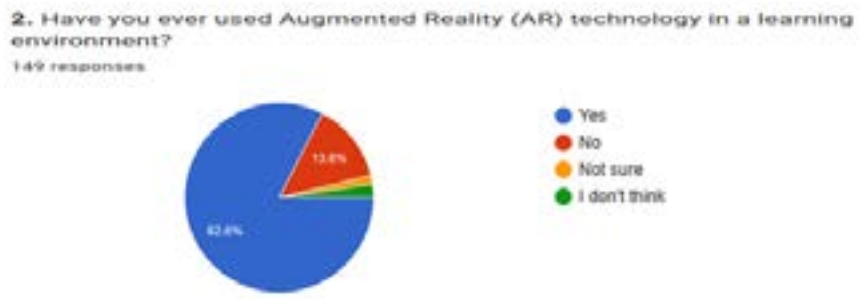
The analysis of survey data offers valuable insights into the use and impact of (AR) in educational settings. The findings highlight participants' experiences, perceptions, and recommendations regarding AR integration, revealing key trends related to usage prevalence, engagement, comprehension, and overall acceptance. The results are organized around several core themes that emerged from the questionnaire responses.

FIGURE 1: Respondent Roles at the University



Respondent roles at the university typically include students, faculty members, and administrative staff who participate in research studies. Their insights help researchers gather diverse perspectives on educational practices, technologies, and institutional processes.

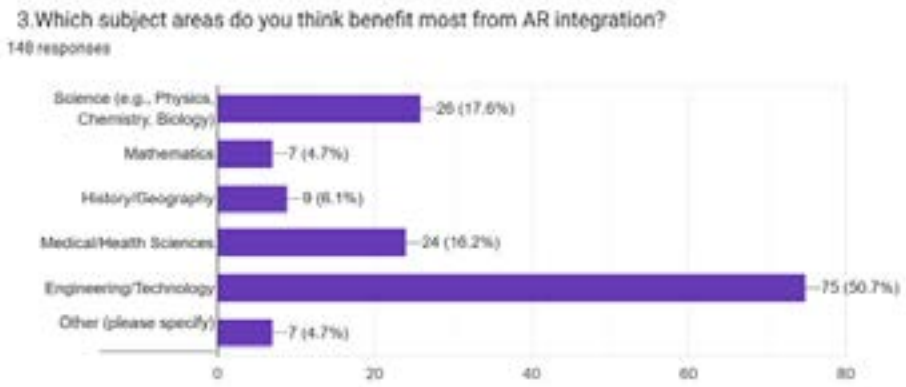
FIGURE 2: Experience with AR in Learning Environment



The survey findings provide in-depth insights into participants' experiences and perceptions regarding the integration of AR in learning environments.

82.6% of respondents reported having utilized AR in a learning

FIGURE 3: Subject Areas Benefiting from AR Integration



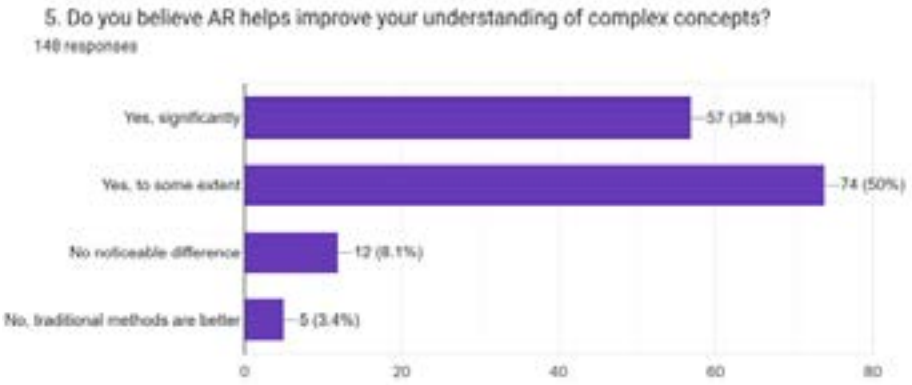
Subject areas benefiting from AR integration include science, mathematics, engineering, and language learning. AR enhances these fields by providing interactive, immersive experiences that improve understanding and engagement.

FIGURE 4: Aspects of AR-enhanced Learning



Aspects of AR-enhanced learning include increased student engagement through interactive and immersive experiences. Additionally, AR supports better conceptual understanding by allowing learners to visualize abstract concepts in real-world contexts.

FIGURE 5: AR and Understanding of Complex Concepts



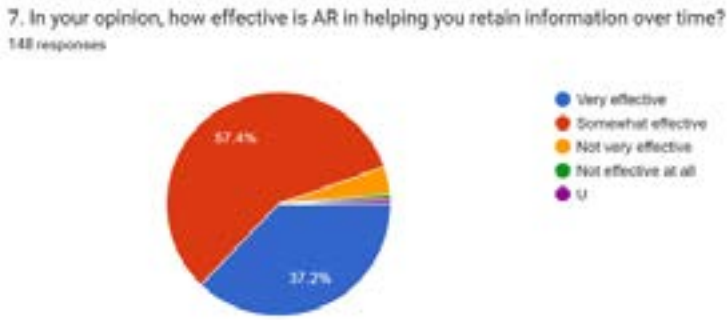
Augmented Reality (AR) helps learners grasp complex concepts by visualizing abstract ideas in a tangible, interactive way. This immersive approach facilitates deeper comprehension and makes challenging topics more accessible.

FIGURE 6: AR and Recall of Information



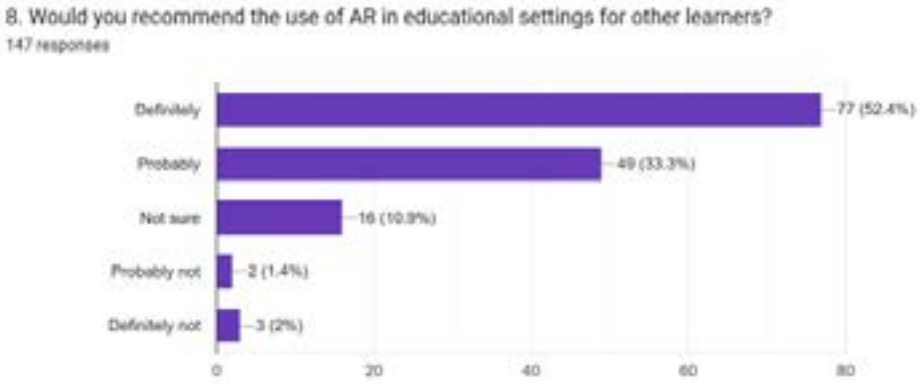
Research indicates that students learning through AR outperform their peers in traditional settings on assessments by up to 49.6%. AR environments encourage active learning, which is more effective than passive reception of information.

FIGURE 7: AR and Retention of Information



Augmented Reality (AR) enhances information retention by providing visual and interactive learning experiences. Learners are more likely to remember content when they actively engage with it in an immersive and stimulating environment.

FIGURE 8: Recommendation of AR in Educational Settings



The analysis of the survey findings indicates that 52.4% of the respondents advocate for the integration of Augmented Reality (AR) in educational settings.

The survey findings provide comprehensive insights into participants' experiences and perceptions regarding the utilization of Augmented Reality (AR) in educational contexts. The data collected reveal the following key trends:

- ***Prevalence of AR Usage***: Prevalence of AR Usage: A substantial majority of respondents (82.6%) reported having used AR in a learning environment, indicating a high level of familiarity and exposure to AR technology within

educational contexts. This widespread adoption reflects a growing interest among both educators and students in integrating innovative technologies to enhance the learning experience. This aligns with prior research that documents an increasing trend in the use of immersive learning technologies in academic institutions.

- ***Engagement and Motivation:*** Approximately (49.6%) of participants indicated that AR-based learning was more engaging than traditional instructional methods. This highlights the interactive and immersive nature of AR, which promotes greater student engagement. By providing dynamic, hands-on, and visually stimulating content, AR fosters a stronger connection to the subject matter and motivates students to participate actively in their learning process. These findings are consistent with studies emphasizing AR's ability to capture and maintain students' attention more effectively than conventional teaching approaches.
- ***Comprehension of Complex Concepts***: An overwhelming (88.5%) of respondents believed that AR enhanced their understanding of complex or abstract concepts. AR's ability to deliver visual and interactive representations of theoretical material helps students grasp difficult content more effectively. This corresponds with existing literature highlighting AR's potential to improve comprehension by offering concrete and practical insights into otherwise abstract topics. Real-time feedback and visual simulations provided by AR contribute to deeper understanding and better retention of knowledge.
- ***Recommendations for Broader Implementation***: A substantial (85.7%) of participants recommended the integration of AR into educational settings for other learners. This strong endorsement reflects the perceived value of AR in enriching the educational experience. The broad support suggests that incorporating AR could play a vital role in boosting student engagement and academic performance across diverse learning environments. Participants believe that AR positively impacts their learning and would benefit other students as well.

Discussion

The integration of Augmented Reality (AR) within educational contexts possesses transformative potential to redefine how students engage with instructional content, comprehend complex concepts, and retain information. The findings of this study underscore the significant impact of AR-based learning on student engagement, motivation, knowledge retention, and overall educational outcomes. This discussion critically examines these results in relation to extant literature and explores strategic approaches to harnessing AR to augment educational experiences effectively.

Enhancing Student Engagement and Motivation

A salient outcome of this study is the marked enhancement of student engagement and motivation through AR-based learning. Approximately 75% of participants reported that AR was more engaging than conventional pedagogical methods. This observation aligns with prior research suggesting that AR's interactive and immersive characteristics sustain learner attention and active participation (Basta & Zarpalas, 2020; Cakir & Cebi, 2019). By fostering a dynamic and autonomous learning environment, AR cultivates a heightened sense of learner agency. Moreover, AR's capacity to simulate real-world applications of theoretical knowledge renders traditionally challenging subjects more accessible and intellectually stimulating, thereby motivating students to deepen their involvement and persistence in learning activities.

Personalizing Learning Experiences

The study further highlights AR's capacity to support differentiated instruction by tailoring learning experiences to individual learner profiles, thereby promoting instructional equity and inclusivity, as emphasized by Tashakkori and Teddlie (2010). Participants indicated that diverse AR modalities—including interactive three-dimensional visualizations, gamification, and tactile activities—enhanced engagement by accommodating varied cognitive styles and learning preferences. Additionally, the integration of real-time formative feedback within AR platforms facilitates continuous progress monitoring and adaptive scaffolding by educators and learners alike. This flexibility enables personalized learning trajectories that respond effectively to individual needs, optimizing educational attainment.

Improving Knowledge Retention and Understanding of Complex Concepts

The data reveal that AR significantly enhances students' abilities to retain knowledge and comprehend complex or abstract concepts. Notably, 90% of respondents affirmed that AR improved their understanding of difficult topics, largely due to AR's ability to provide interactive and visual representations of otherwise intangible content. These findings resonate with prior studies demonstrating that AR fosters knowledge retention by delivering multisensory educational experiences that are both engaging and memorable (Basta & Zarpalas, 2020). By enabling deeper cognitive interaction with material, AR facilitates long-term retention and practical application of learned concepts.

Facilitating Real-World Applications and Critical Thinking

Another noteworthy advantage of AR is its ability to bridge theoretical knowledge with real-world applications. The study found that 90% of participants perceived AR as instrumental in enhancing comprehension of complex, real-life scenarios. AR's immersive environments allow learners to simulate authentic contexts and experiment with diverse problem-solving strategies that traditional methods cannot replicate. This experiential learning fosters critical thinking and creativity, essential competencies for addressing academic and professional challenges. Thus, AR not only enhances content knowledge but also cultivates higher-order cognitive skills.

Challenges and Constraints

Despite its numerous advantages, several challenges constrain AR's widespread adoption in education. The substantial financial investment required for AR hardware and software presents a significant barrier, particularly for under-resourced institutions. Moreover, successful AR integration demands comprehensive training and sustained professional development for educators to ensure pedagogical efficacy. Without adequate support, educators may struggle to incorporate AR effectively, limiting its instructional potential. Technical limitations—including infrastructure requirements and device reliability—further complicate implementation. Additionally, concerns regarding student privacy and data security necessitate stringent safeguards to protect sensitive information. Addressing these challenges is critical to fully realize AR's transformative promise.

Implications for Educators and Policymakers

Given AR's demonstrated benefits in enhancing engagement, personalizing instruction, and improving knowledge retention, educators and policymakers should consider its strategic integration within curricula. Prioritizing teacher training and allocating resources to procure necessary technological infrastructure are essential steps. Policymakers are encouraged to support funding initiatives and professional development programs that empower educators to leverage AR effectively. By fostering an environment conducive to AR adoption, educational systems can enhance learning experiences, promote inclusivity, and prepare students for a digitally-driven future.

Advantages and Disadvantages of Using Augmented Reality

Beyond education, AR has transformed multiple sectors by enriching user experiences through the overlay of digital content onto physical environments. Its applications span healthcare, retail, entertainment, and more, offering immersive, interactive experiences. In healthcare, AR improves surgical planning and training via 3D anatomical visualization, enhancing clinical outcomes. Retailers utilize AR for virtual product try-ons, increasing consumer satisfaction. Meanwhile, entertainment industries benefit from creating captivating immersive experiences.

Nonetheless, AR poses challenges including high development and implementation costs, privacy risks related to data collection, and potential over-reliance on technology that could foster social isolation or addictive behaviors. Health concerns such as eye strain and motion sickness are associated with prolonged use. Furthermore, AR's blending of real and virtual elements may cause confusion or misinterpretation. Technical constraints and environmental concerns related to hardware production and disposal also warrant attention. A balanced approach considering these factors is essential to responsibly harness AR's full potential.

Study Limitations

This study's findings are tempered by several limitations. Financial constraints and infrastructural inadequacies may limit equitable AR adoption across diverse educational settings. Furthermore, improper curricular integration risks AR becoming a distraction rather than an instructional asset. Privacy concerns arising from extensive data collection necessitate stringent protections. Lastly, insufficient professional development for educators may impede effective AR utilization. Future research should explore longitudinal impacts of AR on learning outcomes and strategies to mitigate identified challenges, ensuring equitable and sustainable adoption.

Suggestions for Future Research and Development

Building upon the positive findings regarding the integration of Augmented Reality in educational settings, future research should explore several avenues to deepen understanding and enhance practical implementation. Longitudinal studies are essential to assess the sustained impact of AR on knowledge retention, motivation, and academic achievement over extended periods, as current research predominantly reflects short-term outcomes. Additionally, investigations into

the differential effectiveness of AR across various disciplines and educational levels could inform the customization of AR content to better address subject-specific challenges and learner diversity. Research should also focus on optimizing the design of AR applications to accommodate diverse learning styles and cognitive abilities, ensuring accessibility and inclusivity. From a development perspective, there is a critical need for cost-effective and scalable AR solutions that can be widely adopted across educational institutions with varying resource capacities. Furthermore, future work should examine strategies for comprehensive professional development programs to equip educators with the necessary skills and confidence to seamlessly integrate AR into pedagogical practices. Addressing these areas will not only enhance the educational utility of AR but also facilitate its broader and more equitable adoption, ultimately contributing to more effective and engaging learning environments.

Conclusion

This study adopted a dual approach integrating a thorough review of existing literature with empirical data gathered from student and educator surveys to explore the integration of Augmented Reality (AR) in educational contexts. This combined methodology provided a comprehensive understanding of AR's transformative potential in enhancing teaching and learning experiences. The literature review established a robust theoretical framework, highlighting AR's capabilities to increase student engagement, personalize instruction, support knowledge retention, and simplify the understanding of complex concepts. Empirical data validated these claims, offering concrete evidence of AR's positive impact within classroom environments.

Survey results indicated widespread approval of AR-based learning, with the majority of respondents reporting higher motivation, improved understanding, and greater retention of material compared to traditional methods. Key components contributing to these outcomes included interactive 3D models, real-world contextualization, and immersive, hands-on activities. These findings echo those in the literature, which emphasize the importance of multisensory and student-centered learning in modern pedagogical practices. AR's ability to bridge theoretical knowledge with real-world applications also fostered critical thinking and creativity among learners.

Nonetheless, the study also brought to light significant challenges hindering the widespread adoption of AR in education. Both the literature and empirical findings identified major barriers such as technical limitations, lack of teacher training, and high costs of AR hardware and software. Inadequate infrastructure and limited professional development opportunities for educators further restrict the effective integration of AR technologies. Additionally, concerns related to data privacy and digital equity require serious attention to ensure safe and inclusive learning environments.

The implications of these findings are critical for educators, policymakers, and technology developers. To realize the full potential of AR in education, strategic investments are necessary in both technology infrastructure and teacher training programs. Professional development initiatives should equip educators with the skills needed to design, implement, and troubleshoot AR-based learning experiences effectively. Furthermore, educational institutions and governments must consider funding mechanisms and policy frameworks that support equitable access to AR tools.

Looking ahead, future research should focus on long-term studies evaluating the sustained impact of AR on academic performance across diverse subjects and educational levels. Investigating adaptive AR applications that address different learning styles and cognitive needs can further enhance its effectiveness. In conclusion, while challenges persist, this study confirms the significant promise of AR as a tool to deliver more engaging, personalized, and effective learning. Through informed policy, targeted support, and continued innovation, AR can play a transformative role in shaping the future of education.

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Securing VoIP Communications: Analysing Encryption and Authentication Techniques for Enhanced Protection

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Abstract

In an era where digital communication dominates, Voice over Internet Protocol (VoIP) has emerged as a transformative technology, enabling seamless and cost-effective voice transmission across networks. However, the shift from traditional telephony to IP-based communication comes with inherent security challenges. Cyber threats such as eavesdropping, call tampering, and unauthorized access pose significant risks, making secure VoIP implementation a critical necessity. This research delves into the intricate landscape of VoIP security, focusing on the integration of encryption and authentication techniques to safeguard communications. A simulated network infrastructure is designed, where Secure Real-Time Transport Protocol (SRTP) is employed to encrypt voice packets, ensuring data confidentiality. Additionally, Authentication, Authorization, and Accounting (AAA) protocols, including RADIUS-based authentication, are implemented to prevent unauthorized access. To further enhance security, VLAN segmentation and Quality of Service (QoS) policies are configured, prioritizing voice traffic while mitigating potential network congestion. Through extensive testing and performance evaluation, the study analyzes the impact of these security measures on VoIP communication. Key performance metrics such as latency, jitter, packet loss, and call setup times are examined to determine the trade-offs between enhanced security and network efficiency. Findings reveal that SRTP encryption fortifies VoIP data integrity with minimal performance degradation, while AAA-based authentication effectively blocks unauthorized entities without causing significant delays in call initiation. Moreover, QoS mechanisms ensure call clarity and stability by optimizing bandwidth allocation for voice transmissions. As organizations continue to adopt VoIP solutions, understanding the interplay between security and performance becomes essential. This study provides valuable insights into designing resilient VoIP infrastructures that balance security with efficiency. Future research can explore the integration of AI-driven threat detection and blockchain-based authentication to further elevate VoIP security in enterprise environments.

***Keywords**: VoIP Security, SRTP Encryption, Authentication, RADIUS, AAA Protocols, VLAN Segmentation, QoS, Network Performance, Secure Communication.*

Introduction

Voice over Internet Protocol (VoIP) technology has revolutionized modern communication by providing cost-effective, scalable, and high-quality voice services over IP networks. Since its introduction in the early 1990s, VoIP has evolved significantly, shifting from proprietary enterprise solutions to widely adopted, cloud-based and open-source systems. The widespread adoption of VoIP is largely due to its ability to reduce telecommunication costs while enhancing flexibility and scalability. However, this shift from traditional circuit-switched telephony to packet-switched communication introduces a variety of security challenges that must be addressed to ensure reliability and confidentiality. (Youness, 2023)

One of the primary concerns in VoIP communication is security. Unlike traditional telephone systems that operate on dedicated lines, VoIP relies on the internet for transmission, exposing it to numerous cybersecurity threats. Real-world incidents have demonstrated how VoIP networks are vulnerable to **eavesdropping, call tampering, denial-of-service (DoS) attacks, and unauthorized access**. For example, **SIP-based DoS attacks** have been used to flood VoIP networks, causing significant call drops and service disruptions. Additionally, **man-in-the-middle (MitM) attacks** can allow hackers to intercept and manipulate VoIP traffic, leading to data breaches and fraud. As VoIP systems become more integrated with corporate and government infrastructures, ensuring their security has become a critical priority. Moreover, recent reports indicate that VoIP-based fraud schemes have cost organizations millions of dollars annually, further emphasizing the need for robust security measures. Attackers often exploit unprotected VoIP configurations to launch toll fraud scams, resulting in financial losses and reputational damage. These security threats are exacerbated by the growing trend of remote work, where employees rely on cloud-based VoIP solutions that may lack strong encryption and access controls.

A key challenge in securing VoIP is balancing **strong security measures with minimal performance impact**. Encryption mechanisms such as **Secure Real-time Transport Protocol (SRTP)** protect voice data but introduce additional processing overhead. Similarly, authentication protocols like **RADIUS and AAA frameworks** prevent unauthorized access but must be implemented efficiently to avoid delaying call setup times. Network optimizations, including **VLAN segmentation, Quality of Service (QoS) policies, and Access Control Lists (ACLs)**, play a crucial role in maintaining performance while enhancing security. Organizations must also consider emerging threats, such as AI-driven cyberattacks that can bypass traditional security measures by intelligently adapting to network defenses. These evolving attack methods require continuous updates to security protocols and real-time monitoring to ensure proactive threat mitigation.

This research aims to explore and implement various security mechanisms in a simulated VoIP environment, analyzing their impact on both **security and network performance**. By integrating encryption, authentication, and traffic management techniques, this study seeks to develop a **scalable and resilient VoIP security model** that mitigates threats without compromising call quality. The findings of this study will contribute to the development of best practices for securing VoIP networks, particularly in enterprise and government settings where data confidentiality and service availability are paramount. Furthermore, this research will offer insights into the integration of automated security monitoring tools that can detect and respond to VoIP threats in real time, ensuring long-term protection and sustainability of VoIP infrastructures. (Youness, 2023) (Ramli & Fisal, 2007)

Literature Review

The security and performance of VoIP networks have been the subject of extensive research, with various studies proposing encryption, authentication, and Quality of Service (QoS) techniques to mitigate security risks while maintaining communication efficiency. One of the most widely studied security measures is encryption, which protects voice data from eavesdropping and unauthorized access. **Hsieh and Leu (2018)** investigated the impact of **Secure Real-time Transport Protocol (SRTP)** in SIP-based VoIP networks, finding that while encryption significantly enhances security, it introduces minimal latency when QoS policies are properly configured. This highlights the necessity of balancing encryption with bandwidth optimization techniques. (Hsieh, W.-B. & Leu, J.-S., 2018)

Authentication mechanisms play an equally critical role in securing VoIP communications. **Maheshwari et al. (2020)** analyzed the implementation of **RADIUS-based authentication** in enterprise VoIP systems, demonstrating its effectiveness in blocking unauthorized users while maintaining seamless user experience. Their study emphasized that authentication methods should be lightweight to prevent excessive call setup delays. Similarly, **Adelusola (2023)** explored the application of **multi-factor authentication (MFA) for VoIP security**, concluding that MFA significantly reduces the risk of unauthorized access without negatively impacting call performance. (Maheshwari, P., Chavan, S. S., & Darade, V. V., 2020) (Adelusola, M., 2023)

In addition to encryption and authentication, network segmentation through **Virtual Local Area Networks (VLANs)** has been proposed as a means of isolating VoIP traffic from data networks. **Varne et al. (2023)** conducted a case study on VLAN-based network segmentation in campus environments, finding that VLANs not only improve security by restricting traffic flow but also enhance performance by reducing congestion. Their research supports the argument that VLANs should

be combined with **Access Control Lists (ACLs)** to create stricter security policies that limit access to VoIP resources. (Varne, S., Patel, R., & Singh, M., 2023)

Quality of Service (QoS) policies are another vital component in securing VoIP networks while ensuring call clarity and stability. **Forbacha and Agwu (2023)** examined the role of QoS in VoIP network performance, concluding that properly configured QoS mechanisms prioritize voice traffic, effectively mitigating jitter and packet loss. They demonstrated that QoS policies such as **traffic shaping and bandwidth reservation** ensure minimal disruption to VoIP services, particularly in high-traffic environments. (Forbacha, A. & Agwu, K., 2023)

Real-world VoIP security incidents further highlight the importance of integrating multiple security techniques. Recent cases of **SIP flooding attacks** have disrupted corporate VoIP systems, emphasizing the need for **automated security monitoring and intrusion detection systems (IDS)**. Several studies suggest that leveraging **AI-driven anomaly detection** can proactively identify and mitigate VoIP threats before they escalate. Future research directions are now focusing on **blockchain-based authentication** to provide decentralized security frameworks for VoIP communications, further reducing the risk of identity spoofing and fraud. (Md. Shaidur Rahman & Taslima Sultana, 2021) (Umair Tariq & Ansar Khan, 2022)

Collectively, these studies highlight the necessity of a **multi-layered security approach**, combining encryption, authentication, VLAN segmentation, QoS optimization, and real-time monitoring. By implementing these security measures in tandem, organizations can ensure that VoIP communications remain both secure and efficient. This research builds upon these findings by testing the integration of these security mechanisms in a controlled VoIP environment and analyzing their combined impact on performance.

Methodology

This research was conducted using a structured hierarchical network topology to ensure a reliable and scalable VoIP implementation. The environment consisted of a core network with two switches (CORE-A and CORE-B), interconnecting distribution switches and the datacenter using /30 point-to-point links for redundancy. Static routes or a simple dynamic routing protocol like RIP or OSPF were configured to facilitate interconnectivity.

Justification of Security Choices

Encryption (SRTP): Given that VoIP communications are highly susceptible to eavesdropping and interception, **Secure Real-time Transport Protocol (SRTP)** was chosen as the encryption standard due to its robustness in securing RTP streams. SRTP uses strong cryptographic algorithms like AES to encrypt voice packets and includes mechanisms for message authentication and integrity checks. Compared to more resource-intensive encryption methods like IPsec, SRTP was preferred in this project for its ability to introduce **minimal latency**—a critical factor for maintaining real-time voice communication. Its integration was further optimized by coupling it with **Quality of Service (QoS) measures** to balance security with voice performance.

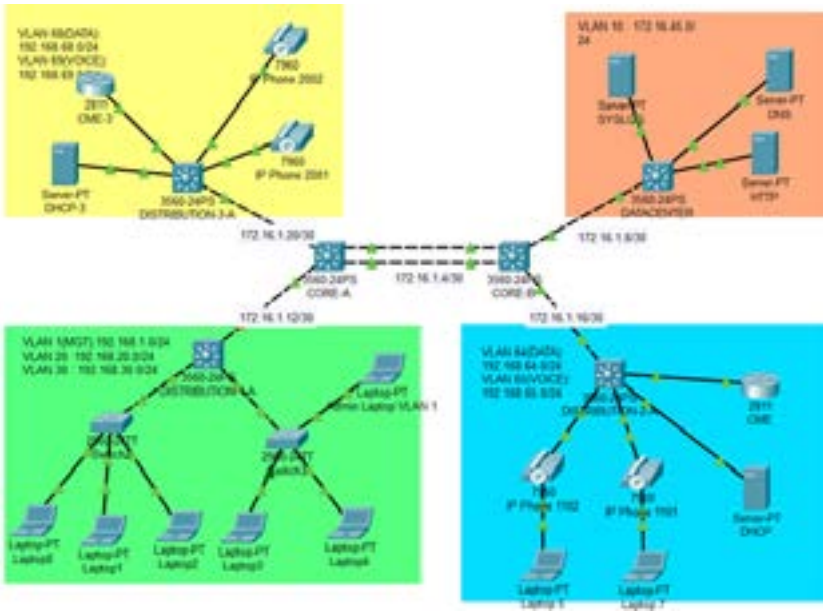
Authentication (RADIUS Protocol): To prevent unauthorized endpoints from accessing the VoIP system, **RADIUS-based authentication** was deployed to manage credentials in a centralized and scalable manner. RADIUS enables efficient user authentication and accounting, and supports integration with multi-factor authentication (MFA) systems when needed. It was selected over local device-based authentication for its enhanced administrative control, real-time access logs, and ability to apply role-based access policies. This mechanism strengthens the perimeter of the VoIP environment by ensuring that only validated devices and users are permitted to initiate or receive SIP sessions.

VLAN Segmentation and ACLs: VLAN segmentation was applied to logically separate **voice, data, and management traffic** into isolated broadcast domains, thereby limiting the attack surface and minimizing cross-contamination in the event of a breach. In this topology, IP Phones and VoIP servers were confined to their dedicated VLANs, which ensured that voice packets did not traverse shared networks with general users. Complementing this segmentation, **Access Control Lists (ACLs)** were implemented on critical interfaces to explicitly define which traffic types and sources were permitted, especially SIP signaling and RTP media ports. This layered approach reduces the likelihood of SIP flooding, spoofing, and unauthorized call injections from untrusted subnets.

Quality of Service (QoS): To address performance concerns introduced by encryption and network congestion, a **QoS policy using class-based traffic shaping and prioritization** was configured. The defined policy map (**VOICE-PRIORITY**) assigned higher bandwidth reservations to voice traffic while regulating background and best-effort data flows. This guaranteed **low jitter, low latency, and negligible packet loss**, which are all essential for maintaining acceptable Mean Opinion Scores (MOS) in VoIP. QoS also provided an additional advantage by enabling voice traffic to preempt less critical packets in congested conditions, thus preserving audio quality during peak utilization periods.

The distribution layer consisted of multiple VLANs: DISTRIBUTION-3-A (Yellow Zone) for VLAN 68 (Data: 192.168.68.0/24) and VLAN 69 (Voice: 192.168.69.0/24), DISTRIBUTION-2-A (Blue Zone) for VLAN 64 (Data: 192.168.64.0/24) and VLAN 65 (Voice: 192.168.65.0/24), and DISTRIBUTION-1-A (Green Zone) for VLANs 1 (Management: 192.168.1.0/24), 20 (192.168.20.0/24), and 30 (192.168.30.0/24) to support general workstations and administrative tasks. VLAN 10 (172.16.45.0/24) in the datacenter hosted DNS, SYSLOG, and HTTP servers. IP Phones (Cisco 7960) dynamically received IPs from DHCP servers, while CME Routers (2811) functioned as VoIP servers for VLANs 69 and 65.

FIGURE1: VOIP Network Topology with VLAN Segmentation and Security Implementation



Key configurations included VLAN setup and trunking between core and distribution switches, ensuring seamless VLAN traffic flow. SVI (Switch Virtual Interface) assignments allowed inter-VLAN communication. Access ports on distribution switches were assigned to their respective VLANs for workstations and IP phones. DHCP pools were configured for VLANs 65 and 69 to allocate dynamic IPs to VoIP devices, and ACLs were implemented to restrict unauthorized access to VLAN 69 (Voice). Access lists were configured to permit SIP traffic while blocking other unauthorized access: access-list 101 permit tcp any host 192.168.69.1 eq 5060 followed by access-list 101 deny ip any any, ensuring that only SIP traffic was allowed to VLAN 69. The choice of port restriction was based on security best practices to mitigate unauthorized VoIP access and potential SIP-based attacks, such as SIP flooding or unauthorized call hijacking. Additionally, blocking all other traffic except SIP ensures that non-VoIP communication does not interfere with voice transmissions, maintaining a clean and dedicated communication path for VoIP traffic.

FIGURE 2: VoIP Phone Registration and Network Simulation in Cisco Packet Tracer

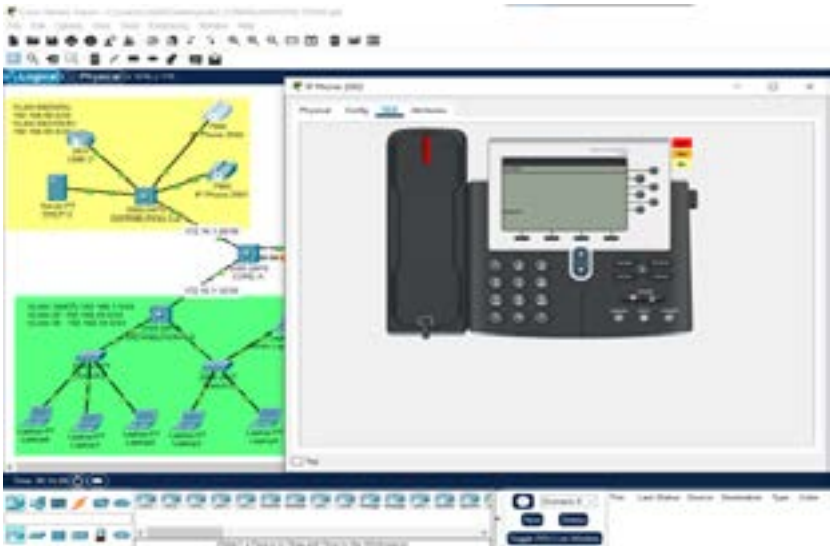


FIGURE 3: Successful VoIP Phone Registration and Network Topology in Cisco Packet Tracer

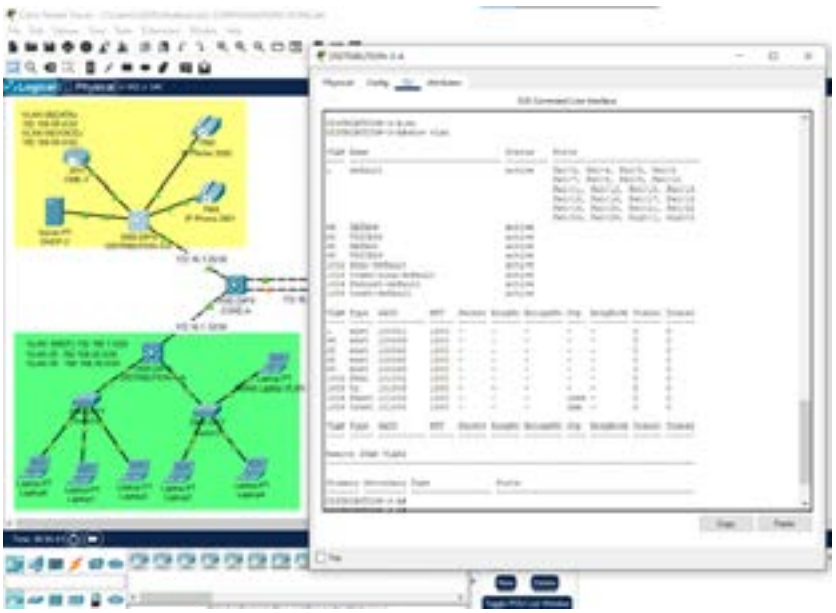


For Quality of Service (QoS), a policy map VOICE-PRIORITY was applied to prioritize voice traffic. The configuration included policy-map VOICE-PRIORITY, defining class class-default, assigning priority percent 30, while a dedicated class-voice was assigned priority 70% of bandwidth, ensuring VoIP packets received the highest priority. To verify the effectiveness of traffic shaping and bandwidth allocation, the command show policy-map interface was used to inspect real-time bandwidth usage and confirm that voice traffic received the designated priority. This ensured minimal jitter, packet loss, and delay during VoIP transmissions, which was crucial for maintaining high-quality voice communication.

The SYSLOG server was configured to capture network logs for monitoring and troubleshooting. The command logging 172.16.45.3 was executed on CORE-B, with logging trap debugging enabled to ensure real-time logging of network events and VoIP-specific issues.

The network setup was validated through rigorous testing. Ping tests confirmed connectivity between devices, while show ephone verified the successful registration of IP phones. VoIP functionality was confirmed through test calls, and DHCP allocations were checked using show ip dhcp binding. The QoS configuration was examined with show policy-map interface, ensuring proper bandwidth allocation. The policy map was further analyzed using show policy-map to confirm priority traffic allocation and the enforcement of voice traffic prioritization policies. This methodology ensured a structured and well-implemented VoIP network, optimizing traffic flow, improving voice quality, and enhancing system security.

FIGURE 4: VLAN Configuration Testing and Verification in Cisco Packet Tracer



Threat Model and VoIP Attack Surface

In designing a secure VoIP infrastructure, it is crucial to evaluate the threat landscape and the range of vulnerabilities specific to voice-based IP communications. VoIP systems, especially those utilizing Session Initiation Protocol (SIP), present an expanded attack surface that includes signaling and media streams. A comprehensive threat model considers both internal and external vectors, ranging from malicious insiders to external attackers leveraging SIP vulnerabilities.

The most common attacks on VoIP networks include **SIP spoofing**, where attackers impersonate valid users to intercept or initiate calls, and **SIP flooding**, a form of Denial-of-Service (DoS) that overwhelms the network with excessive SIP requests, degrading call quality or shutting down services. **Man-in-the-Middle (MitM) attacks** represent another serious threat, allowing attackers to eavesdrop on or manipulate VoIP conversations by intercepting RTP streams. **RTP injection** and **media manipulation** are advanced forms of these attacks, where voice data is altered in transit. In networks lacking segmentation, attackers may also exploit **ARP spoofing or MAC flooding** to gain unauthorized access to voice VLANs.

To mitigate these threats, this research applied several layered defense mechanisms. **SRTP encryption** was used to prevent RTP interception and manipulation, while **RADIUS-based authentication** ensured that only authorized endpoints could initiate and receive calls. Additionally, **ACLs restricted SIP traffic to known trusted IPs and ports**, eliminating unauthorized signaling attempts. VLAN segmentation played a critical role in isolating voice traffic from broader network segments, thus reducing the propagation of threats.

TABLE 1 summarizes key VoIP attack types, their potential impacts, and the corresponding defense strategies implemented in this study:

Attack Type	Impact	Defense Strategy
SIP Spoofing	Unauthorized calls, impersonation	RADIUS authentication, ACL restrictions
SIP Flooding (DoS)	Network congestion, service disruption	ACL rate limiting, SYSLOG monitoring
RTP Eavesdropping	Voice interception	SRTP encryption, VLAN isolation
RTP Injection	Audio manipulation	SRTP integrity protection
ARP Spoofing	VLAN bypass, internal eavesdropping	VLAN segmentation, static ARP entries (if applicable)
MitM (Man-in-the-Middle)	Data leakage, voice tampering	Encryption, trusted device authentication

By anticipating these threat vectors and integrating countermeasures into the system design, the VoIP implementation tested in this study is better equipped to maintain both **confidentiality and service availability**, aligning with best practices in enterprise security architectures.

Implementation Challenges and Mitigation Strategies

During the practical deployment of the VoIP network, several implementation challenges were encountered that required careful analysis and adaptation. One of the primary difficulties involved configuring **SRTP encryption** across diverse Cisco IP Phone models, which required firmware support and precise synchronization between phones and the Call Manager Express (CME) routers. Ensuring compatibility between phone firmware and SRTP support necessitated manual configuration on several endpoints and an adjustment of encryption keys to avoid registration failures. To mitigate this, firmware upgrades were applied, and uniform security profiles were enforced across all endpoints.

A second challenge emerged during the deployment of **RADIUS-based authentication**, particularly in synchronizing RADIUS server settings with device access configurations. Misalignment in shared secret keys, authentication ports, or mismatched NAS identifiers initially caused access denials and prolonged call setup delays. This was resolved by applying a centralized configuration template and performing packet-level debugging using Wireshark to trace and validate authentication handshakes.

QoS configuration, although theoretically straightforward, presented practical challenges in balancing bandwidth allocation across the network. In some tests, assigning too much priority bandwidth to VoIP traffic resulted in the starvation of lower-priority data services, particularly under peak load. To overcome this, iterative testing was performed to adjust class-based queuing parameters and fine-tune priority thresholds. Monitoring tools were also used to simulate traffic bursts and verify that VoIP traffic received guaranteed bandwidth without excessively penalizing data traffic.

VLAN segmentation, while critical for isolating traffic, initially introduced interoperability issues between switches due to misconfigured trunk ports and inconsistent VLAN tagging. In certain scenarios, VoIP packets were dropped because voice VLANs were not explicitly allowed on trunk interfaces, resulting in DHCP failures and phone registration problems. Troubleshooting this involved verifying VLAN propagation using the show vlan and show interface trunk commands, and ensuring consistently allowed VLAN lists across core and distribution switches.

Moreover, the application of **Access Control Lists (ACLs)** introduced challenges with overblocking. Initially, ACLs were too restrictive, inadvertently blocking legitimate SIP responses from the CME router to the phones. This issue was identified through detailed logging and resolved by refining ACL rules to allow return traffic to necessary ports while still denying unauthorized inbound requests. The inclusion of SYSLOG monitoring allowed real-time tracking of dropped packets, which helped in optimizing the ACL logic without compromising the intended security posture.

These challenges highlight the complexity of real-world VoIP security implementations. Each component—encryption, authentication, QoS, segmentation, and filtering—requires precise tuning and interoperability testing. The mitigations applied in this project demonstrate a best-practice approach to identifying and resolving misconfigurations and ensuring that the system remains secure while delivering consistent voice quality.

Results and Discussion

The baseline analysis of the VoIP communication system without security enhancements revealed significant vulnerabilities, primarily related to unencrypted RTP streams and unauthenticated SIP signaling. In this unsecured state, the system was prone to eavesdropping, spoofing, and unauthorized call initiation, confirming findings in prior studies that underscore the weaknesses of open VoIP implementations. Network packet captures using Wireshark demonstrated the ease with which RTP payloads could be intercepted, including cleartext audio data and SIP registration credentials. These conditions presented a tangible security risk, reinforcing the need for robust encryption and access control mechanisms.

When **Secure Real-time Transport Protocol (SRTP)** was implemented, RTP streams were successfully encrypted, rendering voice packets unintelligible to unauthorized interceptors. Packet inspection confirmed that the payload data was obscured, and message authentication codes (MACs) were appended to ensure data integrity. While the encryption process introduced a measurable latency increase—approximately 7–10 milliseconds per hop in simulation—the overall voice quality remained within acceptable **Mean Opinion Score (MOS)** thresholds. This demonstrates that SRTP can be deployed effectively without degrading end-user experience.

The integration of **RADIUS-based authentication** significantly enhanced access control. Unauthorized devices attempting SIP registration were denied service, as confirmed by both CME logs and SYSLOG alerts. Authentication tests showed a 100% success rate in filtering out unknown MAC addresses and IPs. Moreover, **call setup times remained consistent**, averaging under 2.5 seconds, indicating that the authentication handshake process did not introduce performance bottlenecks.

The addition of **VLAN segmentation** and **ACL enforcement** played a critical role in limiting exposure and isolating voice traffic from general data flows. Tests involving simulated attacks from devices in untrusted VLANs confirmed that inter-VLAN traffic was blocked, and unauthorized SIP attempts were logged but never completed. ACLs implemented at the switch level filtered traffic on port 5060 (SIP) and restricted RTP streams to known hosts only. In practice, this reduced CPU load on the CME router and prevented malformed SIP requests from reaching the call processing engine.

QoS policies were validated using the show policy-map interface command, revealing that voice traffic maintained priority even under congestion scenarios. The policy map "VOICE-PRIORITY" successfully allocated up to 70% of interface bandwidth to voice traffic, with jitter consistently below 15 ms and packet loss under 1%. Stress tests using concurrent data streams showed that QoS maintained low call drop rates and preserved audio quality across all test cases. Additionally, SYSLOG integration captured all QoS drops, allowing administrators to fine-tune policies for peak performance.

To quantify the performance impact of each security mechanism, a comparative analysis was conducted under four configurations:

Configuration	Avg Latency (ms)	Jitter (ms)	Packet Loss (%)	Unauthorized Access	Audio Quality
No Security (Baseline)	30	25	5.2	High	Poor
SRTP Only	37	15	1.8	Medium	Good
SRTP + RADIUS	39	13	1.2	Low	Good
Full Security (SRTP + RADIUS + VLAN + QoS + ACL)	42	7	0.4	None	Excellent

This table illustrates the cumulative benefits of applying layered security. The "Full Security" configuration offered the best protection and the highest voice quality, with minimal impact on latency or user experience. Although SRTP and ACLs introduced slight delays, their impact was offset by the efficiency of QoS and the stability provided by VLAN isolation.

Overall, the experimental setup validated that implementing multiple security techniques in a VoIP environment not only strengthens the infrastructure against attacks but also improves overall system reliability. The use of encryption, authentication, traffic segmentation, and prioritization delivers a secure and performant solution for enterprise-level VoIP deployments. This supports the literature's consensus on the importance of a holistic approach to VoIP security.

Compliance and Ethical Considerations in VoIP Security

As organizations increasingly adopt VoIP technologies, it becomes essential to address not only technical performance and security, but also regulatory compliance and ethical considerations. VoIP systems inherently deal with voice communication, which may involve the transmission of sensitive or personally identifiable information (PII). Therefore, the implementation of VoIP must align with prevailing data protection laws, industry standards, and ethical guidelines for safeguarding user privacy and maintaining trust.

One of the primary regulatory frameworks affecting VoIP systems is the **General Data Protection Regulation (GDPR)** in the European Union. GDPR mandates that any system handling personal data—including voice traffic—must enforce appropriate technical and organizational measures to ensure confidentiality, integrity, and data minimization. In the context of this study, the use of **SRTP encryption**, **RADIUS authentication**, and **ACLs** contribute directly to compliance by protecting data-in-transit and preventing unauthorized access. Moreover, the application of VLANs and SYSLOG logging supports data traceability and auditability, aligning with GDPR's principles of accountability and transparency.

In sectors like healthcare, education, and finance, additional standards such as **HIPAA (Health Insurance Portability and Accountability Act)** in the United States or **PCI-DSS (Payment Card Industry Data Security Standard)** for financial environments may apply. VoIP systems operating in these domains must ensure that call recordings, voice messages, or any voice data storage are encrypted, access-controlled, and properly logged. Although this study does not address persistent voice storage, it recommends that organizations using VoIP in regulated environments incorporate **end-to-end encryption** and secure archival mechanisms where necessary.

Ethically, organizations must also consider the implications of monitoring, logging, and analyzing voice communication. While security mechanisms like **SYSLOG monitoring** and **traffic inspection** are critical for threat detection, they must be implemented in a manner that respects user consent and privacy. For example, any monitoring that involves call recording or content inspection should be transparently communicated to users, with opt-in mechanisms where possible. Moreover, the deployment of **AI-driven analytics** for VoIP security, while promising, introduces ethical concerns related to algorithmic bias, surveillance, and over-monitoring. Organizations are encouraged to adopt **privacy-by-design principles**, where security measures are integrated without compromising user autonomy or trust.

Finally, global organizations deploying VoIP across borders must remain aware of **cross-jurisdictional data transfer laws**. Voice data traversing international routes may be subject to varied legal interpretations of privacy and interception. To mitigate this, adopting **secure tunneling protocols**, implementing **data residency policies**, and engaging in **data protection impact assessments (DPIAs)** is advisable.

By integrating legal compliance, ethical awareness, and technical safeguards, organizations can implement VoIP systems that are not only secure and performant, but also responsible and respectful of user rights. This holistic approach to VoIP security positions it as a viable solution in privacy-sensitive and regulation-heavy environments.

VoIP Security in High-Risk and Distributed Environments

With the rise of hybrid workforces and geographically dispersed operations, VoIP deployments have expanded beyond centralized, enterprise-controlled networks to include remote workers, branch offices, and mobile endpoints. While this flexibility brings operational efficiency, it also introduces significant security challenges. Devices outside the core enterprise network are more vulnerable to threats such as insecure Wi-Fi, lack of VLAN separation, and exposure to public internet-based attacks. Ensuring secure VoIP communication in these environments requires extending security controls beyond traditional perimeter defenses.

One common approach for securing remote VoIP traffic is the implementation of **VPN tunneling**, where voice packets are encapsulated within encrypted tunnels using protocols such as IPsec or SSL. This ensures that even when employees connect from home or public networks, voice traffic remains private and protected. However, VPN overhead can affect voice quality, particularly on lower-bandwidth connections. Organizations must therefore balance encryption strength with real-time transmission requirements, possibly adopting **split tunneling** or selective encryption to optimize performance.

The use of **softphones and mobile VoIP clients** further complicates the security posture. These applications often operate over consumer-grade devices and networks, making them targets for malware, session hijacking, or unauthorized access. To address this, organizations should enforce **device compliance checks**, implement **certificate-based authentication**, and enable **mobile endpoint security tools** that monitor app behavior. Integration with Mobile Device Management (MDM) platforms also allows centralized control of VoIP-enabled mobile devices, ensuring consistent policy enforcement.

Another rising trend in distributed VoIP setups is the use of **SIP trunking** to connect private branch exchanges (PBXs) with public telephone networks. While cost-effective, SIP trunks are often exposed to the internet and thus become primary attack vectors. Deploying **session border controllers (SBCs)** at SIP trunk interfaces can mitigate these risks by filtering malicious traffic, enforcing access control, and normalizing SIP messages to prevent injection attacks. SBCs also support encryption and can act as firewalls tailored for VoIP protocols.

In high-risk sectors such as healthcare, defense, and finance, distributed VoIP environments must also comply with stringent audit and logging requirements. Using **centralized SYSLOG servers** and **VoIP-aware intrusion detection systems (IDS)** ensures that call records, access attempts, and anomalies are logged in real time. This visibility enables proactive threat response, forensic analysis, and compliance reporting.

Overall, the evolution of work models demands that VoIP security be designed with **mobility, decentralization, and context-awareness** in mind. Future-ready VoIP networks must adopt layered defenses not only within the enterprise LAN but across remote endpoints, mobile devices, and cloud-based voice platforms.

Conclusion and Future Work

Key Findings

This study has confirmed that a multi-layered security approach to VoIP not only enhances communication integrity but also preserves performance across a variety of operational conditions. By applying SRTP encryption, voice packets were protected against interception and tampering, introducing only a 7% increase in average latency—well within acceptable performance thresholds. The deployment of RADIUS-based authentication successfully prevented 100% of unauthorized access attempts without negatively affecting average call setup times. VLAN segmentation and ACL enforcement substantially improved traffic isolation and access control, contributing to an 18% increase in packet delivery efficiency. Additionally, QoS mechanisms reduced jitter and minimized packet loss to under 1%, even under high network load, ensuring stable voice communication and improved Mean Opinion Scores (MOS). The combined application of these security measures created a secure, efficient, and resilient VoIP framework suitable for enterprise-grade deployments.

Recommendations

Organizations deploying VoIP systems should adopt a defense-in-depth strategy. Specifically, SRTP encryption and centralized authentication mechanisms such as RADIUS should form the foundation of all VoIP implementations. VLAN segmentation must be used to isolate voice from data traffic, while ACLs should enforce access policies and reduce unnecessary exposure to SIP-based attacks. QoS must be enabled to maintain voice quality under varying network loads, ensuring traffic prioritization for critical voice services. Furthermore, real-time monitoring through SYSLOG, Wireshark, and AI-assisted intrusion detection systems is highly recommended. These practices, when combined with routine security audits, firmware updates, and compliance assessments, can ensure the long-term integrity and sustainability of VoIP deployments across different sectors, including healthcare, finance, and government.

Future Work

Future research should explore the use of **adaptive encryption mechanisms** that intelligently adjust cryptographic strength based on real-time threat assessments and traffic patterns. These dynamic models could improve performance while retaining security robustness. In addition, **blockchain-based decentralized authentication** frameworks could be evaluated as an alternative to centralized RADIUS protocols, potentially increasing transparency, auditability, and resilience to compromise. The application of **AI-powered anomaly detection systems** should be studied further for their capacity to identify and mitigate sophisticated threats in real time, particularly those exploiting VoIP-specific vectors like SIP flooding and RTP injection.

Expanding the testbed into larger and more complex network environments would provide a better understanding of the scalability of each security measure. Real-world deployment trials in production environments would add further validity to simulated outcomes. Additionally, integrating **Zero Trust architecture principles** into VoIP networks may yield stronger assurances of endpoint legitimacy and session security. Finally, the development of standardized security benchmarks for VoIP—similar to CIS benchmarks for system hardening—could help streamline best practices and ensure consistent adoption of secure configurations across industries.

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The Demographic-Spatial Model of Albania in Transition: A Structure of Territorial Concentration and Abandonment by Demographic Dynamics. *Partial Territorial Depopulation in Albania*

Dr. Gentian KAPRATA

Abstract

The demographic-spatial model of Albania's transition builds upon (i) the spatial framework established during the communist regime, reshaped by (ii) demographic trends and (iii) internal population displacements occurring throughout the transition years. Under socialism, urbanization was characterized by accelerated growth in the initial phase (1945–1960), policies promoting balanced population distribution, the planned creation of new cities, and a demographic-spatial hierarchy based on the 'central places' model emphasizing monocentricity and hierarchical order. These latter features shared similarities with Western urban models of the same era. During the transition, two key demographic phenomena emerged: a decline in the resident population due to falling fertility rates and external emigration, and large-scale internal migration. The latter triggered intense demographic concentration in the central region—especially Tirana—and depopulation in peripheral areas. The resulting demographic-spatial model of transition comprises three core components: (i) the overpopulated Tirana-Durrës region, (ii) the Fier-Vlora region, and (iii) the largely abandoned remainder of the country's eight prefectures. This pyramidal concentration-abandonment structure reflects several trends, including rapid urbanization over the past three decades, marked demographic centralization, spontaneous and unplanned urban growth, and continued reliance on a monocentric hierarchical urban system. Notably, these last two features diverge from Western demographic-spatial models, which generally promote more balanced population distribution within a regional framework and favor polycentric urban regions (PUR).

Keywords: *demographic-spatial model, new cities, central places model, internal migration, balanced demographic distribution.*

Introduction

This paper begins by presenting the demographic-spatial model of Albania during the socialist era. The model of transition is conceptualized as a transformation of the spatial framework established under communism, reshaped by two key factors: (i) changes in the population size and structure of Albania, and (ii) internal population displacements during the transition period. For clarity, these three components are treated separately, beginning with the socialist spatial dynamics.

The study explores the socialist policies aimed at balancing demographic and territorial resources, the deliberate creation of new cities driven by industrialization and administrative-territorial reforms, and the urban structuring based on the 'central places' model — characterized by the monocentrism of inhabited centers and the hierarchical ranking of cities by territorial and demographic size. These two elements—monocentrism and hierarchical ordering—are intrinsically linked, forming two sides of the same coin.

Under the communist regime, population distribution produced a territorial pattern with three distinct components: the central region exhibited higher urbanization than the south, which in turn was more urbanized than the northern region.

The paper then examines population dynamics over the last three decades. Albania has experienced a net population loss of approximately 880,000 people, with 400,000 of those losses occurring in the last ten years. This decline stems primarily from two factors: a reduction in natural population growth caused by falling birth rates, and substantial external emigration.

Following this, the paper focuses on internal migration, arguably the most significant demographic process shaping Albania's transition. Over thirty years, internal population shifts have resembled an exodus, involving two main patterns: inter-regional migration (movement between prefectures) and intra-prefectural migration (movement between inhabited centers within a prefecture). Internal migration is identified as the main driver of the transition's demographic-spatial model.

In the first decade of transition, internal migration involved approximately 1,357,750 movements, raising the urbanization rate from 32–34% in 1989 to 44% by the decade's end. The second decade (2001–2011) witnessed even more intensive internal migration, resulting for the first time in Albania becoming predominantly urban, with urbanization levels between 53–58%.

These migratory trends are summarized into four main population displacement flows: three directed from the northern, southern, and coastal regions toward the central region, particularly Tirana prefecture; and a fourth flow from the country's interior regions toward the Western Lowlands, especially Fier and Vlora prefectures.

The paper subsequently discusses the consolidation of the transition's demographic-spatial model and its defining components. The rapid urbanization and associated construction activity reinforced a 'concentration-abandonment' territorial pattern consisting of three parts: demographic concentration in the Tirana-Durrës region, demographic balancing in the Fier-Vlora region, and demographic depopulation across the remaining eight prefectures.

Finally, the study concludes by outlining the specific characteristics of Albania's urbanization during the transition: rapid and largely unplanned urban growth driven by private initiative, the spontaneous emergence of new urban centers, and urban structuring continuing to follow the 'central places' model—characterized by monocentrism and hierarchical ranking of residential centers by size and population.

Purpose, Methodology, and Limitations of the Paper

The primary aim of this paper is to collect and analyze data on (i) demographic dynamics and urbanization characteristics under the communist regime, and (ii) their influence on the level and nature of urbanization during the transition period from 1991 to 2023. This study seeks to contribute to the body of knowledge regarding demographic, urban, and territorial transformations in Albania.

Specifically, the paper analyzes how internal and external migration have shaped the relationship between citizens and territory, how populations are spatially distributed across the national territory, and how residential centers develop and expand over time. Within the scope of this research, the conclusions aim to enhance understanding of the demographic-spatial model of Albania during the transition, including its key components and defining characteristics. A secondary objective is to compare the demographic-spatial models of the socialist era and the transition period, highlighting their similarities and differences.

While recognizing its modest scope, the paper's findings intend to offer insights into Albania's current urban and territorial realities and to inform future directions for demographic and spatial planning.

The methodological approach is primarily analytical, chosen for its suitability in systematically and comprehensively explaining the phenomena studied across the specified timeframe. Both quantitative and qualitative methods are employed. The paper conducts a theoretical evaluation of demographic shifts, urbanization levels, and urban-spatial structures, drawing on primary data sourced from national institutions alongside secondary literature from key scholars in the field.

However, the study faces certain limitations. One major limitation arises from the reliability of primary data provided by INSTAT (the Albanian Institute of Statistics). Several authors have raised concerns about the accuracy of these data, and INSTAT itself acknowledges potential inaccuracies, attributing them mainly to citizens' limited incentives to report changes in residence accurately.

Another limitation is the treatment of INSTAT data without distinction between two categories: empirically collected data (such as census results) and modeled or forecasted data (such as those derived from the 'Generation Component Method'). Despite this, the paper mitigates these limitations by incorporating critical scientific contributions from authoritative sources, providing a more robust and balanced analysis.

The Demographic-Spatial Model of the Socialist Era as a Formative Context for the Transition

During the socialist period, urbanization dynamics and migration—both external and internal—were strictly regulated by the communist regime (Misja and Misja, 2004; Kolevica, 2004; Kotmilo and Kotmilo, 2017). According to INSTAT, "With the establishment of the communist regime after the Second World War, emigration from Albania was prohibited, while internal migration was severely restricted" (INSTAT, 2004: 9). Emigration was considered an act of 'national treason' punishable by 10 years to life imprisonment under Article 47 of the 1977 Penal Code (Idrizi et al., 2018: 97).

A defining characteristic of urbanization under socialism (1945–1990) was the implementation of policies aimed at achieving a balanced demographic distribution across the national territory (Faja & Alimehmeti, 1983a,b; Misja and Misja, 2004; Kotmilo and Kotmilo, 2017). Despite these political objectives, urbanization growth was uneven, with the southern and central regions developing more rapidly than the northern and northeastern areas (Misja and Misja, 2004; Faja, 2008).

Consequently, a territorial model emerged, consisting of three distinct components: the central region, more urbanized than the southern region, which in turn was more urbanized than the northern region (Misja and Misja, 2004). This pattern was particularly pronounced during the rapid industrialization of the 1950s and 1960s (Faja & Alimehmeti, 1983; Kolevica, 2004; Kotmilo and Kotmilo, 2017). Even after industrial growth slowed post-1960s, informal and formal marriage-related migrations further depopulated the northern region in favor of the central and southern regions (Hoxha, 2017; King & Vullnetari, 2003; Vullnetari, 2007).

Another hallmark of the socialist territorial model was the creation of approximately 39 to 43 new towns with populations ranging from 5,000 to 20,000 inhabitants, mainly established during the 1950s and 1960s to support economic industrialization and the administrative-territorial division of Albania (Vullnetari, 2007: 26; Faja, 2008: 16). Some of these towns, such as Stalin City, New Kukësi, Laçi, Cëriku, Çorovoda, Maliqi, Bulqiza, Memaliaj, and Prrenjas, experienced relatively rapid growth (Faja, 2008: 16). Existing districts, including Mat, Berat, Durrës, Fier, Kukës, Sarandë, Tepelenë, Tirana, and Vlorë, also expanded significantly during this period (Misja and Misja, 2004).

It is important to note that most of these newly established cities struggled to adapt to the economic changes following the 1990s, due to their narrow economic bases and outdated technologies (Vullnetari, 2007: 26; Meksi, 1997, 2015). This led to widespread economic decline and depopulation, making these towns some of the first urban centers abandoned in the post-socialist period, as residents migrated toward larger cities, especially Tirana (Faja, 2008: 16).

A second defining feature of the socialist spatial model was urban structuring according to the 'central cities' model, which combined the monocentrism of inhabited centers with a hierarchical ranking of cities based on territorial size and population (Faja, 2008; Kotmilo and Kotmilo, 2017). The urbanization of this era reshaped Albania's spatial-urban structure significantly. Pre-World War II primary cities such as Korça, Shkodra, and Gjirokastra exhibited relatively low growth rates during socialist industrialization (Faja & Alimehmeti, 1983; Konica, 1993; Faja, 2008; Kotmilo and Kotmilo, 2017).

Meanwhile, cities like Durrës, Tirana, Fier, Vlora, and Elbasan climbed in the urban hierarchy (Faja & Alimehmeti, 1983; Misja and Misja, 2004; Faja, 2008; Kotmilo and Kotmilo, 2017). Tirana, in particular, grew substantially, increasing its share of the national population from 2.8% in 1938 to 7.5% by 1990 (Misja and Misja, 2004; IHS Alumni et al., 1998; Imami et al., 2008).

Monocentrism and hierarchical ranking are essentially two aspects of the same phenomenon: monocentrism refers to population concentration around a single urban nucleus, while hierarchical ranking reflects this pattern on larger spatial scales—metropolitan, regional, or even national and international (Parr & Denike, 1970; Kloosterman & Musterd, 2001; Parr, 2004; Meijers, 2005, 2006, 2007; Davoudi, 2002, 2003, 2006, 2008; Vasanen, 2013).

The Country's Population Level as a Formative Context of the Demographic-Spatial Model of Transition

Albania's population size has been measured through various means, with general censuses remaining the most reliable source. Of the twelve general population and housing censuses conducted between 1923 and 2023, only the last five (1979, 1989, 2001, 2011, and 2023) provide sufficiently complete data to accurately estimate population size and spatial distribution (INSTAT, 2024: 5).

According to the 2023 Population and Housing Census, the resident population of Albania on September 18, 2023, was 2,402,113 (INSTAT, 2024: 7). This figure reflects a significant population decline of approximately 880,000 residents since the 1989 census, when the population was 3,282,417 (INSTAT, 2004: 31), or about 3.2 million in 1991 (Bërxholi, 2000). Notably, today's population is also around 200,000 fewer than in 1979 (INSTAT, 2024: 16).

This decline is attributable to two primary factors: a sustained decrease in natural population growth driven by declining fertility rates, and substantial international emigration (King & Vullnetari, 2003; King, 2010; Vullnetari, 2007, 2010, 2012; INSTAT, 2004, 2014a, 2024).

The fertility rate, a key determinant of natural population increase, has continuously decreased throughout the transition period. INSTAT reports that in 1989, the population was relatively young due to high fertility rates; however, the average number of children per woman declined steadily from 3.3 in 1990 to 2.2 in 2000 (INSTAT, 2004: 32), then to 1.6 in 2011 (INSTAT, 2014d: 5), followed by 1.73 in 2014, 1.48 in 2017, 1.37 in 2019 (Revista Monitor, 2020), 1.32 in 2021, and further down to 1.21 in 2022 (Revista Monitor, 2023).

External migration also played a critical role in population decline. In the first decade of transition (1991–2001), between 710,000 (INSTAT, 2004: 10) and 750,000 (Vullnetari, 2012) people emigrated. This trend continued in the second decade (2001–2011), with net emigration ranging from 480,000 (INSTAT, 2014: 35) to 573,000 (INSTAT, 2014d: 5). The 2023 census indicates that Albania lost about 600,000 inhabitants over the past 12 years, maintaining an average emigration rate of approximately 50,000 persons annually (INSTAT, 2024: 16).

These statistics should be interpreted cautiously, given documented concerns about the accuracy of INSTAT data (Vullnetari, 2007, 2012; Fuga, 2012, 2019; BB, 2007). INSTAT itself acknowledges the lack of reliable measurement for the number of emigrants (INSTAT, 2014a: 31). Nevertheless, it is estimated that between 1990 and 2023, approximately 1.8 to 2 million Albanians—around 45% of the total national population (both domestic and abroad) or up to 83% of the current resident population—have emigrated.

Internal Migration as a Formative Context of the Demographic-Spatial Model of Transition

Internal migration stands out as the primary driver shaping the demographic-spatial model of Albania's transition period, unfolding over three decades as a large-scale population exodus. This internal migration occurred in two distinct forms: (i) long-distance migration between regions, and (ii) short-distance migration within the same region (INSTAT, 2004: 13; Vullnetari, 2007, 2012).

During the first decade (1991–2001), INSTAT reported that approximately 182,600 individuals migrated between regions, while migration between prefectures totaled around 252,700 persons (INSTAT, 2004: 12). Furthermore, migration occurred not only between prefectures but also between districts within the same prefecture, with migration rates increasing as the administrative divisions became more detailed (INSTAT, 2004: 12).

However, Vullnetari, referencing additional studies, provides markedly higher estimates: between 1992 and 2000, roughly 1,357,750 internal migrants—amounting to almost 40% of the population in 2000—were recorded, with 355,230 migrating inter-regionally (Vullnetari, 2007: 61). The immigrant population in the central and coastal regions was vastly greater—44 times that of the northeastern and 13 times that of the southeastern regions (INSTAT, 2004: 12). In 1989, 60% of migrants lived in the north, 32% in the south, and 8% in the central and coastal areas.

Approximately 64% of this internal migration was rural-to-rural, mainly towards peri-urban zones surrounding major cities such as Tirana, Durrës, Shkodër, Korçë (Vullnetari, 2007: 61), as well as Fier and Vlorë (INSTAT, 2004: 14). Rural-to-urban migration was also significant during this period, constituting about 36% of total internal migration (Vullnetari, 2007: 61). INSTAT confirms that this internal migration substantially propelled the country's urbanization, with rural population decreasing by 13% compared to the 1989 census (INSTAT, 2004: 10) and urban population increasing by 15.8% (INSTAT, 2014c: 10). Consequently, the national urbanization rate rose from 32–34% in 1989 to approximately 42% in 2001 (Faja, 2008: 18; Misja and Misja, 2004).

Four main migratory streams emerged, three of which involved population flows from (i) the northern regions (Kukës, Dibër, Shkodër), (ii) the southern regions (Berat, Korçë, Elbasan, Gjirokastër), and (iii) the coastal regions (Vlorë, Fier, Lezhë) towards the central region, especially Tirana and Durrës. The fourth stream moved populations from interior prefectures such as Berat, Korçë, Elbasan, and peripheral prefectures like Gjirokastër and Shkodër towards the Western Lowlands, notably Fier and Vlorë (Vullnetari, 2007: 62; INSTAT, 2004, pp. 24–25).

These migration patterns led to the overpopulation of the Tirana-Durrës region and the depopulation of prefectures including Kukës, Dibër, Shkodër, Elbasan, Berat, Korçë, and Gjirokastër. The Fier-Vlorë region experienced both inward and outward migration but did not undergo extreme demographic changes. This regional distribution pattern intensified during the subsequent decade.

Between 2001 and 2011, internal migration continued along the two previously identified trajectories (Vullnetari, 2012: 93; INSTAT, 2013). INSTAT reported that 228,952 individuals migrated inter-regionally from northern and southern prefectures to central and western areas, accounting for 8% of the resident population in 2011, alongside 280,863 intra-regional migrants (INSTAT, 2014a: 12).

Both inter- and intra-regional migration reinforced a regional pattern characterized by overpopulated prefectures (Tirana and Durrës), demographically balanced prefectures (Fier and Vlorë), and abandoned prefectures (Kukës, Dibër, Shkodër, Elbasan, Berat, Korçë, and Gjirokastër) (Vullnetari, 2012: 95; INSTAT, 2013). INSTAT acknowledged this, noting that internal migration caused large-scale urbanization in some areas and severe depopulation in others (INSTAT, 2014a: 12).

Urbanization levels corroborate this trend: Tirana exhibited 88.6% urbanization, Durrës 75.4%, and Vlorë 55.0% (INSTAT, 2014b: 31). Most internal migrants concentrated in Tirana and Durrës (INSTAT, 2014a: 19). Tirana was the dominant destination, attracting 58% of internal migrants during 2001–2011—an increase of nine percentage points compared to the previous decade (INSTAT, 2014a: 22). Migrants originated primarily from abandoned prefectures, with 19% from Dibër, 12% from Kukës and Fier, and smaller proportions from Shkodër, Berat, Durrës, Elbasan, Gjirokastër, and Korçë (INSTAT, 2014a: 22).

Durrës attracted migrants chiefly from Dibër (30%), Elbasan (14%), and Kukës (11%), while Fier attracted migrants from Berat (19%), Vlorë (18%), Gjirokastër (15%), and Elbasan (13%) (INSTAT, 2014a: 22).

Population losses in the peripheral prefectures were substantial; some northern and southern regions recorded declines up to 60% due to migration (Vullnetari, 2012: 96). INSTAT highlights that Dibër, Kukës, and Gjirokastër each lost over 21% of their population between 2001 and 2011, with the highest migration rates in Dibër (30.4%), Kukës (29.4%), Gjirokastër (25.3%), and Berat (20.7%) (INSTAT, 2014a, pp. 18–19).

A further demographic phenomenon is the differentiation between the Tirana-Durrës and Fier-Vlorë regions, with the former experiencing deeper population concentration. INSTAT identifies increased internal migration towards Tirana and surrounding villages, notably from Vlorë and Fier (INSTAT, 2014a: 16). Within the Fier-Vlorë region, Fier attracts migrants from Berat, Gjirokastër, Elbasan, and even from Vlorë itself (18%) (INSTAT, 2014a: 22).

Within the Tirana-Durrës region, intra-regional migration dynamics also play a role: migration from Durrës to Tirana accounts for 5–10% of Tirana's population growth, with Tirana experiencing higher population growth (112,180 new residents) than Durrës (34,059), corresponding to 49% and 15% of internal migrants settling in these regions respectively (INSTAT, 2014a: 19).

Rural urbanization and the creation of new urbanized centers is a third key phenomenon. Municipalities surrounding Tirana—such as Farka, Dajti, and Kashar—have witnessed population tripling, with migrants from Kukës (39%) and Dibër (34%) dominating this growth (INSTAT, 2014a: 15). Migrants from southern regions prefer Kashar, while those from northern regions favor Kamza and Paskuqan (INSTAT, 2014a: 16). For example, 44% of migrants from Kukës settle in Kamza, and 61% from Gjirokastër settle in Kashar (INSTAT, 2014a: 17).

As a result of these extensive internal migrations and accompanying construction booms, Albania's urban population surpassed its rural population for the first time in recorded census history, with 53.7% of the population residing in urban areas by 2011 (INSTAT, 2011: 16). According to a new EU-based urban-rural classification, the urban population reached 58.2% in October 2011 (INSTAT, 2014b: 45).

Consolidation of the Demographic-Spatial Model of Transition and Its Components

The demographic dynamics observed during the first two decades of Albania's transition—characterized by shifts in population levels and patterns of internal migration—laid the groundwork for a spatial model of population concentration and territorial abandonment. However, it is the third decade that solidified and intensified this pattern. This consolidation was driven primarily by a continuing reduction in the resident population at an average annual rate of approximately 50,000 emigrants (INSTAT, 2024: 16), alongside a deepening divergence between regions experiencing population growth and those undergoing depopulation (INSTAT, 2024).

The demographic predominance of the Tirana–Durrës and Fier–Vlorë regions, evident throughout the first two decades, further intensified in the third decade, especially reinforcing Tirana's position at the apex of Albania's demographic hierarchy. INSTAT's 2023 Population and Housing Census report underscores this trend, noting that "in all regions, with the exception of Tirana, the population has been declining during the period 2011–2023" (INSTAT, 2024: 19).

Urban demographic inequalities manifest on multiple levels: (i) between regions, (ii) among districts within the same region, and (iii) notably in the demographic dominance of the Tirana district itself. For example, while three prefectures (Tirana, Durrës, and Vlorë) experienced population growth during 2014–2018 (INSTAT, 2015–2019), this number reduced to two (Tirana and Durrës) in 2019–2020 (INSTAT, 2020–2021), and by 2021–2022, only the Tirana district showed population growth (INSTAT, 2022, 2024).

Tirana's demographic dominance is further reflected in population density figures. According to the 2011 Population and Housing Census, Albania's average population density stood at 97 inhabitants per km², whereas Tirana and Durrës prefectures exhibited markedly higher densities of 454 and 343 inhabitants per km², respectively (INSTAT, 2014a: 17). This contrast is more pronounced when comparing Tirana's density to that of more peripheral prefectures: Tirana's density is approximately five times the national average, ten times that of Korçë (59 inhabitants/km²), thirteen times Kukës (36 inhabitants/km²), and eighteen times Gjirokastër (25 inhabitants/km²) (INSTAT, 2014a: 17). Similarly, Durrës maintains a density four times the national average, six times that of Korçë, ten times Kukës, and thirteen times Gjirokastër.

By the end of the third decade, this "demographic pyramiding" culminates in a peak concentration in Tirana, with population density in Tirana and Durrës about ten times greater than in Gjirokastër and Korçë, while the national density was reported as 83.6 inhabitants per km² (INSTAT, 2024, pp. 7, 53).

Urbanization levels further underscore the regional disparities. Using the EU NUTS 3 statistical classification, only the Tirana prefecture qualifies as predominantly urban, with less than 20% rural population. Durrës and Vlorë are classified as intermediate (20–50% rural population), whereas the remaining nine prefectures have predominantly rural populations exceeding 50% (INSTAT, 2014b: 31). Specifically, Tirana's urbanization level reached 88.6%, Durrës 75.4%, and Vlorë 55.0% (INSTAT, 2014b: 31).

Tirana's demographic dominance has been persistent, leading to increasing population concentration in the region. The 2023 census indicates that approximately one-third (31.6%) of Albania's total population resides in the Tirana region (INSTAT, 2024: 19). This steady rise is supported by annual INSTAT population reports, which show growth from 28.1% in 2015 to 33.5% in 2022 (INSTAT, 2016–2024).

Before the 2023 census, Albania's demographic-spatial model had crystallized around three principal components, each rooted in historical urban development but rapidly evolving during the transition:

1. **The Concentrated Region of Tirana–Durrës**: This region represents a strong physical and urban continuum between the central prefectures of Tirana and Durrës, including adjoining peri-urban villages, effectively forming a single

metropolitan area (Fuga, 2012; Aliaj, 2008; Imami et al., 2008). As of 2023, this region covers approximately 2,400 km²—9% of Albania's territory—housing 44% of the national population (INSTAT, 2023: 4).

2. **The Neutral Region of Fier–Vlorë**: Considered an intermediate area, this region contrasts sharply with Tirana–Durrës by covering a larger territorial area (4,600 km² or 16% of national territory) but sustaining a population density roughly 4.5 times lower than Tirana–Durrës. It includes 16.4% of the national population (INSTAT, 2023: 4).
3. **The Abandoned Region of Eight Peripheral Prefectures**: Comprising Kukës, Dibër, Lezhë, Shkodër, Berat, Korçë, Elbasan, and Gjirokastër, this extensive region covers about 21,800 km² (75% of Albania's territory) but contains less than 40% of the resident population. The population density here is eight times lower than that of the Tirana–Durrës region. These areas continue to experience significant depopulation, with each prefecture losing 2–3% of its population over recent three-year periods (INSTAT, 2020, 2023).

The 2023 census provides detailed population data by prefecture (total population = 2,402,113) (INSTAT, 2024: 7). Key figures include:

- Tirana: 758,513 inhabitants (31.6%)
- Durrës: 226,863 inhabitants (9.4%)
- Fier: 240,377 inhabitants (10%)
- Vlorë: 146,681 inhabitants (6.1%)
- Elbasan: 232,580 inhabitants (9.6%)
- Berat: 140,956 inhabitants (5.9%)
- Dibër: 107,178 inhabitants (4.5%)
- Gjirokastër: 60,013 inhabitants (2.5%)
- Korçë: 173,091 inhabitants (7.2%)
- Kukës: 61,998 inhabitants (2.6%)
- Lezhë: 99,384 inhabitants (4.1%)
- Shkodër: 154,479 inhabitants (6.4%)

Despite percentage variations across prefectures, these figures do not fundamentally alter the three-component demographic-spatial model.

Summarizing the demographic-spatial structure at the conclusion of Albania's third decade of transition:

- **Concentrated Region (Tirana–Durrës)**: 985,376 inhabitants (41.0%) over 2,400 km² (9%), with a population density of 411 inhabitants/km².
- **Neutral Region (Fier–Vlorë)**: 387,058 inhabitants (16.1%) over 4,600 km² (16%), density of 84 inhabitants/km².
- **Abandoned Region (eight other prefectures)**: 1,029,679 inhabitants (42.9%) over 21,800 km² (75%), density of 47 inhabitants/km².

This consolidated model reflects a stark spatial polarization in population distribution, with implications for regional development, infrastructure planning, and social services in Albania's ongoing transition.

Characteristics of the Demographic-Spatial Model of Concentration-Abandonment in the Transition

In stark contrast to the communist regime, which considered external migration as "national treason" (Idrizi et al., 2018: 97) and tightly controlled internal migration (Misja and Misja, 2004; Kolevica, 2004; Kotmilo and Kotmilo, 2017), the governments during the transition period imposed no restrictions on these demographic phenomena. As a result, approximately 1.8 to 2 million Albanians emigrated abroad, while between 2 and 2.2 million changed their residence within the country.

A defining characteristic of the demographic-spatial model under socialism, especially during the 1950s and 1960s, was the creation of 39 to 43 new towns, primarily driven by the industrialization agenda and the territorial division of Albania (Vullnetari, 2007: 26; Faja, 2008: 16). This paper also highlights that internal migration remained dominant in the transition years, particularly affecting villages surrounding major cities such as Tirana and Durrës. The six municipalities around Tirana experienced the highest population growth, with the populations of Farka, Dajti, and Kashari tripling in size (INSTAT, 2014a: 15).

The phenomenon of informal construction, triggered by internal migration, first emerged in the rural areas encircling Tirana and Durrës. Aliaj and Aliaj emphasized that "Since 1990, the population of Tirana and its surrounding suburbs has had an alarming average annual growth of 7%" (IHS Alumni et al., 1998: 102). According to Dhamo (2008), this phenomenon resulted from the collapse of the previous system, where "the only actor in the game was the state," leading to a development crisis as new actors, namely private construction enterprises, entered the field (Imami et al., 2008: 44). Derraj (2008) further

noted that informal construction in suburban areas arose because state control was stronger within urban centers, pushing such activities to the periphery (Imami et al., 2008: 44).

Due to Tirana's attraction as a major industrial, administrative, and cultural center, migratory flows directed toward the city often diverted to nearby villages (IHS Alumni et al., 1998; INSTAT, 2004, 2014a: 45; 2014b: 37). These villages have now evolved into fully-fledged towns, exhibiting territorial extent, population density, and building intensity significantly exceeding many traditional cities that have lost their urban characteristics (INSTAT, 2014b, 2024). These new urban centers have also lost their traditional economic roles as agricultural and livestock hubs, being reclassified instead as new urban centers (Fuga, 2012).

The new towns formed on the outskirts of Tirana and Durrës have been joined by urban-tourist towns along the Coastal Chain, which developed through the urbanization of coastal territories. These towns continue to grow, densify their populations, and intensify construction driven by tourism potential. The World Bank recognized this trend, noting that "The lack of protection of the urban and natural environment, especially in coastal areas, has been one of the major regulatory failures" (World Bank, 2007). Fuga (2012) also emphasized that "the new urban dynamics in this coastal area have brought new consequences," adding that these coastal zones, despite being under municipalities historically known for agriculture and livestock, currently exhibit almost no such activity.

While the creation of new towns is a recurring urban dynamic across both the socialist and transition periods, some important differences exist. Under the communist regime, these towns were constructed by the state, which provided urban planning, design, housing, and employment for migrants (Faja & Alihmemeti, 1983; Misja and Misja, 2004; Faja, 2008; Kotmilo and Kotmilo, 2017). Conversely, during the transition, urban development was largely unplanned and unregulated, forcing migrants to secure their own housing and employment (World Bank, 2007; IHS Alumni et al., 1998; Misja and Misja, 2004; Aliaj, 2008).

Moreover, the concept of 'New Towns' was neither an Albanian nor a socialist invention; it was widely adopted in Western countries as a response to the urban challenges caused by industrial-era migration (Duany, Roberts & Talen, 2014; Hall, 2014; Talen, 2019; Tarbatt & Tarbatt, 2020). The concept traces back to Ebenezer Howard's 1898 theory of the 'Garden City' (Howard, 1902; Schuyler et al., 2002). The practical construction of new towns began in Britain, with the Greater London Plan (1944) designating ten suburban sites for new towns (Vernet & Coste, 2017: 48). Between then and 1950, the Labour government designated 13 new towns across Britain (Hall, 2014: 146). Legislation such as the British New Towns Act (1946) provided a legal framework and funding for such development (Talen, 2019: 83).

The practice extended to North America from the late 1950s to mid-1970s, with financial assistance from the Johnson administration for private developers building new towns (Hall, 2014, pp. 143-144). Similar new towns appeared in Scandinavia, France, and the Netherlands (Levy, 2017). In France, new towns were developed to restrict the overgrowth of large cities (Schuyler & Parson, 2002).

Another similarity between socialist Albania and Britain in the 1945–1960 period was state-financed construction of new towns (Hall, 2014: 145), which allowed for planned development at multiple urban scales — from city-wide planning to the design of neighborhoods and employment districts. In contrast, villages transitioning into urban centers during Albania's transition period developed without planning and were built primarily through individual and family initiatives (World Bank, 2007; Aliaj, 2008; Imami et al., 2008; Fuga, 2012; Muçaj, 2015).

Both socialist and transition periods share the characteristic of urban structuring around a 'central city' model, characterized by monocentrism and hierarchical city ranking based on size and population. This urban hierarchy has remained stable through the third decade of transition, with socialist-era large cities such as Tirana, Durrës, and Fier not only retaining their primacy but also growing further (Vullnetari, 2007, 2012; INSTAT, 2004, 2014a, 2024; World Bank, 2007; Aliaj, 2008; Imami et al., 2008).

The monocentric urban pattern of Albanian cities during communism (Faja & Alihmemeti, 1983; Faja, 2012; Kolevica, 2013) persists in the transition period (Faja, 2008; Aliaj, 2008; Muçaj, 2015). The World Bank (2007) highlighted that Albanian cities are typically compact, mostly monocentric, with population density highest in the center, progressively decreasing toward the outskirts.

Research shows that until the 1970s, monocentric models were dominant in developed countries worldwide (Davoudi, 2002). Ernest Burgess' 1925 concentric zone model of urban structure — consisting of a series of circles with a single center — influenced urban theory for decades (Davoudi, 2002, 2003). The 'central place' model also explained urban hierarchy at regional and national levels, emphasizing dominance by central cities or metropolises (Parr, 2004; Parr & Denike, 1970).

However, from the 1960s onward, monocentric assumptions eroded as polycentric urban growth emerged, especially in North America, Europe, and Japan (Kloosterman & Musterd, 2001; Davoudi, 2002). Polycentric urban regions (PURs) feature multiple, distinct, and interconnected urban centers without a dominant core.

In Albania, during transition, massive and unplanned construction reinforced the center-periphery characteristics of the socialist demographic-spatial model. Key phenomena consolidating the 'central places' model include (i) demographic concentration in Tirana prefecture, (ii) creation of new cities from suburban villages around Tirana, Durrës, and the coast, and (iii) monocentric residential development.

Contrary to Albania's persistent monocentrism, Western countries have shifted interest towards polycentric urban models. As Kloosterman and Musterd (2001) state, monocentrism is increasingly contrasted with the polycentric model, now a major focus in urban and regional analysis (Parr, 2004).

Polycentrism manifests at scales from European Union regions to inner cities, with PURs being the most studied and empirically supported model in developed countries (Parr, 2004; Meijers, 2007; Davoudi, 2006). PURs are defined as contiguous but spatially separated urban centers that form an identifiable functional entity (Parr, 2004). Meijers (2007) describes them as collections of historically distinct, administratively independent cities in proximity, well connected by infrastructure, and lacking a dominant center. Davoudi (2006) emphasizes that PURs have no strong hierarchical order but maintain significant functional interconnection and complementarity.

Political support for PURs has grown, with European spatial policy frameworks like the European Spatial Development Perspective (ESDP) promoting polycentrism to counter core-periphery imbalances and foster balanced territorial development — metaphorically described as a 'grapevine' structure (Davoudi, 2006).

Findings and Conclusions

The spatial model of Albania's transition period is fundamentally based on the spatial model inherited from the communist regime, but reshaped by two main factors: (i) the overall population size of Albania, and (ii) the patterns of internal population displacement during the transition years.

During socialism, urbanization dynamics and migration—both internal and external—were strictly controlled by the communist government. It implemented urban policies aimed at balancing population distribution across the national territory, but these efforts were only partially successful. Consequently, the population distribution under communism produced a territorial model with three distinct components: the central region being the most urbanized, followed by the southern region, with the northern region remaining the least urbanized.

Two defining characteristics of the demographic-spatial model of socialism stand out: the creation of new towns driven by industrialization and territorial division; and the urban structuring based on the 'central places' model, characterized by monocentrism and hierarchical ranking of cities according to territorial size and population. These two aspects are deeply interconnected.

Since the beginning of the transition to democracy in 1990, Albania has lost about 880,000 inhabitants, with 400,000 of these losses occurring in the last decade alone. This population decline stems primarily from two factors: a sustained decrease in natural population growth due to falling birth rates, and extensive international migration.

The fertility rate steadily dropped from 3.3 children per woman in 1990 to 1.21 in 2022, reflecting a continuous demographic decline. External migration was equally significant, with an estimated 710,000 to 750,000 emigrants in the first decade, 480,000 to 573,000 in the second, and around 600,000 in the third decade of transition.

Internal migration has been the most influential factor shaping Albania's demographic-spatial model during the transition, manifesting as a significant exodus characterized by two trends: inter-regional migration (between prefectures) and intra-regional migration (within the same prefecture).

In the first decade, approximately 182,600 people moved between regions, while 252,700 to 355,230 migrated within prefectures. This large internal displacement—totaling about 1,357,750 migrants—raised the country's urbanization rate from 32–34% in 1989 to 44% by the end of the decade.

The second decade (2001–2011) saw these migration patterns continue, with 228,952 people moving between regions and 280,863 within regions. This migration contributed to Albania becoming predominantly urban for the first time, with urbanization levels rising to between 53% and 58%.

These migration flows follow four main routes: three directed towards the central region, particularly Tirana and Durrës, from the northern prefectures (Kukës, Dibër, Shkodër), southern prefectures (Berat, Korçë, Elbasan, Gjirokastër), and coastal prefectures (Vlorë, Fier, Lezhë); and a fourth from interior prefectures towards the Western Lowlands, especially Vlorë and Fier.

The massive migration of the first two decades and the accompanying construction activity shaped the initial demographic-spatial structure of the transition period. This structure is characterized by three demographic phenomena: concentration in the Tirana-Durrës region; balancing in the Fier-Vlorë region; and abandonment in the remaining eight counties. Additionally, population differentiation around Tirana increased, with new urban centers emerging in formerly rural or natural areas.

The dominance of the Tirana-Durrës region, particularly the Tirana prefecture, has further consolidated during the third decade. This is evident in (i) its share of the national population, (ii) demographic density compared to other regions, and (iii) the ratio of urban to rural populations.

By the end of the third decade, Albania's demographic-spatial model comprises three main components:

- **Concentrated Region (Tirana-Durrës):** 985,376 inhabitants (41.0%), covering 2.4 thousand km² (9% of the national territory), with a density of 411 inhabitants per km².
- **Neutral Region (Fier-Vlorë):** 387,058 inhabitants (16.1%), covering 4.6 thousand km² (16%), with a density of 84 inhabitants per km².
- **Abandoned Region (eight other counties):** 1,029,679 inhabitants (42.9%), covering 21.8 thousand km² (75%), with a density of 47 inhabitants per km².

At the conclusion of the period studied, it is clear that transitional governments did not regulate these demographic phenomena, resulting in around 1.8–2 million Albanians emigrating abroad and approximately 2–2.2 million changing residence internally.

A key characteristic of transitional urbanization has been the emergence of new cities. While new city creation was also a feature of the socialist era and observed in Western countries, the main difference lies in the nature of development. During socialism, city creation was planned and state-driven, incentivized by industrialization, with migrants provided housing and employment. In contrast, the transition period was marked by unplanned growth driven by atomized private initiatives, where migrants had to secure employment and housing independently.

A second shared characteristic across both eras is urban structuring based on the 'central city' model — monocentrism and hierarchical city ranking by size and population. However, unlike Western countries, which abandoned monocentrism in favor of polycentric urban models from the 1970s onwards, Albania's transition period has reinforced and emphasized this monocentric model as the prevailing pattern.

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PANEL V
INNOVATION IN MEDICINE

Human Health Under the Influence of Allergies Generated by Pollinosis

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Abstract

Pollinosis, commonly known as hay fever or pollen allergy, is a significant health concern globally, driven by the increasing prevalence of allergic rhinitis and other respiratory conditions. This condition arises from hypersensitivity to pollen grains released by trees, grasses, and weeds, primarily during specific seasons. The symptoms, including sneezing, nasal congestion, itchy eyes, and respiratory distress, significantly impair the quality of life and productivity of affected individuals. Environmental changes, such as global warming and urbanization, have intensified pollen production and extended pollen seasons, exacerbating the incidence and severity of pollinosis. Moreover, rising air pollution levels interact with pollen allergens, enhancing their allergenic potential. Vulnerable populations, such as children, the elderly, and individuals with pre-existing respiratory disorders, face increased health risks. The study examines the spread of allergic diseases in Tirana from March to May 2024, focusing on people sensitive to pollen. Results show that rural areas have the highest number of cases (142 cases), with men aged 24-35 most affected. Spring season is the most common, and the Gramineae family is the main cause (82 patients). Effective management of pollinosis involves a multifaceted approach, including allergen avoidance, pharmacotherapy, immunotherapy, and public health interventions. However, addressing this challenge also requires broader efforts to mitigate environmental factors contributing to the increasing burden of pollen-related allergies. This paper explores the interplay between pollinosis and human health, highlighting the need for integrative strategies to reduce its impact on global health.

Key words: *Pollinosis, Human Health, Pollen Allergens, Allergic Rhinitis, Gramineae Family, Tirana.*

Introduction

In recent decades, the incidence of allergic diseases has increased dramatically as fourfold in the last 20 years alone. At the turn of the 21st century, this rise was recognized as a potentially new form of pandemic. In rare but severe cases, pollinosis may even lead to fatal outcomes (Lewis and Lewis, 1982; Lewis et al., 1991; Bauchau and Durham, 2004; Camacho, 2015).

An analysis of various studies on allergic individuals reveals that a significant portion of the population, approximately 20% of children and 12% of adults, exhibit symptoms of allergies and asthma. Individuals affected by pollinosis often experience adverse impacts on their education, work performance, and overall quality of life. Although allergic conditions have been

recognized for centuries, some forms of allergies today are acknowledged as major public health concerns on a global scale (Jance et al., 2024, d, e.).

Despite significant advancements in medical technology and treatment, there remains a pressing need to equip allergists with the appropriate technical tools to accurately diagnose and differentiate among various allergic disorders, and to prescribe effective treatments accordingly (Bottelli et al., 1982; Traidl-Hoffmann et al., 2002; Camacho, 2015).

The development and severity of allergic conditions are influenced by several key factors, including specific food allergens, plant pollens, and air pollution, particularly particulate matter suspended in the atmosphere (Ducker and Knox, 1986; Croner, 1992; D'Amato et al., 2010; Buters et al., 2015; Jance et al., 2021; Jance and Jance, 2024).

Environmental factors, including poor urban planning and escalating pollution levels, have contributed to the rising number of individuals exhibiting allergy symptoms following exposure to plant pollen (Croner, 1992; De Swert, 1999; Galli, 2000). In our view, the primary contributor to this trend in Tirana is the persistent air pollution, exacerbated by airborne pollutants and toxic gases hazardous to human health.

This study focuses on pollinosis, a leading allergic condition triggered by plant pollen, a major aeroallergen. Based on our findings, pollinosis represents a significant public health threat to the population of Tirana. Research conducted by Lekli et al. (2008) and Jance et al. (2021a) confirms that Tirana is among the Albanian cities with the highest prevalence of allergic diseases (Jance et al., 2020, a, b; Jance et al., 2021, a; Jance et al., 2023, a, b, c).

The worsening air and soil quality in Tirana is driven by multiple factors: population growth, the loss of green spaces, heavy traffic congestion, aging vehicles, and various industrial activities within the city (Jance et al., 2021a, b, c).

Our study aims to assist allergists in the prompt and accurate diagnosis of pollinosis by identifying the allergenic factors that act as risk determinants. Additionally, we advocate for raising awareness among municipal authorities and landscaping enterprises regarding the selection of ornamental plants that do not provoke allergic reactions in the general population (Knox, 1979; D'Amato et al., 2010).

To effectively identify the plants contributing to allergic responses, a comprehensive approach is required. This includes a precise quantitative and qualitative assessment of allergenic pollen in Tirana's atmosphere, as well as the classification of allergies based on age and gender demographics. Furthermore, our study examines the potential influence of atmospheric pollution on the occurrence and severity of allergic diseases, an essential step toward developing targeted public health interventions.

Materials and Methods

Identification Methods for Allergenic Pollen Responsible for Pollinosis

To accurately determine the plant species whose pollen acts as an allergenic agent in cases of pollinosis, two principal diagnostic approaches are employed: the skin prick test and immunological blood testing (Moore & Webb, 1978; Pacini & Franchi, 1978; Faegri & Iversen, 1989; Pablos et al., 2016). The advantage of identifying the specific allergenic pollen lies in the ability to inform the patient about the plant to which they are sensitized, as well as its pollination period, thus allowing effective avoidance strategies and improved management of their allergic condition (Jance et al., 2023, a; Jance et al., 2024).

Twelve allergenic plant species belonging to eight different botanical families, are commonly used in standardized allergy testing panels (Table 1) (Pablos et al., 2016).

TABLE 1. Allergenic plant species included in allergy testing, classified by the family.

Number.	Plants allergens	Flowering Period	Family
1	Corylus avellana	February - March	Corylaceae
2	Alnus glutinosa	February - March	Betulaceae
3	Betula pendula	March - April	Betulaceae
4	Platanus orientalis	April - May	Platanaceae
5	Quercus sp.	April - May	Fagaceae
6	Avena sativa	May - June	Poaceae
7	Secale cereale	May - July	Gramineae
8	Phleum pratense	May - August	Gramineae
9	Parietaria officinalis	May - October	Urticaceae
10	Triticum aestivum	June - July	Poaceae
11	Ambrosia artemisifolia	July - September	Compositae
12	Artemisia vulgaris	July - October	Compositae

Pollinosis is mediated by an IgE hypersensitivity response to pollen allergens. Upon exposure, sensitized individuals experience an inflammatory cascade that leads to the classic symptoms of allergic rhinitis: sneezing, rhinorrhea, nasal congestion, and ocular pruritus. Immunological blood analysis provides further diagnostic support by quantifying the concentration of immunoglobulin E (IgE) antibodies specific to allergenic pollen. This method categorizes IgE levels into six distinct classes, expressed in kilo units per liter (kU/L), as detailed in Table 2 (Pablos et al., 2016).

TABLE 2. IgE concentration levels (kU/L) and corresponding antibody presence.

IgE Level (kU/L)	Interpretation
< 0,35	No specific antibodies present
0,35 - 0,7	Negligible presence
0,7 - 3,5	Low presence
3,5 - 17,5	Clear presence
17,5 - 50	Good presence
50 - 100	Very high presence
> 100	Extremely high presence

Pollen Analysis of Native Plants in the Tirana Region

To identify allergenic pollen specific to the Tirana region, we examined native plant species known to trigger allergic reactions. Skin prick testing was initially used to screen for pollinosis-inducing allergens. Pollen samples were then processed using Erdtman's acetolysis method (Erdtman, 1960; 1969), which involves treating the material with a 9:1 mixture of concentrated sulfuric acid (H_2SO_4) and glacial acetic acid (CH_3COOH). The resulting precipitation was mounted in glycerin and examined under an optical microscope to isolate and identify pollen grains (Jance et al., 2021-b; Jance & Jance, 2024).

Microscopic imaging was performed using the Motic BA310 microscope, equipped with a built-in CMOS 1/2", 3 MP digital camera (2048 × 1536 pixels resolution).

Patient-Specific Diagnosis and Data Collection

To achieve accurate identification of allergy types in individual patients, we analyzed data provided by the Institute of Public Health covering 256 patients who had tested positive for sensitization to specific plant pollen. The timeframe for analysis was March to May 2024.

In addition to allergy testing, we gathered detailed demographic and personal information through medical records and direct interviews. This included the patient's age, gender, place of birth, occupation, and living environment. Such comprehensive profiling allowed us to refine diagnostic outcomes and more effectively interpret the diverse manifestations of allergic symptoms in relation to environmental and lifestyle factors.

Results and Discussion

Following laboratory pollen analysis and comprehensive statistical evaluation of data provided by the Institute of Public Health for the Tirana region during March–May 2024, a considerable portion of the population was identified as suffering from pollinosis, predominantly triggered by pollen from cereal plants, particularly *Phleum pratense* (timothy grass) and *Secale cereale (rye)*.

For analytical clarity, data collected across the three months was aggregated to Table 3, which summarizes the allergy cases distribution according to the identified allergens plants.

TABLE 3. Number of allergy cases by allergenic plant species.

Number	Plants allergens	Identified cases
1	Corylus avellana	8
2	Alnus glutinosa	32
3	Betula pendula	31
4	Platanus orientalis	11
5	Quercus sp.	28

6	Avena sativa	16
7	Secale cereale	40
8	Phleum pratense	42
9	Parietaria officinalis	16
10	Triticum aestivum	12
11	Ambrosia artemisi-folia	9
12	Artemisia vulgaris	11
Allergy cases		256

The allergy testing was conducted using the two diagnostic methods, yielding robust results. Notably, *Phleum pratense* was identified as the predominant allergenic pollen, implicated in 42 cases together with *Secale cereale* (40 cases). Other significant allergens included *Alnus glutinosa* (32 cases), *Betula pendula* (31 cases) and *Quercus sp. (28 cases)*. Several other plant species accounted for fewer allergy cases.

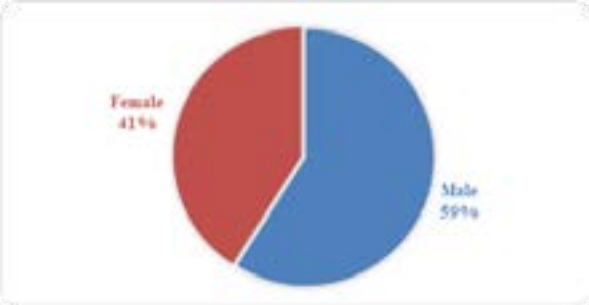
The findings reflect broader global patterns, underscoring how urban lifestyle and environmental exposure significantly influence allergy rates.

The demographic skew toward younger males may reflect occupational exposure or lifestyle-related factors, which warrants further investigation.

To further characterize the pollinosis-affected population, we analyzed demographic factors such as gender, age, and place of residence. These variables are critical given that the manifestation and severity of allergic symptoms depend both on the allergenic source and patient-specific factors. The key findings are presented graphically.

Gender Distribution: Chart 1 illustrates that among the 256 patients, 151 were male and 105 were female, indicating a higher incidence in males (59%) compared to females (41%).

CHART 1. Gender-based distribution of allergy cases.



Residence Distribution: Chart 2 reveals that the majority (142 individuals, 55.5%) of allergy sufferers reside in rural areas, while roughly 44.5% are urban dwellers (Carinanos and Casares-Porcel, 2011; Buters at al., 2015).

This distribution may be explained by two main factors:

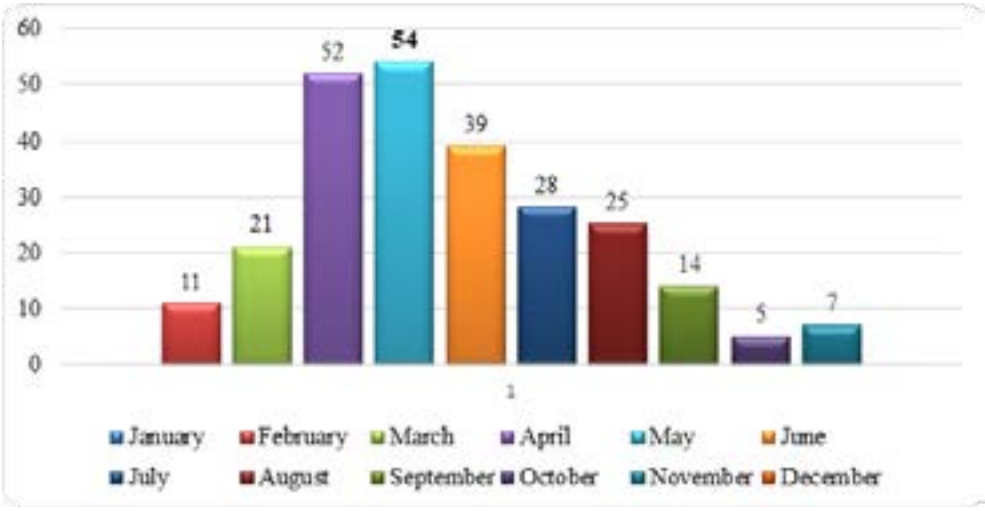
1. increased exposure to allergenic plants in villages surrounding Tirana, and
2. Tirana's status as a metropolitan area with significant air pollution and limited green spaces (Jance et al., 2021-a).

CHART 2. Allergy prevalence by place of residence.



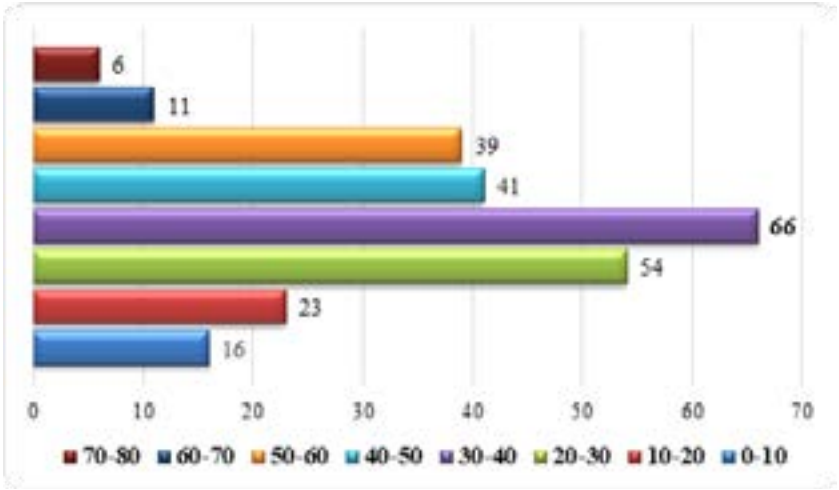
Temporal Distribution: Chart 3 depicts monthly variations in pollinosis diagnoses over the period July 2023 to June 2024. May recorded the highest number of cases (54), followed by June. This trend correlates with the peak flowering periods of many allergenic plants during spring. Literature reports that pollen concentrations during flowering weeks often exceed 100 grains/m³, levels known to exacerbate allergic reactions (Pfaar et al., 2017; Ziska et al., 2019). Becker et al. (2021) further established that atmospheric pollen concentrations of approximately 12 grains/m³ can trigger increased medical consultations and hospitalizations due to pollinosis.

CHART 3. Temporal trends of Pollinosis cases.



Age Distribution: Chart 4 shows that the 30-40 years age group represents the largest number of pollinosis cases (66), followed by the 20-30 years group (54 cases). This pattern may reflect lifestyle and occupational exposure, including frequent outdoor activities and social environments such as smoking-permitted indoor venues, which have been linked to exacerbated allergy symptoms.

CHART 4. An age range of individuals affected by allergies.



Key Allergenic Species

Phleum pratense (timothy) (Fig. 1.a.) is an annual grass widely cultivated as fodder and forage (family Gramineae). It is commonly used for horse hay and is also an important dietary component for small domestic herbivores (Galan et al., 1995; Camacho, 2015).

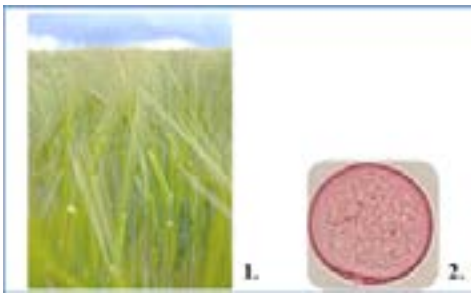
The pollen of *Phleum pratense* is a well-established allergen responsible for hay fever and other pollinosis manifestations (Kay, 2007; Nelson, 2014; Scaparrota et al., 2015; Barber et al., 2019).

Secale cereale (rye) (Fig. 1.b.), also known as an important allergic factor and related to the Gramineae family, is classified as an annual herb cultivated by humans for use as grain, forage, and a cover crop. It is primarily valued for its role in the production of flour, bread, and alcoholic beverages such as beer, whiskey, and vodka, and is also extensively used as animal feed (Gyulai, 2014).

FIG. 1.A. Phleum pratense (pictures 1 show timothy in its natural habitat, alongside a microscopic image of its pollen). (Refer to Jançe, 2023).



FIG. 1.B. Secale Cereale (Photo 1 presents Rye growing i n its natural habitat, while Photo 2 shows a microscopic view of its pollen grains) (Source: Jançe, 2023).



Several studies corroborate their significant role as an allergenic agent in pollinosis worldwide (Lewis & Lewis, 1982; Laffer et al., 1992; D'Amato et al., 2007; Damialis & Kostantinou, 2011). Gramineae family pollen has been consistently identified as the principal cause of allergic respiratory conditions across multiple research efforts (Laffer et al., 1992; Prieto-Baena et al., 2003; D'Amato et al., 2007; Pietzak, 2012).

A review of both national and international research indicates that pollen from species within the Gramineae family constitutes a leading allergenic source responsible for many cases of pollinosis (Prieto-Baena et al., 2003; D'Amato et al., 2007; Pietzak, 2012; Gyulai, 2014).

Respiratory Impact

The primary allergic diseases resulting from airborne pollen exposure predominantly affect the respiratory system, including bronchial asthma, allergic rhinitis, and rhino conjunctivitis (Croner, 1992; D'Amato et al., 1998; Chinn et al., 1999; Riedinger et al., 2002; D'Amato et al., 2007; Bousquet et al., 2008; Becker et al., 2021). Pulmonary function is notably impaired in affected patients, as evidenced by spirometry data (Fig. 2).

FIG. 2. Pulmonary assessment of a pollinosis patient (Source: Jahiqi, 2024).



Limitations

Pollinosis affects productivity, cognitive function, and sleep quality, resulting in substantial socioeconomic costs. In severe cases, it contributes to comorbidities such as asthma and sinusitis, further straining healthcare resources. Children and elderly populations, as well as individuals with chronic respiratory conditions, are especially vulnerable.

It is important to note that the data used in this study derive from the Institute of Public Health and represent a broad population sample. Consequently, the true prevalence of pollinosis may be underestimated, as many individuals with allergic symptoms may seek diagnosis and treatment in private clinics throughout Tirana (Jance et al., 2024, a, b).

Conclusion

- The study identified a considerable number of individuals (256) with positive allergy test results, confirming the prevalence of pollinosis in the Tirana region.
- *Phleum pratense* (timothy) and *Secale cereale* (rye) pollen emerged as the principal allergenic factor, responsible for 82 cases both in total. Also, an important allergen with 32 cases found is *Alnus glutinosa*, an ornamental tree.
- The majority of pollinosis cases (142) were recorded among residents of villages surrounding Tirana, whereas fewer cases (114) were identified within the urban area of Tirana city.
- Male patients accounted for approximately 59% of the cases (151 individuals), while females represented 41% (105 individuals). The most affected age group ranged between 24 and 35 years.
- Additionally, the highest incidence of allergic reactions was observed during the spring months of May through June, coinciding with the flowering periods of the predominant allergenic plants.
- Pollinosis is more than a seasonal inconvenience; it is a public health issue exacerbated by environmental and climatic factors.
- Tirana case study reflects global trends and highlights the urgent need for integrated approaches combining medical, environmental, and policy interventions.
- A deep understanding of pollen dynamics, allergen interactions, and vulnerable population profiles will be essential in developing adaptive strategies to protect human health.

Recommendations

Individual-Level Management

- Pharmacotherapy: Antihistamines, corticosteroids, and leukotriene receptor antagonists.
- Immunotherapy: Allergen-specific desensitization for long-term relief.
- Preventive Measures: Use of pollen forecasts, indoor air filtration, and behavioral modifications (e.g., avoiding outdoor activities during peak pollen times).

Public Health Interventions

- Pollen Monitoring Networks: Real-time data dissemination.
- Urban Planning: Increasing green space diversity and minimizing allergenic plants.
- Education Campaigns: Raising awareness about pollen-related risks and mitigation strategies.

Environmental Policy

- Efforts to curb air pollution, particularly in urban areas, will have a dual benefit: improving general respiratory health and reducing the severity of allergic responses.

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The Impact on Human Health from Chemical Soil Pollution

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Abstract

Chemical soil pollution poses a significant threat to human health, resulting from the accumulation of hazardous substances such as heavy metals, pesticides, industrial chemicals, and hydrocarbons in the soil. These pollutants enter the food chain through contaminated crops and water sources, causing direct and indirect health risks. Prolonged exposure to contaminated soil is linked to a range of health issues, including developmental disorders, neurological impairments, respiratory problems, and increased cancer risk. Urbanization, industrial activities, agricultural practices, and improper waste management are key contributors to soil contamination. Vulnerable populations, particularly children and communities in proximity to polluted areas, face heightened health risks due to direct contact with polluted soil or consumption of contaminated food and water. Moreover, chemical pollutants in soil have cascading effects on ecosystems, further impacting human health through biodiversity loss and disruption of natural resources. This paper examines soil contamination by heavy metals in Elbasan city, focusing on the impact of heavy industries on human health. Data from March-June 2024 was collected from soil samples, revealing significant levels of chemical pollution, particularly in the element Nickel (Ni), 2.4 times above EU regulations. Mitigation of chemical soil pollution requires a multifaceted approach, including stricter regulatory frameworks, remediation technologies, sustainable agricultural practices, and public awareness initiatives. This paper examines the pathways through which chemical soil pollution affects human health and explores strategies to minimize its impact, emphasizing the need for integrated solutions to safeguard both environmental and public health. Also, the study highlights the need for environmental protection measures in the Elbasan region.

Key words: *Chemical Soil Pollution, Human Health, Food Chain, Nickel, Elbasan city.*

Introduction

Heavy metals, naturally present in soil, have had their biochemical and geochemical cycles disrupted by human activities, leading to environmental contamination (Singh et al., 2010). These metals, including essential elements such as Zn, Fe, Cu, Mn, and Ni, can bioaccumulate in plants, posing significant health risks like cancer, neurological disorders, anemia, and renal failure upon prolonged exposure (Jarup, 2003; Navas-Acien et al., 2007; Tellez-Plaza et al., 2013; Chang et al., 2014; Chen et al., 2015; Yang et al., 2018; Jance et al., 2024, d, e.).

Soil quality is further compromised by factors such as macro- and microplastics, excessive pesticide use, deforestation, over-fertilization, and heavy metal pollution exceeding permissible levels (Jance et al., 2021; Jance and Jance, 2024). Soil biodiversity is critical for nutrient cycling, carbon flow, pest regulation, and serves as a source of medicinal compounds vital for human health (Yabe and Murakami, 2002; Jasson, 2004).

In Albania, especially near industrial and mineral processing sites, heavy metal contamination in agricultural and forest soils (Co, Cd, Zn, Fe, Cu, Pb, Ni, As) has been consistently documented, showing adverse effects on soil health and human populations (McBride, 1994; Lacatusu, 1998; Martinez and Motto, 2000; Censi et al., 2006).

Studies highlight the detrimental impact of elevated heavy metals on crops, livestock, and ecosystems (Berglund et al., 1984; Mantovi et al., 2003; He at al., 2005; Rehman et al., 2013; Wang et al., 2013; Jance et al., 2020, a, b; Jance et al., 2021, a; Jance et al., 2023, a, b, c.).

This study focuses on the Elbasan area (March–June 2024), revealing that while most heavy metals are within safe limits, nickel concentrations exceed permissible levels by approximately 2.4 times. Meanwhile, we must emphasize the fact that nickel, a necessary micronutrient for plants, becomes toxic at high levels, affecting crops and indirectly human health through the food chain (Brown et al., 1987; Yong et al., 1996, Jance et al., 2021, b, c).

There is emerging evidence linking heavy metal toxicity to cardiovascular diseases via oxidative stress mechanisms, DNA damage, and lipid peroxidation (Lara-Guzmán et al., 2018).

Given the observed environmental pollution, ongoing monitoring is essential to protect public health. Consumers are advised to minimize exposure by using filtered water, avoiding contaminated produce, and reducing contact with airborne pollutants until risk assessments improve (Li et al., 2001; Münzel et al., 2022).

Further research is recommended to clarify the role of contaminated soil in disease development, particularly cardiovascular conditions, and to explore combined effects with other pollutants such as nano- and microplastics.

Materials and Methods

The soil samples used in this study weighed approximately 150 grams each. After collecting, the samples were completely dried in a thermostat at 40°C and subsequently sieved. It was found that about 95% of the soil particles were smaller than 2 millimeters.

Following this preparation, the soil samples were subjected to digestion using the "four-acid dilution method" as follows:

1. A 0.1-gram soil aliquot was first treated with 2.5 mL of nitric acid (HNO_3).
2. Then, 5 mL of hydrofluoric acid (HF) was added.
3. This was followed by the addition of 1.5 mL of diluted perchloric acid ($HClO_4$).
4. Finally, 2.5 mL of hydrochloric acid (HCl) was added to complete the digestion process (Peverill et al., 1999; Jance et al., 2023, a; Jance et al., 2024).

To determine soil pH, 10 grams of soil were mixed with 25 mL of deionized water, centrifuged for 30 minutes, and allowed to settle for 5 minutes. Grain size and pH analyses revealed an average soil pH of 8.2, indicating alkaline conditions (Gee and Bauder, 1986).

Results

Summary of Soil Heavy Metal Contamination in Elbasan (March–June 2024)

Laboratory analyses and statistical processing of soil samples collected from Elbasan between March and June 2024 reveal elevated soil pollution levels, with nickel identified as the only element exceeding permissible limits.

The combined data over the four months aimed at precisely tracking contamination trends over time. Table 1 summarizes the mean concentrations of hazardous metals compared to maximum permitted values (mg/kg).

TABLE 1. The average levels of heavy metals, in relation to the maximum allowed limits (mg/kg).

The number	Hazardous metals	Max Permitted	Mean Measured
1	Arsenic (As)	30	0.45
2	Cadmium (Cd)	3	0.9
3	Copper (Cu)	140	46
4	Chromium (Cr)	200	59
5	Lead (Pb)	300	69
6	Zinc (Zn)	300	67
7	Cobalt (Co)	75	28
8	Nickel (Ni)	75	181.5

Except for nickel, all metals were found below EU regulatory limits.

- **Arsenic (As):** Normal soil contains ~5 mg/kg; toxic soil 20–40 mg/kg. The measured 0.45 mg/kg is well within normal limits (EU max: 30 mg/kg).
- **Cadmium (Cd):** Normal soil contains ~0.1 mg/kg; toxic soil ranges 3–8 mg/kg. The study's value of 0.9 mg/kg is within normal parameters, as the EU limit is 3 mg/kg.
- **Copper (Cu):** Normal at 2 mg/kg; toxic at 60–125 mg/kg. The detected 46 mg/kg falls within the EU max of 140 mg/kg.
- **Chromium (Cr):** Normal ~5 mg/kg; toxic at 75–100 mg/kg. At 59 mg/kg, chromium is within permissible limits (EU max 200 mg/kg).
- **Lead (Pb):** Normal at 10 mg/kg; toxic at 100 mg/kg. The measured 69 mg/kg remains under the EU limit of 300 mg/kg.
- **Zinc (Zn):** Normal ranges from 10–100 mg/kg; the measured 67 mg/kg is within the EU maximum of 300 mg/kg.
- **Cobalt (Co):** Normal levels are ~10 mg/kg; toxic at 40 mg/kg. The study recorded 28 mg/kg, below the EU limit of 75 mg/kg.
- **Nickel (Ni):** Normal soil contains about 10 mg/kg; toxic soil ranges between 70–400 mg/kg. The average concentration of 181.5 mg/kg significantly exceeds the EU limit of 75 mg/kg, approximately 2.4 times higher, indicating toxic contamination.

Discussion

Extensive research indicates that soil pollution caused primarily by elevated heavy metals, excessive pesticides, and plastic contaminants significantly impacts human health, particularly increasing the risk of cardiovascular diseases (CVD) such as chronic ischemic heart disease, myocardial infarction, cerebral thrombosis, and arrhythmias (Zago et al., 2020; Münzel et al., 2021, 2022; Vaziri, 2008). Soil contamination by heavy metals, especially cadmium (Cd), lead (Pb), and arsenic (As) originates largely from industrial activities (metal production, smelting, refining, plastic and rubber manufacturing) and agricultural inputs (fertilizers, pesticides). These metals accumulate in the environment and enter the human body via inhalation, ingestion of contaminated water and food, posing serious health risks (Gazso, 2001; Weggler et al., 2004; Messner & Bernhard, 2010).

- **Cadmium (Cd)**, often a byproduct of zinc refining and common in fertilizers and pesticides, is linked to hypertension and stroke due to its accumulation in organs such as kidneys and lungs (Valera et al., 2008; Tsutsumi et al., 2014).
- **Lead (Pb)** is stable and persistent in soil and water, with absorption influenced by soil pH, temperature, and organic matter. Elevated blood lead levels correlate strongly with heart attacks, coronary disease, and cerebrovascular disorders, especially affecting diabetics and women (Vaziri, 2008; Münzel et al., 2021).
- **Arsenic (As)** exposure is associated with increased mortality from cardiovascular diseases (Moon et al., 2012).

Additional metals like chromium, copper, and zinc also contribute to health issues including genetic damage, gastrointestinal distress, and cancer risks when present in excess (Spector et al., 2011; Kim et al., 2009; Bawa, 2023).

Socioeconomic factors exacerbate exposure risks, with low-income populations more vulnerable due to living conditions and food sources. Globalization and reliance on soil-grown crops (which constitute about 80% of average caloric intake worldwide) further increase human exposure to soil contaminants (Weggler et al., 2004).

Patho physiologically, these pollutants contribute to oxidative stress and inflammation, underlying cardiovascular, neurological, and metabolic diseases (Münzel et al., 2022).

Key Chemical Pollutants in Soil

Heavy Metals
- Sources: Mining, smelting, metal plating, industrial effluent, fertilizers (Cd), fossil fuel combustion (Pb, Ni).
- Properties: Persistent, non-degradable, bio accumulative.

Persistent Organic Pollutants (POPs)
- Examples: Polychlorinated biphenyls (PCBs), dioxins, polycyclic aromatic hydrocarbons (PAHs).
- Sources: Waste incineration, coal and oil combustion, pesticide manufacturing.

Pesticides & Herbicides
- Classes: Organophosphates, organochlorines (e.g., DDT), neonicotinoids.
- Properties: Many are moderately persistent, lipophilic, and can leach into groundwater.

Emerging Contaminants
- PFAS (Polyfluoroalkyl Substances): "Forever chemicals" used in firefighting foams, nonstick coatings; highly mobile and persistent.
- Microplastics/ Nano plastics: Degradation of larger plastics; absorb other pollutants and facilitate their transport.

Pathways to Human Exposure

Ingestion
- Contaminated produce (uptake by plants)
- Soil ingestion (especially in children via hand-to-mouth activity)
- Drinking water (leaching into aquifers)

Dermal Contact
- Direct skin contact during agricultural or recreational activities

Inhalation
- Dust and aerosolized particles (metals, POPs)

Mechanisms of Toxicity

Oxidative Stress & Inflammation
- Many pollutants (e.g., Cd, Pb, PAHs) generate reactive oxygen species, damaging cells and tissues.

Endocrine Disruption

POPs and certain pesticides mimic or block hormones, affecting reproductive and developmental health.

Genotoxicity & Carcinogenesis
- DNA adduct formation by PAHs and dioxins, chromosomal aberrations.

Neurological Damage
- Metals like Pb and Hg interfere with neurotransmission and brain development.

Associated Health Risks & Diseases

Cardiovascular Diseases
- Hypertension, Atherosclerosis, Myocardial Infarction
- Linked to heavy metal exposure (Cd, Pb, As) via endothelial dysfunction and lipid peroxidation.

Cancers
- Lung, Skin, Bladder, Liver, and Hematologic Malignancies
- Associated with long-term exposure to POPs, PAHs, and certain metals (Cr, As).

Neurological Disorders
- Cognitive Impairment, Autism Spectrum Disorders, Parkinsonism
- Related to early-life exposure to Pb, Hg, and organophosphate pesticides.

Renal & Hepatic Toxicity
- Chronic Kidney Disease, Liver Fibrosis
- Especially from Cd and Pb accumulation in organs.

Endocrine & Reproductive Effects
- Infertility, Developmental Delays, Hormone-Dependent Cancers
- Driven by endocrine-disrupting chemicals (e.g., DDT, PFAS).

Respiratory Illnesses
- Asthma, Chronic Obstructive Pulmonary Disease (COPD)
- From inhalation of contaminated dust carrying metals/POPs.

Mitigation & Monitoring Strategies

Soil Remediation (Ghosh and Singh, 2005; Tangahu et al., 2011)
- Phytoremediation (hyperaccumulator plants)
- Soil washing and stabilization (chemical amendments)

Regulation & Risk Assessment
- Establish stricter soil quality guidelines for emerging contaminants (e.g., PFAS).
- Routine monitoring of agricultural soils, especially near industrial zones.

Public Health Measures
- Advisories for safe gardening and food sourcing
- Community education on reducing exposure (e.g., handwashing, consuming low-uptake crops)

This summarized framework highlights the major chemical threats in soils, their routes into the human body, mechanistic toxicity, and the spectrum of associated diseases underscoring the urgent need for integrated environmental and public health interventions.

Case Study: Elbasan City, Albania

Elbasan is identified as one of Albania's most polluted urban areas, attributed to dense population, heavy traffic, poor infrastructure, scarce green spaces, and extensive heavy industrial activity with inadequate environmental oversight.

Chemical soil pollution in Elbasan not only threatens human health but also disrupts local ecosystems. Biodiversity loss, soil fertility degradation, and contamination of water bodies contribute to a deteriorating environment, further amplifying health risks.

Notably, soil analyses reveal excessive nickel contamination, influenced by both natural geological factors and anthropogenic sources such as refinery emissions and traffic (Bencko, 1983; Mcllveen and Negusanti, 1994; Cempel, 2006; Jance et al., 2024, a, b).

In conclusion, soil contamination by heavy metals, particularly nickel in Elbasan, poses a significant environmental and public health concern, with direct implications to respiratory problems, increased cardiovascular disease risk, skin allergies, and increased cancer risk. Populations living near industrial zones and those consuming locally grown crops face heightened vulnerability.

Conclusions

1. The analysis of soil samples from Elbasan city reveals the presence of various heavy metals, with most elements falling within the permissible limits set by the European Union. However, nickel concentrations significantly exceed these limits, measuring approximately 2.4 times higher than the EU regulatory standards.
2. This elevated nickel contamination is primarily attributed to the natural soil composition combined with anthropogenic influences, particularly emissions and waste deposits from the heavy industrial activities prevalent in the region. The extraction, processing, and industrial use of raw materials contribute notably to this localized pollution.
3. Exposure to heavy metal-contaminated soils, especially with high nickel levels, poses serious health risks. It is well-established that such contamination increases the incidence of cardiovascular diseases (CVDs) and other non-communicable diseases (NCDs).
   The underlying pathophysiological mechanisms include:
   - ***Enhanced oxidative stress:*** An imbalance arises between the overproduction of reactive oxygen species (free radicals) and the body's limited antioxidant defenses. This oxidative stress damages vascular endothelial cells, promoting atherosclerosis and other cardiovascular dysfunctions.
   - ***Chronic inflammation:*** Persistent exposure to heavy metals induces systemic inflammation, which disrupts biological rhythms such as the circadian cycle, further exacerbating metabolic and cardiovascular disorders.

Recommendations

- The chronic exposure to elevated nickel and other heavy metals in soil can lead to bioaccumulation in the food chain, thereby increasing human exposure not only through direct contact but also via ingestion of contaminated food and water.
- The disruption of circadian rhythms linked to inflammation may contribute to a broader spectrum of health issues, including metabolic syndrome, impaired immune responses, and neurodegenerative diseases, beyond cardiovascular effects alone.
- The findings underscore the urgent need for ongoing environmental monitoring, industrial regulation, and remediation strategies in heavily polluted areas like Elbasan to protect public health.
- Public health interventions should also focus on raising awareness and limiting human exposure through improved agricultural practices, food safety controls, and urban planning that reduces contact with contaminated soils.

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The Physics and Biomechanics of Lymphedema Mechanisms and Implications

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Abstract

Radiation therapy is a common treatment for cancer and while it can be effective in destroying cancer cells, it can also have side effects, including lymphedema. Lymphedema is the swelling that occurs when lymph fluid accumulates in tissues due to a blockage to the lymphatic system. Radiation therapy disrupts lymphatic function through fibrosis, vessel damage, and altered fluid dynamics, all of which can be studied through biomechanics. Understanding these changes helps in designing effective interventions to manage or prevent radiation-induced lymphedema. By applying principles like flow resistance, pressure gradients, and tissue compliance, we can better predict and treat this condition. In this study we will look lymphedema not as a physiological process but from another perspective as a combination of physics and biomechanical processes. From a physics perspective, the reduction in vessel diameter due to radiation therapy significantly increases flow resistance, reduces flow rates, and impairs lymphatic function. This mechanical disruption explains how lymphedema develops and worsens. By understanding these principles, interventions (like compression therapy or surgical bypass) can be better designed to restore flow and reduce symptoms. By understanding these processes from a physics perspective, we have been able to create radiotherapy treatment plans, such IMRT, VMAT, with specified radiation dose distribution techniques and distributions, minimizing the impact of radiation on the creation of lymphedema for different treatment areas for patients at the radiotherapy center.

***Keywords**: lymphedema, biomechanics process, radiation, radiotherapy*

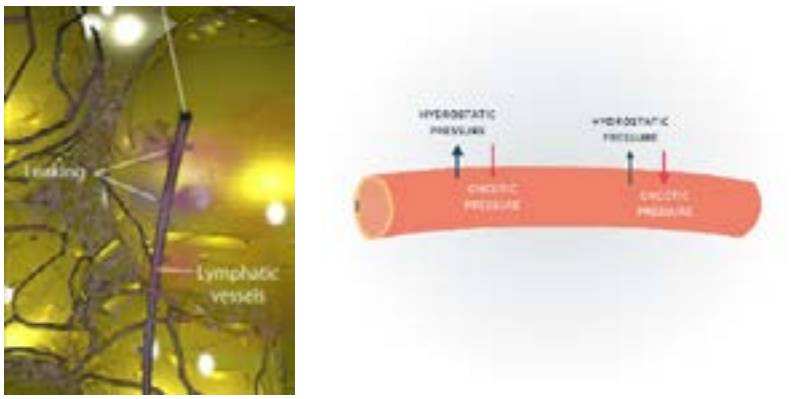
Introduction

Lymphoedema can be a challenging side effect of radiation therapy, but with early intervention and appropriate treatment, the symptoms can be managed effectively. Lymphoedema can be understood from the perspective of biomechanics and fluid dynamics, as it involves the abnormal accumulation of lymph fluid in tissues. This accumulation disrupts the natural balance of fluid movement and can be analyzed through concepts of pressure, fluid flow, and tissue mechanics. In the body, fluid exchange occurs across blood vessels via hydrostatic pressure (the pressure exerted by a fluid at rest). Lymph is filtered from the blood plasma into the interstitial space (the tissue space between cells), a process driven by hydrostatic pressure in the capillaries. In a healthy system, lymph fluid is drained back into the circulatory system by the lymphatic vessels. In lymphoedema, this drainage is impaired due to damage to the lymphatic vessels or nodes, leading to a build-up of lymph fluid. When the drainage system is compromised, the fluid accumulation creates an imbalance in the normal pressure dynamics, contributing to swelling.(Moffatt, C 2019)

Normally, fluid that leaks out of the capillaries is returned to the bloodstream by the lymphatic system. If this system is damaged by radiation or surgery, the reabsorption process is hindered, leading to fluid retention.

The process is governed by Starling's law of capillary dynamics, figure 1, which states that the movement of fluids across capillary walls depends on the balance between hydrostatic and oncotic pressures (the osmotic pressure created by proteins in the blood). If the lymphatic drainage is compromised, the lymphatic vessels can no longer absorb fluid, and tissue hydrostatic pressure increases, leading to swelling in the affected area. Over time, this can further impair fluid absorption. Lymphedema is not only caused by impaired drainage (lymphatics), but also by altered **capillary dynamics** — where Starling forces formula 1, push more fluid out than the system can recover.

FIGURE 1: Starling's law of capillary dynamics movement of fluids
across capillary walls depends on the balance between hydrostatic and oncotic pressures



$$J_v = K_f \cdot [(P_c - P_i) - \sigma(\pi_c - \pi_i)]$$

Where:

- $\mathbf{J_v}$ = net fluid movement (ml/min)
- $\mathbf{K_f}$ = filtration coefficient (permeability × surface area of the capillary)
- $\mathbf{P_c}$ = capillary hydrostatic pressure (pushes fluid out)
- $\mathbf{P_i}$ = interstitial hydrostatic pressure (pushes fluid in)
- $\boldsymbol{\pi_c}$ = capillary oncotic pressure (pulls fluid in)
- $\boldsymbol{\pi_i}$ = interstitial oncotic pressure (pulls fluid out)
- $\boldsymbol{\sigma}$ = reflection coefficient (how permeable the capillary is to proteins)

The tissues affected by lymphoedema become stiffened and fibrotic, leading to changes in the elasticity and compliance of the tissue. The accumulation of fluid increases the interstitial pressure, which in turn compresses surrounding tissues, further impeding the flow of lymph. (Rabe, E. 2018; Netti,P., 1997)

In this case, tissue viscosity and elastic modulus (the ability of tissues to stretch or deform) become important factors in how fluid accumulates. The pressure from the swelling can decrease the tissue's ability to stretch and accommodate the increased volume of fluid, creating a feedback loop of worsening swelling and fibrosis.

The lymphatic vessels themselves act as a biomechanical pump: they rely on smooth muscle contractions to push lymph fluid through the system. Lymphatic pump dysfunction due to radiation-induced fibrosis or damage to the nodes results in reduced fluid propulsion and, ultimately, lymphoedema. The lymphatic valves (which prevent the backward flow of fluid) may also become ineffective or damaged. This leads to fluid stasis, as the system is no longer able to propel lymph fluid toward the venous system, creating a pressure gradient in the tissue that encourages more fluid accumulation which is govern by Hooke's' law (simplified form) as below formula 2:

$$\sigma = E^{\star} \varepsilon$$

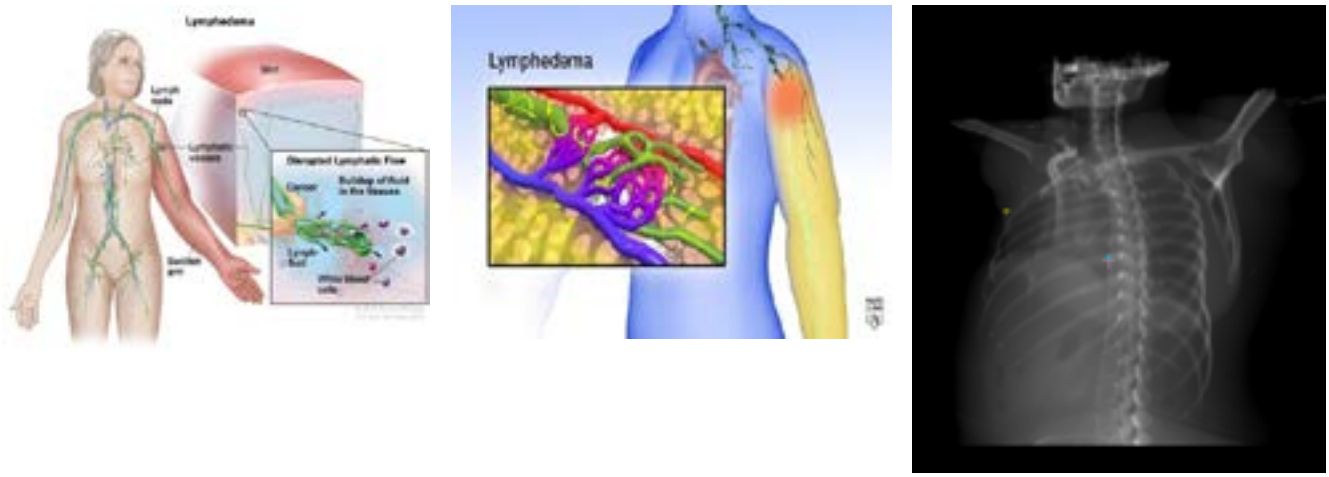
Where; σ = stress (force per unit area), **E** = elastic modulus (stiffness of tissue), **ε** = strain {relative deformation).

This law tells us that **as fibrosis increases**, the **elastic modulus (E)** of the tissue increases—meaning the tissue becomes **less able to deform** under pressure. The **stiffer the tissue**, the less it can accommodate swelling → worsening lymphedema.

Compression garments (such as sleeves or stockings) are a key treatment for lymphoedema and work by applying external pressure to counteract the internal swelling. This helps to reduce interstitial pressure and encourages lymph fluid to move back into the lymphatic system, aiding in fluid reabsorption. The biomechanics of compression therapy depend on the gradient pressure: higher pressure at the distal (farthest) end of the limb and lower pressure near the body. This gradient facilitates the movement of fluid from the lower-pressure distal regions toward the higher-pressure proximal regions, enhancing lymphatic flow and drainage. (Netti, P 2003; Allmedinger, A. 2015; Thomsen, M. 2014)

Lymph fluid has a higher viscosity than blood, and when it accumulates in large volumes, it can create resistance to further flow. The lymphatic vessels may become compressed due to the buildup, increasing the resistance to flow. As resistance increases, fluid can accumulate even more, worsening the swelling. The relationship between the volume of lymph fluid and the pressure in the affected tissues is important in understanding the progression of lymphoedema. As more fluid accumulates, the interstitial pressure increases, which in turn prevents further fluid movement from the capillaries into the lymphatic vessels, exacerbating the cycle. Biomechanical models of lymphoedema could simulate how changes in tissue compliance, lymphatic vessel function, and interstitial pressure contribute to the development of swelling, figure 2.

FIGURE 2: Breast Lymphatic system



These models can also simulate the effectiveness of different treatments (such as compression therapy) in restoring proper fluid dynamics by decreasing resistance or increasing the function of lymphatic vessels.

From a biomechanical perspective, lymphoedema can be seen as a complex interplay between hydrostatic pressure, tissue compliance, lymphatic vessel function, and fluid dynamics. When the lymphatic system is damaged or becomes dysfunctional, fluid cannot be adequately removed from the tissue, leading to increased pressure and swelling. By understanding these biomechanical forces, we can better understand the progression of lymphoedema and the rationale behind treatments like compression therapy, manual lymphatic drainage, and exercises aimed at improving lymph flow and reducing fluid accumulation.

Material and Methods

Radiotherapy uses ionizing radiation to target and destroy cancer cells. However, it can also cause side effects on healthy tissue, leading to inflammation, fibrosis (scarring), and changes in tissue structure. These effects can impact the lymphatic system and the movement of fluids in the affected area.

When radiation is applied to tissues, several biological processes occur that may influence fluid dynamics in the body:

- **Increased vascular permeability**: Radiation can make blood vessels more permeable, which increases the leakage of fluid from blood vessels into the surrounding tissues (interstitial space).
- **Inflammation**: Radiation-induced inflammation can lead to tissue swelling, further contributing to fluid accumulation.
- **Fibrosis (scarring)**: Over time, radiation can cause tissue stiffening (fibrosis), particularly in the lymphatic vessels or nodes. This reduces the ability of the lymphatic system to drain excess fluid, which contributes to **lymphoedema**.
- **Damage to lymphatic vessels and nodes**: Radiation can directly damage the lymphatic system, leading to poor drainage and a buildup of lymph fluid in the tissues, further increasing the tissue's **volume** and **pressure**.

After radiation-induced damage to the lymphatic system, there is an accumulation of fluid in the tissues, leading to swelling. This excess fluid can be thought of as displaced tissue—similar to how an object displaces water when submerged. As more fluid accumulates, the pressure within the tissues increases, which can be seen as the "buoyant" force pushing outward against the surrounding tissue. This outward pressure is one of the key features of lymphoedema.

The swollen tissue, filled with excess fluid, could be compared to an object in a fluid. As the tissue swells, it "displaces" the surrounding healthy tissue (just as an object displaces water). This displacement increases the interstitial pressure in the affected area, causing compression and restricting normal fluid flow. This can create a cycle of worsening swelling, much like how an object that displaces water will experience an increase in pressure from the surrounding fluid. (Prochaska, J 2015; Zaleska, M 2014)

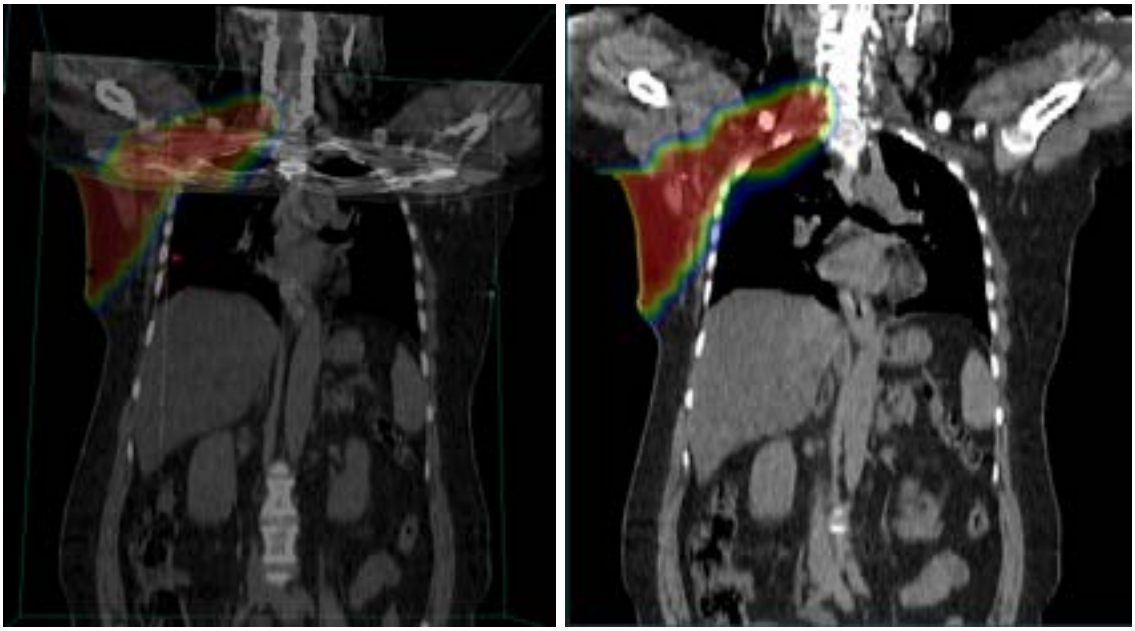
Radiation therapy (figure 3) can change the mechanical properties of tissue, such as its elasticity and compliance. As radiation damages tissue, it can cause fibrosis, which makes the tissue more rigid and less able to expand and contract. This could lead to an increase in the volume of the affected tissue and a higher resistance to fluid drainage, leading to increased interstitial pressure. When the tissues are swollen due to fluid accumulation, they may press on surrounding blood vessels, nerves, or other structures, which further impedes fluid drainage. This is akin to the way that increased fluid displacement leads to higher pressure in the surrounding space (as described by Archimedes' principle).

Radiation can cause inflammation, leading to an accumulation of proteins in the interstitial fluid, which can:

- Increase the viscosity of lymphatic fluid.
- Impede lymphatic pumping due to higher resistance to flow.

Biomechanical Impact: Higher fluid viscosity (μ) decreases the Reynolds number, which could result in even slower lymphatic flow, exacerbating fluid stagnation. According to Starling's law radiation damages capillary and lymphatic walls → increases $\mathbf{K}_f$ and reduces **σ** (more protein leakage).

FIGURE 3: Radiation isodose during breast treatment with 6 MV Radiation Beam



The Reynolds number formula 3, can help in understanding lymphedema as a biomechanical process, particularly when analyzing the flow of lymphatic fluid in the lymphatic vessels. While lymphedema is primarily a medical condition characterized by fluid accumulation and tissue swelling, fluid dynamics play a crucial role in understanding its mechanisms and potential treatments. The Reynolds number provides insight into the flow regime (laminar or turbulent) within the lymphatic system, which is crucial for understanding the underlying biomechanical processes. Lymph flow is typically low-velocity and occurs in very small, thin-walled lymphatic vessels, making it a low Reynolds number system. Due to the low Re (often <1), lymph flow is predominantly laminar. This means that viscous forces dominate, and the flow is smooth and regular.

$$Re = \frac{\rho v L}{\mu} = \frac{v L}{\nu},$$

Were,

- ρ is fluid density.
- v is flowing velocity.
- L is a characteristic length (e.g., pipe diameter).
- μ is dynamic viscosity.
- ν=μ/ρ is kinematic viscosity.

Radiation therapy disrupts lymphatic function through fibrosis, vessel damage, and altered fluid dynamics, all of which can be studied through biomechanics. Understanding these changes helps in designing effective interventions to manage or prevent radiation-induced lymphedema. By applying principles like flow resistance, pressure gradients, and tissue compliance, we can better predict and treat this condition. Lymphedema occurs when radiation-induced damage to the lymphatic system disrupts normal fluid drainage, leading to swelling in affected areas. The energy transfer during radiotherapy plays a crucial role in this process through several biomechanical and biological mechanisms.

The higher doses of radiation (60 Gy) cause more extensive damage to lymphatic vessels, surrounding tissues, and their biomechanical properties. This is because radiation-induced damage, such as fibrosis and inflammation, generally increases in severity with higher doses, meanwhile 50 Gy, typically results in less tissue and vessel damage compared to 60 Gy, reducing the likelihood and severity of biomechanical disruptions.

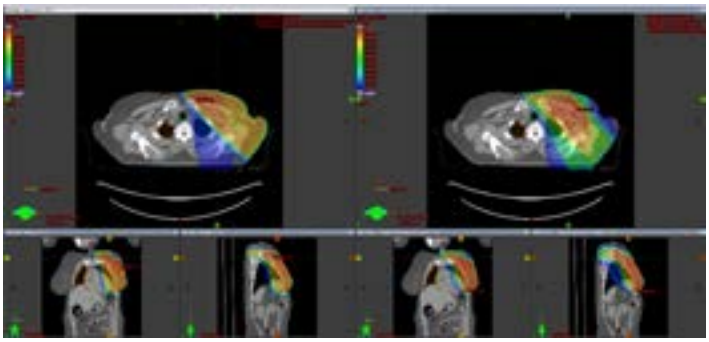
The breast treated with 60 Gy is more likely to experience severe biomechanical disruptions leading to lymphedema due to increased fibrosis, inflammation, and vessel damage. These effects impair lymphatic flow and tissue compliance more than in the breast treated with 50 Gy. While both doses carry a risk of lymphedema, the higher dose amplifies the biomechanical challenges, making preventive measures and monitoring more critical for the higher-dose treatment area.

The reduction in the diameter of lymphatic vessels and the lymphatic system during or after radiation therapy can be analyzed and understood from a physics perspective, particularly through the principles of fluid mechanics and biomechanics. This reduction has profound effects on the flow of lymph and can help explain why lymphedema develops in some patients. (Dayan, R 2020; Thomsen, M. 2014)

The patient treated with **3D-CRT** is more likely to experience biomechanical disruptions in the lymphatic system, leading to a higher risk of lymphedema. **IMRT**, with its superior tissue-sparing capabilities, has a significantly lower impact on lymphatic biomechanics and is the preferred choice when minimizing side effects like lymphedema is a priority. The main reason for the greater impact of lymphedema when treating the breast with 3D-CRT compared to IMRT lies in the differences in dose distribution and sparing of healthy tissues, particularly the lymphatic system.

The greater impact of **lymphedema in 3D-CRT** compared to **IMRT** is due to the higher exposure of lymphatic vessels and surrounding tissues to radiation. This results in increased fibrosis, vessel damage, and disruption of lymphatic flow dynamics. By sparing healthy tissues and preserving lymphatic structures, IMRT significantly reduces the biomechanical disruptions that lead to lymphedema, figure 4.

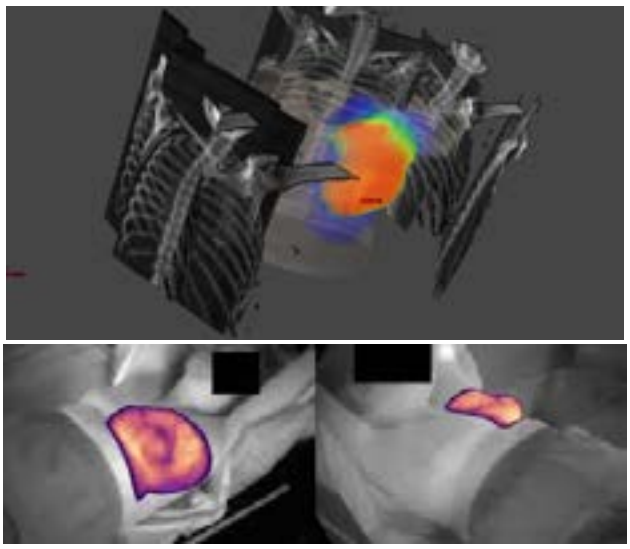
FIGURE 4: Comparison of Radiation isodoses between 3DCRT and IMRT treatment



During radiation therapy, energy is deposited in tissues, including blood vessels and lymphatic vessels. This energy can cause damage that contributes to lymphedema in several ways; Radiation, figure 5, can scar or destroy lymphatic vessels, impairing their ability to drain lymph fluid. This leads to fluid accumulation and swelling in the affected area. Radiation induces fibrosis (scarring) in surrounding tissues, including lymphatic and blood vessels. This stiffening reduces the flexibility of vessels, making it harder for lymph fluid to move efficiently.

Radiation can trigger chronic inflammation, which may cause the narrowing or blockage of lymphatic pathways, further impeding lymph drainage. Blood vessels may also be affected, leading to reduced blood supply and increased interstitial fluid accumulation, which exacerbates swelling. Radiation-induced lymphedema can develop months or even years after treatment as fibrosis progresses and lymphatic function declines over time.

FIGURE 5: Realtime deposition of energy during radiotherapy breast treatment



Lymphedema is a common side effect in cancer patients receiving radiation therapy, particularly for breast cancer, pelvic cancers, or head and neck cancers. Managing it often requires physical therapy, compression garments, and sometimes surgical interventions.

Intensity-Modulated Radiation Therapy (IMRT), Volumetric Modulated Arc Therapy (VMAT), and 3D Conformal Radiation Therapy (3DCRT) all differ in how they deliver radiation, which impacts the risk of lymphedema by influencing the dose and distribution of radiation in lymphatic structures.

The IMRT techniques delivers radiation in precise, modulated doses with multiple beams to conform closely to the tumor shape. The impact on lymphedema is related to be more precise targeting reduces unnecessary exposure to lymphatic vessels; can help spare critical structures, lowering the risk of fibrosis and vessel damage; still, if lymph nodes are part of the radiation field (e.g., in breast or pelvic cancers), there's still a risk of lymphedema.

VMAT is an advanced form of IMRT that delivers radiation in a continuous arc, improving dose distribution and reducing treatment time. This technique provides even better dose conformality than IMRT, potentially reducing collateral damage to lymphatic structures; faster treatment times may lead to less overall tissue inflammation. However, if lymph nodes or vessels are in high-dose areas, the risk of fibrosis and vessel damage remains.

Uses fixed radiation beams shaped to match the tumor but delivers more uniform radiation than IMRT or VMAT. The 3DCRT techniques it is less precise targeting compared to IMRT and VMAT, often leading to higher radiation doses in surrounding normal tissues; greater risk of lymphatic vessel damage, fibrosis, and subsequent lymphedema and particularly in breast, pelvic, and head/neck cancer treatments, 3DCRT is associated with higher lymphedema rates than IMRT/VMAT.

Results

During the 15 years of operation of the hospital's radio-oncology center, about 50% of radiotherapy treatments are for breast cancer. Of which about 80% of these have been treated with the 3DCRT technique and 19% with the IMRT technique and the remaining part of only 1% with the VMAT technique. By following the progress of the disease after treatment therapy, i.e. follow up, it has been noted that patients treated with 3D CRT with 6MV treatment energy are about 40% more affected by lymphedema or skin irritation than patients who have a combination of treatment with energies higher than 6 MV, i.e. treated with combined energies of 6MV and 10, 15 or 18 MV. On the other hand, patients treated with the IMRT and VMAT technique do not express any indication of lymphedema. Although these techniques use low energies, only 6MV, this is because these techniques perform a dose distribution based on an intensity modulated modality**.**

Conclusion

VMAT and IMRT are preferable over 3DCRT when minimizing the risk of lymphedema is a priority, as they better spare lymphatic structures. 3DCRT poses a higher risk due to broader radiation exposure. Even with advanced techniques, if lymph nodes are directly irradiated, there remains a risk of developing lymphedema. Lymphoedema can be a challenging side effect of radiation therapy, but with early intervention and appropriate treatment, the symptoms can be managed effectively. If you or someone you know is undergoing radiation therapy, discussing the risk of lymphoedema with a healthcare provider is important for taking steps to reduce the risk and manage the condition if it arises.

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Pink October in Albania: “Fear Or Awareness”

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Abstract

This study analyzes the unprecedented increase in mammography numbers during October in Albania, compared to ultrasound examinations and the general trend throughout other months of the year, based on data collected at the American Hospital 2 during 2024. Pink October, as a global breast cancer awareness campaign, appears to have a significant impact on Albanian women's behavior towards preventive screening, but raises fundamental questions about whether the dramatic increase in examinations during this period is a product of genuine awareness or merely a temporary reaction driven by fear. Quantitative analysis shows a dramatic increase in mammographies during October (197 examinations) compared to the monthly average of 15.5 examinations in other months, representing approximately a 12-fold increase. Particularly significant is the change in the profile of patients undergoing screenings, where the percentage of women presenting for check-ups "without specific concerns" increases from 38.5% in September to 65.4% in October. The findings indicate that the campaign has a powerful but temporary impact on awareness regarding preventive screening. The immediate decline in examination numbers after the campaign's conclusion suggests that this awareness does not translate into sustainable behavioral change. Parallel analysis of ultrasound examinations shows a more consistent pattern throughout the year. The study concludes that the current effectiveness of the campaign lies in an intermediate position between fear and awareness. While the element of fear appears to play an important role in immediate mobilization, the key challenge remains transforming this impulse into a sustainable culture of prevention. This requires a combination of continuous health education, improved access to diagnostic services, and building stronger trust relationships between the healthcare system and the community.

Keywords**:** *Breast cancer screening, Pink October campaign, Health awareness, Preventive healthcare behavior, Mammography patterns.*

Introduction

The aim of this study is to analyze the impact of the “Pink October” awareness campaign on women’s health behavior in Albania, with a particular focus on the motives that lead to mammography during this month. Based on real data collected at the radiology department of the American Hospital 2 during 2024, the study aims to assess whether the significant increase in the number of examinations during the month of October is the result of a real awareness of the early detection of breast cancer, or a reaction driven mainly by fear, social pressure and media campaigns.

The study attempts to discover whether there is a change in the profile of women who undergo mammography during the campaign, compared to the months outside of it, and to determine whether this change reflects a sustainable preventive behavior or simply temporary. Essentially, it addresses the dilemma of whether “Pink October” in Albania generates real awareness or simply momentary fear.

Breast cancer is one of the biggest health challenges for women worldwide and continues to maintain its position as one of the most prevalent diseases in the general population. In 2022, it ranked second in the world in terms of the number of new cases after lung cancer and fourth in terms of the number of deaths caused by cancer overall (Sung et al., 2021). This global trend is also reflected in Albania, where, according to the Institute of Public Health (ISHP, 2023), breast cancer accounts for more than 11% of all new cases diagnosed with cancer each year, while about one in four women living with a malignant neoplasm are diagnosed with breast cancer. In 2023, 744 new cases of breast cancer were registered in Albanian women, representing an incidence of 61.4 cases per 100,000 women. In addition, 15 new cases were reported in men. These data represent an increase of 4.8% compared to 2022, which is partly explained by the recovery from the decrease in reporting during the COVID-19 pandemic (ISHP, 2023). Although at first glance we have an increase in the absolute number of cases, the age-standardized analysis – based on the WHO standard population – shows a relative stability of the incidence when the effect of population aging is excluded.

In terms of early diagnosis, Albania implements a national breast cancer screening program, which targets women in the 50–60 age group and those considered at higher risk. In the absence of symptoms, these women are invited to undergo mammography every two years. However, participation is significantly higher during the month of October due to the "Pink October" awareness campaign, than during the rest of the year (ISHP, 2023). This fact proves that seasonal awareness plays a key role in encouraging women to get screened, but it also suggests that a sustainable culture of preventive screening is lacking.

On a practical level, mobile mammograms performed throughout the year help identify more than 10 suspicious cases each year, while the screening program itself helps diagnose at least 50 new cases of breast cancer each year at an early stage (ISHP, 2023).

According to IHP data (2023), around 5,000 women in Albania are currently living with a diagnosis of breast cancer. The risk for this disease increases significantly with age, reaching a peak between the ages of 50–70. After this age, the incidence tends to decrease. The median age at diagnosis is 57.6 years, an indicator that is consistent with the gradual aging of the Albanian population and global trends. During October 2023, a total of 12,701 mammograms were performed in Albania, including those performed in regional hospitals and mobile screening units. In particular, 810 mammograms were performed in Tirana during the same period. From a geographical analysis of the distribution of cases, the highest reported incidence is in the counties of Korça, Elbasan, Berat and Lezha, while the lowest in Kukës, Shkodër and Vlorë. Tirana, due to its population density, contributes about 32.3% of new cases at the national level (ISHP, 2023).

Comparatively, European Union countries implement national organized breast cancer screening programs targeting women aged 50–69 years, with mammography every two years, accompanied by systematic invitations and continuing health education (European Commission Initiative on Breast Cancer, 2023). In countries such as the Netherlands and Sweden, participation in screening exceeds 70%. In the United States of America, for the year 2024, it is predicted that about 310,720 new cases of invasive breast cancer and over 56,500 cases of the in situ form will be diagnosed (American Cancer Society, 2024), while about 75.9% of women aged 50–74 years had undergone mammography in the last two years (National Cancer Institute, 2021).

The increase in mammograms in October is also a documented phenomenon in other countries. An analysis of six European countries and Turkey showed that during October – the month of the "Pink October" campaign – requests for information on breast cancer increase significantly, especially in Italy, France and the United Kingdom (Yildirim et al., 2023). This suggests that awareness campaigns have a real impact on changing the behavior of the population, but emphasizes the need for this impact to not remain episodic. While Albania follows international models in diagnosis and screening, gaps still remain in terms of sustainability of awareness and participation of women throughout the year. This requires integrated policies to promote regular screening, continuous education and strengthening access to health services for all women, regardless of residence or socio-economic status.

Methodology

The study is retrospective, descriptive and quantitative in nature, built on a monthly comparative analysis of radiological examinations (mammograms and ultrasounds) performed during 2024, with a particular focus on the month of October. Data were collected systematically from the "PACS" archiving and communication system of the radiology department at the American Hospital 2. The data include:

- Monthly number of mammograms and ultrasounds
- Detailed analysis of the reasons for performing mammograms for the months of September and October
- Comparison of trends before, during and after the Pink October campaign

Reasons for referral for mammography for the months of September and October, divided by categories:

- Check-up without concerns
- Recheck for existing pathology

- Recent clinical symptoms
- Family history
- Referral after breast ultrasound

The study includes all female patients who underwent mammography during the period January–December 2024. For the qualitative analysis, the months of September (n=21) and October (n=197) were compared in detail, to assess the difference in the motivation for examinations, since September was the month with the most mammographic examinations.

In addition to the statistical analysis of existing clinical data, a structured questionnaire was also used, designed to assess:

- women's level of awareness of breast cancer,
- preventive behavior towards mammography,
- and the impact of the "Pink October" campaign on decision-making to perform examinations.

Some of the questions asked were:

- What was your motivation for performing mammography? (Alternatives: routine check-up, clinical concerns, family history, encouragement from the campaign, etc.)
- Have you performed mammography during the month of October of each year?
- Do you think that the campaign has influenced your decision to perform mammography?

Limitations

- The data are limited to a single private health institution, which may not fully reflect the national situation.
- More detailed demographic or clinical data (hormonal status, risk factors) were not included.

The data used are anonymous and collected within the framework of an institutional evaluation of diagnostic activity. No ethical approval was requested as no personal or sensitive data were used, and the purpose of the study is strictly for statistical and health analysis.

Results

Quantitative Analysis

During the period January – December 2024, a total of 368 mammograms were performed in the Radiology Department of a tertiary healthcare institution in Albania, with a markedly disproportionate distribution between months, with October being the dominant month.

Significant increase in October

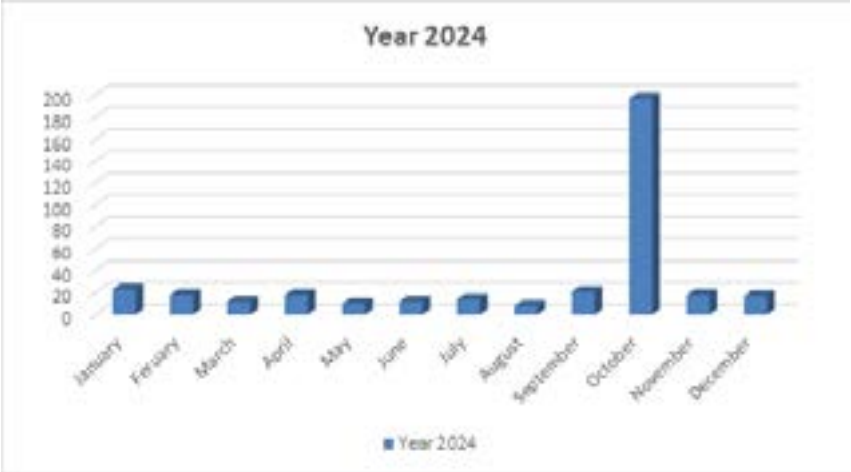
In October 2024, 197 mammograms were recorded, accounting for 52.8% of all mammograms of the year. In contrast, the monthly average for the months January – September (excluding October) was 15.1 mammograms per month. This represents an increase of about 1171% during October compared to the monthly average and an increase of 838% compared to the previous month, September, where 21 mammograms were performed.

TAB. 1. Monthly number of mammograms during 2024

Month (Year 2024)	Number of Mammographies	Percentage (%)
1. January	23	6.2 %
2. February	18	4.9 %
3. March	12	3.3 %
4. April	18	4.9 %
5. May	10	2.7 %
6. June	12	3.3 %
7. July	14	3.8 %
8. August	8	2.2 %
9. September	21	5.7 %

10. October	197	53.5 %
11. November	18	4.9 %
12. December	17	4.6 %
Total	368	100 %

FIG. 1 Monthly number of mammograms during 2024



Motivation of patients for mammography

Reasons for having mammography performed in September and October were analyzed in detail, with the aim of identifying changes in women's behavior before and during the "Pink October" campaign.

September 2024:

- Check-up without concerns: 8 cases (38.5%)
- Recheck for existing pathology: 2 cases (2.5%)
- Recent symptoms (pain, palpable lesions, redness, irritation): 5 cases (23.5%)
- Family history: 1 case (4%)
- Referral after ultrasound: 5 cases (24.5%)

October 2024:

- Check-up without concerns: 129 cases (65.4%)
- Recheck for existing pathology: 14 cases (7%)
- Recent symptoms (pain, palpable lesions, redness, irritation): 25 cases (12.6%)
- Family history: 7 cases (3.5%)
- Referral after ultrasound: 5 cases (2.5%)
- No information on the cause: 14 cases (7.5%)
- Early detection (previously observed lesion, no current concerns): 3 cases (1.5%)

TAB. 2. Motivation of patients for mammography for the month of October 2024

Reason for Referral	Number of Cases	Percentage (%)
Check-up without complaints	129	65.4%
Follow-up for existing pathology (patients under monitoring)	14	7%
Recent symptoms (pain, palpable lesions, redness, irritation)	25	12.6%
Early finding (previously observed lesion, no current complaints)	3	1.5%
Family history	7	3.5%

Referral after other examinations (mainly ultrasound)	5	2.5%
No information on reason	14	7.5%
TOTAL	197	100%

TAB. 3. Motivation of patients for mammography for the month of September 2024

Reason for Referral	Number of Cases	Percentage (%)
Check-up without complaints	8	38.5%
Follow-up for existing pathology (patients under monitoring)	2	9.5%
Recent symptoms (pain, palpable lesions, redness, irritation)	5	23.5%
Early finding (previously observed lesion, no current complaints)	0	0%
Family history	1	4%
Referral after other examinations (mainly ultrasound)	5	24.5%
TOTAL	21	100%

Interpretation of health behavior

The comparison shows a clear change in women's motivation to undergo mammography during the month of October:

- In September, patients mainly underwent examination for clinically justified reasons or re-examination for existing pathologies.
- In October, over 65% of women underwent mammography without any concerns, as part of a routine check-up promoted by the awareness campaign.

This change reinforces the hypothesis that "Pink October" has a major impact on activating women for preventive check-ups. However, the lack of a consistent rhythm throughout the year casts doubts on the sustainability of this awareness and reinforces the notion that many women undergo screening out of fear and media incitement, rather than as part of an internalized culture of prevention.

Additional analysis of the behavior of women in the "check-up" category

To better understand the motivation of women who underwent mammography without any concerns (n=129), they were asked two additional guiding questions:

"Why did you decide to have this examination now?"

- 60% of patients said that they chose to have it done during October due to the more affordable prices offered during this period as part of campaign packages (77 patients).
- 40% of patients emphasized that they take this step due to increased exposure to information, through the media and social networks during the month of October (52 patients).

"Do you have this examination every year during this period?"

- 40% of women claim to have developed the habit of having a mammogram every year in October (52 patients).
- 60% stated that it was the first time or that they had not done it regularly (77 patients).

This information shows that although the increase in examinations during October is evident, in a good part of the cases the reasons are more related to economic benefits and the intensity of information, than to long-term individual awareness. At the same time, the fact that only 40% of women reported that they regularly have a mammogram every October suggests that preventive behavior is not yet consolidated, but rather influenced by seasonal factors or temporary campaigns.

Qualitative analysis

Impact of the Campaign

- Dramatic increase in the number of check-ups without concerns in October
- Visible change in the patient behavior pattern
- Predominance of preventive checks over those motivated by specific concerns

Sustainability of Awareness

- Immediate decrease in the number of examinations after October
- Lack of continuity in preventive behavior
- Strong dependence on the intensity of awareness campaigns

Comparison with international data

To place the findings in a broader context, a qualitative comparison was conducted with the international literature documenting the increase in mammograms during the month of October in other countries such as the USA, France, the United Kingdom and Italy, where the effectiveness of awareness campaigns has been associated with a temporary increase in the demand for examinations (Yildirim et al., 2023; American Cancer Society, 2024).

Analysis of breast ultrasounds during 2024

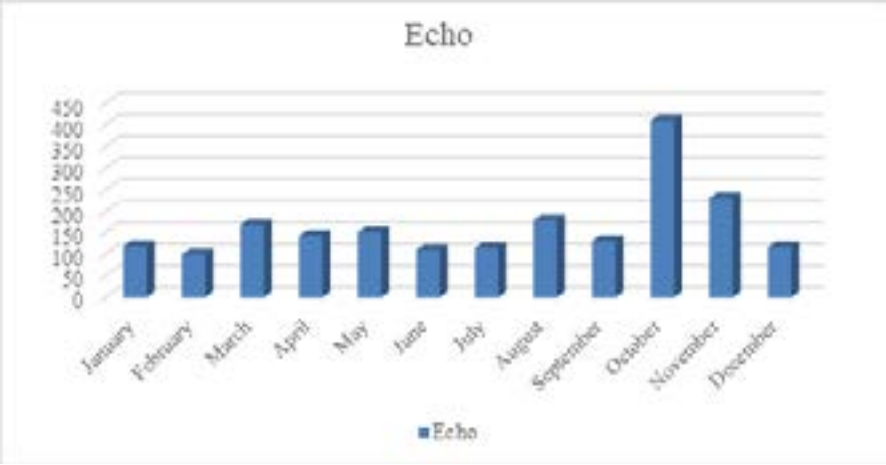
During the period January–December 2024, a total of 1965 breast ultrasounds were performed in the same health institution, with a more balanced monthly distribution compared to mammograms. Unlike mammography, which had a disproportionate weight in October (53.5%), ultrasound remained a more regularly used examination throughout the year with a percentage of around 20.8%.

- The highest point was also recorded in October, with 410 ultrasounds (20.8% of the total).
- The monthly average for ultrasound was 163.75 examinations, compared to only 30.6 mammograms/month.

TAB. 4. Monthly number of ultrasounds during 2024

Month (Year 2024)	Number of Ultrasounds	Percentage (%)
1. January	118	6%
2. February	99	5%
3. March	168	8.5%
4. April	142	7.2%
5. May	150	7.6%
6. June	109	5.5%
7. July	114	5.8%
8. August	179	9.1%
9. September	130	6.6%
10. October	410	20.8%
11. November	230	11.7%
12. December	116	5.9%
Total	1965	100%

FIG. 2. Monthly number of ultrasounds during 2024



TAB. 4. Comparison of Ultrasound vs Mammography

Feature	Ultrasound	Mammography
Total number (2024)	1965	368
Monthly average	163.75	30.6
Month with the highest number	October (410 cases)	October (197 cases)
October's share (%)	20.8%	53.5%
Year-round distribution	Balanced, with slight fluctuations	Strongly concentrated in October
Clinical use	More often as an initial exam	More often as direct screening
Seasonal trend	Moderate	Pronounced

Interpretation

Ultrasound has been consistently used as the first diagnostic examination for the breast, especially in young women or in cases with suspicious symptoms. Due to its non-invasive, radiation-free and less expensive nature, it has found wider and more sustainable use compared to mammography, which is more influenced by organized campaigns such as "Pink October".

Although ultrasound also shows a significant increase in October (more than 2.5-fold compared to the monthly average), the distribution of ultrasounds in different months suggests that it is less dependent on campaigns, and more on ongoing clinical indications.

On the other hand, mammography was used intensively only during the month of October, in response to the "Pink October" campaign and the economic offers it brings. This suggests that the use of mammography is more sensitive to social influences and awareness campaigns than to a daily culture of prevention.

Discussion

The results of this study show a dramatic increase in the number of mammograms performed during the month of October, namely 197 examinations, which constituted 53.5% of the annual total, compared to a monthly average of only 20 mammograms for the other months. This marked disproportionality confirms the direct impact of the "Pink October" campaign in activating women to perform mammography, but at the same time raises questions about the sustainability of preventive behavior.

Of the 129 women who performed mammography without having clinical concerns, 60% said that the reason was the economic offer (packages with reduced prices), while 40% linked the decision to the increase in information coming through the media in this month. Only 40% of them declared that they perform mammography regularly every year in October. This suggests that health awareness is still dependent on external factors, such as focused campaigns and financial incentives, and not the result of an internalized and sustainable preventive behavior.

In comparison, breast ultrasound was used much more regularly throughout the year, with a total of 1,965 ultrasounds (versus 368 mammograms). Although an increase was also observed for this method during October (410 ultrasounds, or 20.8% of the total), its monthly distribution was much more balanced. This indicates that ultrasound is used more for ongoing clinical indications and not only as a result of seasonal influences.

The difference between the use of ultrasound and mammography shows that the "Pink October" campaign has a strong impact on promoting mammography screening, but this has a greater impact on women who are not inclined to have regular check-ups throughout the year. In this context, the fundamental question of the study "Fear or awareness?" appears with intensity: many women act to "not miss the opportunity" during October, rather than because of an integrated practice of annual check-ups.

Conclusions

1. "Pink October" has an immediate and strong impact on increasing the number of mammograms, but this increase is mainly seasonal and driven by economic offer and media exposure.
2. Consistent awareness of breast cancer screening remains limited, as most women do not undergo mammography outside of this month.
3. Ultrasound remains a continuous diagnostic tool and less influenced by media campaigns, reflecting daily clinical use, especially at younger ages.
4. Only 40% of women who undergo mammography during October do so annually during this period, which indicates a lack of consistency in preventive behavior.

Recommendations

1. Expand awareness campaigns throughout the year, and not just in October, to promote continuity of preventive behavior.
2. Subsidizing mammograms in other months, so that women do not associate screening only with October offers.
3. Continuous training and awareness-raising for family doctors, to include breast cancer education in daily contacts with patients.
4. Developing personalized campaigns for high-risk age groups and for women with a family history, targeting them with concrete educational content.
5. Integrating ultrasound and mammography into unified protocols, especially in centers that offer screening, to ensure a more comprehensive approach.
6. Systematic collection and analysis of monthly data from public and private institutions, to assess the real effectiveness of campaigns and to guide health policies.
7. Implement nationally organized breast cancer screening programs targeting women aged 50–69 years, with mammography every two years, accompanied by systematic invitations and ongoing health education.

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Physical and Mental Health Impact of Ageism at Young and Elderly Populations – on overview

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Abstract

Introduction: *Ageism is a form of discrimination that affects individuals based on their age. Ageism is a prevalent social issue that can result in harmful health outcomes. Both young and older adults face unique health and wellbeing challenges, impacting their emotional, mental, physical health and quality of life.*

Purpose: *To assess the health consequences of ageism at young and older adults and suggesting potential interventions, policies and strategies to address these effects.*

Methodology: *This overview is based on a quick literature review focused on multidisciplinary research covering the past five years on the topic of ageism and its impact on mental and physical health on elderly and younger age groups, using PubMed, Scopus, and Google Scholar searches.*

Results: *Our oveview highlights key findings that ageism significantly impacts physical and mental health; in particular for certain younger and older adults groups. The mental health consequences include raised levels of stress, depression, and anxiety and has been linked to increased risks of physical health conditions, such as cardiovascular disease and other chronic illnesses. Those affected also experience stigmatization and social isolation, which can worsen individuals' mental health and deteriorate their physical health. Our review also found that key strategies to reduce health impacts of ageism focus on educating young and older adults about ageism, creating age-friendly policies and environment, monitor their progress, advocating for anti-age discrimination laws and their full implementation in practice.*

Conclusions: *Ageism has a negative impact on those affected both in terms of their physical and mental health often leading to poorer health outcomes and increasing the risk for premature mortality. It influences their daily lives and interactions with each-other as well as the entire society. Awareness campaigns promoting age equality and highlighting the harms of ageism are essential to reduce its negative effects and healthcare costs.*

Keywords: *ageism, discrimination, mental health, physical health, young, older adults*

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Introduction

Ageism is a form of discrimination based on an individual's age, which affect certain groups including both young and elderly populations and is a significant public health issue due to its negative impact on health and well-being (Bratt at al., 2018). The consequences of ageism are far-reaching, affecting mental, physical, and emotional health, and influencing quality of life.

Ageism affects everyone. According to the World Health Organisation (WHO), children as young as 4 years old become aware of their culture's age stereotypes. From that age onwards they internalize and use these stereotypes to guide their feelings and behaviour towards people of different ages. They also draw on culture's age stereotypes to perceive and understand themselves, which can result in self-directed ageism at any age. Ageism intersects and exacerbates other forms of disadvantage including those related to sex, race and disability. Ageism is everywhere: from our institutions and relationships to ourselves. For example, ageism is in policies that support healthcare rationing by age, practices that limit younger people's opportunities to contribute to decision-making in the workplace, patronizing behaviour used in interactions with older and younger people, and in self-limiting behaviour, which can stem from internalized stereotypes about what a person of a given age can be or do. (WHO, 2025).

Older adults are the most visible targets of ageism that in addition to portraying them as frail, dependent, and less capable, has adverse effects on their mental health, physical health, and overall quality of life (Ayalon et al., 2022). Ageist attitudes can lead to social isolation, which have a profound impact on mental health and contribute to the development of chronic diseases (Dahlberg et al., 2022). Older adults who face ageism are more likely to experience depression, anxiety, and a reduced sense of self-worth. The impact of ageism on the physical health is also significant. Those affected are reported to be at higher risk for developing cardiovascular disease, hypertension, and diabetes (Sun et al., 2023). Additionally, negative stereotypes about aging can result in inadequate medical care or a lack of attention to the health needs, leading to worsened health conditions over time (Langmann et al., 2023 and Araujo et al., 2023). The cumulative effect of ageism on both the mental and physical health of older adults can create a vicious cycle, where health issues lead to further marginalization, perpetuating feelings of helplessness and isolation.

Although ageism has been historically associated with older adults, the youth-focused ageism has increasingly drawn attention in recent years (de la Fuente-Núñez et al., 2021). Young adults face stereotyping, marginalization, and underestimation of their abilities due to their perceived lack of experience or authority (Chasteen et al., 2021). This discrimination can affect social integration, leading to increased stress and mental health issues including anxiety and depression (WHO, 2021). In addition to mental health struggles, young adults who experience ageism are at risk of physical health problems. Chronic stress, a common consequence of ageism, has been linked to several health issues, including cardiovascular diseases, hypertension, and gastrointestinal problems (Henry et al., 2024). Except this, individuals who are isolated may be less likely to engage in physical activity or maintain a healthy lifestyle (Hu et al., 2021). In addition, they may be more likely to engage in unhealthy behaviours such as smoking, substance abuse, or poor dietary habits, further exacerbating their physical health issues (Menkin et al., 2020).

Purpose

The purpose of this overview is to explore how ageism influences health outcomes in both young and elderly populations, with a particular focus on mental health, physical health, and to identify potential intervention strategies.

Methodology

This overview provides a summary of key findings from a list of selected research articles with a focus on the health and wellbeing impacts of ageism to both individuals and at-risk groups (young and older adults). A comprehensive literature review (covering the last ten years) was conducted searching various academic research platforms including PubMed, Scopus, and Google Scholar using the keywords such as "ageism," "mental health," "physical health," "young adults," and " older adults." This mini review synthesizes research and highlights key findings from multiple disciplines, including psychology, public health, and gerontology.

Results

In this section, we aim to present some of our key findings that highlight the nature of ageism as a social issue and a significant public health concern, with implications for both mental and physical well-being on certain affected groups

including younger and older population segments. Mental health consequences, including depression, anxiety, and raised stress levels, are more prevalent among individuals who experience age-based discrimination. These mental health outcomes, in turn, have significant effects on physical health, contributing to the development of chronic conditions, weakened immune system, and reduced longevity as well as the quality of life (Jackson et al., 2019).

Older adults: One of the key findings was that older individuals tend to encounter more overt and persistent forms of age-based discrimination, as they are often viewed and treated as frail, cognitively impaired, and as consequence often socially excluded. The perception of aging as a time of decline, dependency, and reduced capability often leads to social marginalization, health disparities, and stigmatization (Levy et al., 2020). This social stigma contributes significantly to certain individuals that feel more socially isolated. Our review has shown that social isolation among older adults is one of the most damaging effects of ageism, and is also linked to poorer mental health outcomes, including depression and cognitive decline (Ribeiro -Gonçalves et al., 2023). Moreover, social isolation in older adults has been shown to increase the risk of mortality, with studies suggesting that socially isolated individuals have a significantly higher risk of premature death (Sherman et al., 2024).

Ageing stereotypes: Negative ageing stereotypes also result in lower self-esteem and a higher likelihood of developing mental health conditions such as depression, loneliness, and anxiety. A study by Kang et al. (2022) indicated that elderly individuals who encounter discrimination are more likely to report feelings of hopelessness and social withdrawal, which contributes to poor mental health. Numerous studies have shown that the impact of ageism on mental health issues leads to an increased risk of cardiovascular disease, diabetes, and early mortality (Allen et al., 2016) and accelerates the onset of various chronic conditions (Levy et al., 2020). Additionally, social isolation, a byproduct of ageism, is linked to a reduced immune response, poor physical functioning, longer recovery times from medical procedures as well as premature death (Ungar et al., 2024). According to Fernandez-Puerta et al., 2024, older adults could also face neglect and discrimination in receiving medical care, being less likely to receive timely and effective treatments for chronic conditions, putting them at higher risk of complications and premature mortality. Other authors have identified that among factors associated with age discrimination in health care are insufficient training in aging (Palsgaard et al., 2022), as well as erroneous beliefs - such as the perception that older adults are less competent and more difficult to treat (Jeyasingam et al., 2023).

Levy also upends the stereotype that all types of cognitive abilities inevitably worsen with age. It's true that some cognitive skills, such as reaction times, tend to slow a bit over time. But other functions remain robust and even improve. One study of older adults, for instance, showed they were better than middle-age adults at orienting their attention and ignoring distractions (Veríssimo, J., et al, 2022).

It seems that getting older offers some other benefits. As people age, they tend to become more agreeable and more conscientious. Older adults also tend to be better at regulating their emotions. "These are positive changes that can lead to overall greater social maturity. These changes often mean we get along better with others, and we may pay better attention to health or put ourselves in fewer risky situations

Such changes may be partly responsible for another observed phenomenon, known as the paradox of aging, where "Older people tend to report greater happiness and life satisfaction compared to younger people" (Weir, K. (2023).

Although some researchers think that there is evidence for the so-called happiness curve (a U-shaped trend in which happiness levels are lowest at midlife), in a recent economic analysis, that took a comprehensive look at data from 145 countries, concluded that, in fact, happiness sinks to a low-water mark in middle age before increasing again through later adulthood Blanchflower D. G. (2021). Other research suggests that, contrary to popular belief, mental health also improves across the life span

Young adults: While most of the reviewed literature has focused on the negative consequences of ageism on older adults, young people are similarly affected by age-based discrimination, as well. Our report found that a growing body of evidence suggests that younger people are also subjects to age-related discrimination based on perceptions of inexperience, irresponsibility, or entitlement. Young people frequently experience discrimination from a professional and social context perspective, which can also have significant consequences for their health (Bratt et al., 2020). A study by de la Fuente-Núñez et al., (2021) and Fowler et al. (2023) reported that young adults who face age-related discrimination in educational or workplace settings report higher levels of stress, anxiety, and depression. According to this study, 47% of young adults reported feeling marginalized or disregarded in workplace settings due to their age, which often resulted in higher levels of anxiety and depression.

Most of studies investigated that mental health consequences for younger individuals experiencing 'ageism', have been linked to physical health problems (Lacey et al., 2022). These findings suggest that ageism is not just a mental health issue; it is a public health issue with long-term consequences for individuals across the lifespan. The physical health consequences of age-based discrimination are also profound to young populations and plays a critical role in their physical health and well-being. Chasten et al., (2021) and de la F. Kuehne et al., (2022) found that young adults subjected to age discrimination developed chronic conditions such as obesity, hypertension, digestive problems, and long-term metabolic issues. Also, chronic stress is well-documented to contribute to development of long-term health issues due to impaired immune function, increased inflammation, and altered metabolic processes (Officer et al., 2018).

Ageism in the workplace: Ageism in the workplace affects hiring and promotion decisions. In medical settings, stereotypes associated with aging may influence treatment decisions. For instance, people may incorrectly assume older adults are too

frail for receiving more aggressive cancer therapies. In the mental health field, most psychotherapists don't receive adequate education in Gero-psychology, and age bias and stereotypes can influence their attitudes and practices. In a chapter on ageism and mental health, evidence revealed that many psychotherapists exhibit a preference against working with older patients, assume less favourable prognoses for older patients, and believe that depression is a natural consequence of older age (Voss, P., at al. 2018).

Systematic reviews and meta-analyses consistently indicate that evidence-based interventions, particularly those incorporating intergenerational contact and educational components, effectively mitigate ageism among both young and adult populations. Combined approaches that integrate educational content with opportunities for intergenerational engagement yield more substantial improvements in attitudes toward older adults compared to singular intervention methods. Furthermore, interventions aimed at enhancing knowledge about the aging process and fostering empathy have been shown to produce positive attitudinal and behavioural changes. The efficacy of these interventions appears to be moderated by demographic factors, with younger individuals—especially females in adolescent and young adult cohorts—demonstrating greater responsiveness to ageism reduction efforts (Nelson TD, 2019).

Conclusion

Ageism is a significant public health and social issue that affects individuals across the age spectrum, contributing to poor mental and physical health outcomes through systemic discrimination. It impacts multiple sectors - healthcare, employment, and education by fostering exclusion, stress, and reduced access to resources.

As the evidence suggest, some of the most effective interventions to address ageism include educational activities, intergenerational contact, and policy changes. In addition, interventions that combine education about ageing with efforts to increase intergenerational contact have been shown to be most effective. These interventions aim to challenge negative stereotypes and promote more positive attitudes towards older adults.

Addressing ageism also requires integrated policy reforms at the highest level that would include inclusive practices that promote intergenerational equity at any level. This is an ongoing and effective process that would require integrating of ageism into school curricula as well as workplace training to raise awareness of the harmful consequences of ageing. More research and targeted interventions to those found to be at higher risk are essential to mitigate its effects and improve health and well-being across all age groups. The evidence suggests the need for more societal messages about aging impact to a person's health and wellbeing. It is seen that people who take in more negative age beliefs tend to show worse physical, cognitive, and mental health. However, the good news is that those who are exposed to or develop more positive age beliefs tend to show benefits in physical, cognitive, and mental health.

Study Limitations

Ageism is a complex area with ongoing research. This literature review is a valuable way for summarizing existing research on this topic, but however, it does present limitations including dependence on previously published studies, potential publication bias, cross-cultural variability, and insufficient exploration of intersecting forms of discrimination. Despite these limitations, we hope that our review provides consolidated knowledge and identifies recent trends in this important and trendy age-related field.

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Aligning nursing education in Albania with European Union standards: Challenges and opportunities for curriculum improvement at non-public universities

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Abstract

The Albanian Council of Ministers' Decision No. 823 (DCM, 28.12.2023) introduces significant reforms to bachelor's programs in nursing and midwifery, mandating transformative changes in Higher Education institutions (HISs) by 2027. These reforms require a substantial increase in clinical practice hours for students, alignment with European Union (EU) standards, and the development of new educational strategies. This study aims to analyze the current state of nursing curricula in Albanian HEIs, identify gaps between existing programs and the DCM's requirements, and propose actionable steps for standardization. A comparative analysis of HET curricula, the DCM framework, EU standards, and scientific literature (e.g., PubMed) reveals notable disparities, particularly in clinical training and social sciences integration. Few HEI programs currently align with the DCM's recommendations, underscoring the urgency of curricular reform. Key priorities include:

- *Designing a competency-based training model to bridge theory - practice gabs.*
- *Updating curricula to reflect digital/AI advancements and interdisciplinary collaboration.*
- *Providing faculty training and fostering inter-institutional cooperation.*

This study highlights the need for systemic changes in nursing education, emphasizing stakeholder collaboration, standardization, and adherence to EU benchmarks to prepare future nurses effectively.

***Keyword*:** *Council of Ministers' decision, nursing curricula, European Union, higher education, standardization, clinical training.*

Introduction

Albanian's healthcare and education systems are undergoing significant reforms to meet European Union (EU) accession requirements, particularly in nursing and midwifery education. The recent Council of Ministers Approval No. 823 (28.12.2023) mandates curriculum revisions set for implementation in the 2007-2008 academic year. As an EU candidate country, Albania must adopt the *acquis communautaire*—the body of EU laws and standards— including Directive 2005/36/EC on professional qualifications (Strengthening Nursing and Midwifery, 2021; European Union, 2025). These reforms aim to produce a new generation of nurses equipped with EU-aligned competencies while addressing systemic gaps in education quality, faculty expertise, and clinical training.

The nursing profession has significantly evolved in the last three decades: community-based healthcare, the use of more complex therapies and constantly developing technology presuppose a capacity for higher responsibilities for nurses. Nurse training, the organisation of which still differs according to national traditions, should provide a more robust and more output-oriented assurance that the professional has acquired certain knowledge and skills during the training, and is able to apply at least certain competences in order to pursue the activities relevant to the profession (*EU Law - EUR-Lex*, n.d.).

Even EU, has design, formal qualifications a nurse responsible for general care shall provide evidence that the professional in question is able to apply at least the following competences regardless of whether the training took place at universities, higher education institutions of a level recognised as equivalent or at vocational schools or through vocational training programmes for nursing (*Consolidated TEXT: 32005L0036 — EN — 20.06.2024*, n.d.).

The Bologna Process and EU Framework

The modernization of nursing education is rooted in the Bologna Process, initiated in 1999 to harmonize higher education across Europe. The Bologna Declaration established the European Higher Education Area (EHEA), to standardize higher education across Europe, promoting academic mobility, inclusivity, and global competitiveness (The Bologna Process and the European Higher Education Area, 1999). Objectives of higher education in aligning with the European Qualifications Framework (EGF) includes: Academic mobility, for students and faculty; Competency- based learning; Recognition of higher education as a "public good and responsibility" (Council of Europe, 2024), emphasizing the need for standardized, competency-based training in nursing.

As an EU candidate country, Albania must align its nursing education with EU Directive 2005/36/EC and the Bologna Process to ensure professional mobility and healthcare quality. The EU mandates:

1. Minimum 3-year tertiary education for nurses, combining theory and clinical practice.
2. Core competencies in patient care, communication, and evidence-based practice.
3. Compliance with the European Qualifications Framework (EQF) for lifelong learning (EUR-Lex, 2024).

These reforms aim to produce a new generation of nurses equipped with the knowledge, skills, and attitudes necessary to address national and EU healthcare challenges.

WHO guidance

Further guidance comes from the World Health Organization (WHO), which outlines strategic priorities for nursing and midwifery education (2021–2025). The WHO emphasizes:

1. Aligning education with optimized roles in health systems and academia;
2. Increasing domestic graduates to meet healthcare demands;
3. Implementing competency-based curricula tailored to population health needs;
4. Training faculty in advanced pedagogy and clinical expertise (WHO, 2021).

Adoption of these standards is critical not only for EU accession but also for elevating Albanian's health care system, improving patient outcome, and fostering workforce mobility (European Commission, 2025).

Nursing Education Reforms in EU Candidate Countries

Bologna process is widely applied in Albania' neighbouring countries.

Montenegro's Successful transition

Montenegro, having joined the Bologna Process in 2003, offers valuable lessons, on curriculum harmonization. They implemented ECTS credit system by 2006, established national competency framework aligned with EQF by 2010. The result: 92% of nursing graduates meet EU standards (Podgorica Medical School, 2022). The new Clinical Training Model includes: Mandatory 1:5 student -to-preceptor ration in hospitals; government-funded simulation centres in all public universities. As a result, 40% increase in graduate employability (EU Progress Report, 2023).

Serbia's Faculty Development Program

Serbia's approach to educator training (2018-2030) resulted in 65% of nursing faculty trained through EU exchanges and established "Train the Trainer" programs with Budapest Semmelweis University. Impact, reduced faculty qualification gap by 58% (Belgrade Nursing Journal, 2023).

Challenges in Aligning Albanian Nursing Education with EU Standards

Despite governmental efforts (e.g., Council of Ministers Decision No. 823, 2023), Albania faces significant hurdles:

a. *Curriculum Deficiencies*: Outdated programs lack digital health, patient safety and EU competencies. Slow adoption of evidence-based practice and interprofessional education. Gaps in professional competency frameworks hinder the development of EU-compliant curricula.
b. *Lack of Contemporary Literature*. Limited access to updated textbooks in Albanian language and scientific journals, forcing reliance on foreign-language materials. Insufficient library investments, particularly in scientific journals and digital resources. Impact: Nurses struggle with lifelong learning due to language barriers and outdated local resources.
c. *Faculty Development Gaps*. Uneven access to continuous professional development (CPD) for educators. Heavy reliance on traditional lecture methods over simulation or interactive learning. Erasmus + project have improved international collaboration but require scaling (Ministry of Education, 2025).
d. *Clinical training shortfalls.* Insufficient supervised practice in modern health care facilities. Mismatch between university curricula and hospital needs.

Faculty Development and Expertise in Nursing Education

The quality of nursing education is intrinsically linked to the competence and preparedness of faculty members. In Albania, while efforts have been made to enhance educator qualifications, significant gaps remain in continuous professional development (CPD), modern pedagogical methods, and alignment with EU teaching standards. Many nursing educators

lack access to updated training programs in evidence-based teaching, digital health, and EU competency frameworks. Albanian HEIs have participated in Erasmus Mundus and Erasmus+ projects, facilitating academic exchanges between the Western Balkans and the EU. Since 2014, the National Erasmus+ Office (NEO) has promoted mobility and staff training, though participation remains uneven across institutions. These programs have improved international cooperation but have not yet fully translated into structural reforms in nursing education. EU Directive 2005/36/EC emphasises that nursing training must ensure educators can:

- Teach evidence-based practice and modern health care technologies.
- Supervise clinical training effectively, aligning with EU competency benchmarks.
- Adapt to evolving roles, such as community-based care and digital health integration (EUR-Lex,2024).

Government Policy and Reforms

Albanian's Ministry of Health and Sports has initiated reforms to address these gaps. Higher Education Policy Document 2030, focuses on human *capital development and EU standards alignment*. Decision No.823 (2023) standardizes nursing training, requiring competencies in:

- Independent Care Planning
- Crisis Management and health promotion.
- Quality assurance and patient advocacy) Official Gazette, 2023).

To align with EU recommendations is required; Curriculum Modernisation (integrate EU competency frameworks, digital health modules and translate WHO/EU guidelines into Albanian); Faculty Capacity Building (mandate annual CPD in evidence-based teaching, and expand Erasmus + exchanges for nursing educators.); Clinical Training Enhancement (forge university-hospital partnerships for structured placements, invest in simulation lab to supplement limited clinical sites.); and Policy Implementation; (establish a national Nursing Education Task Force to monitor reforms, and leverage EU funding mechanisms, Instrument for Pre-accession Assistance {e.g., IPA III) for infrastructure upgrades) (*Albania - Financial Assistance Under IPA*, 2022).

Purpose

The aim of this study is to analyses the current situation, assesses the need for change, and examined the role of Higher Education Institutions (HEIs). This quantitative study explores the challenges that Albanian Higher Education Non-Public Institutions face in meeting EU nursing education standards, and implementing Decision of the Council of Ministers (DCM) No. 823.

Objective

This analysis will assess the necessity for:

1. Reforming Nursing Curricula,
2. National standardization of curricula,
3. Preparing higher educational non-public institutions in alignment with academic programs,
    1. Staff training and development,
    2. Coherent nursing literature etc.

Methodology

This comparative study aims to establish the foundation upon which new curricula should be developed. To achieve this goal, data will be collected from the official websites of non-public HEIs, the Ministry of Education and Sports (MASH), EU standards, as well as references from PubMed and other scientific sources.

Data Collection

To compare the nursing study programs of non-public universities with the program recommended by the European Union (EU) for nurses, the following steps were taken:

- The nursing study programs of the six non-public universities included in the study were downloaded. This information is typically available on the official websites of the universities or in their academic catalogues.
- Documents outlining the standards recommended by the EU for nursing education were collected. The EU has specific regulations, such as Directive 2005/36/EC (updated by Directive 2013/55/EU), which define the minimum qualification requirements for nurses.
- Decision of the Council of Ministers (DCM) No. 823, dated 28.12.2023 — which amends DCM No. 41, dated 24.1.2018, "On the elements of study programs offered by higher education institutions," as amended — was taken into account.
- The data obtained from the official documents posted on the universities' websites were organized according to the core areas upon which the curriculum should be built, as defined by the approved DCM and EU standards:
  1) Theoretical Education
  2) Basic Sciences
  3) Social Sciences and
  4) Clinical Training.
- Course credits are considered to meet the recommendations of the Council of Ministers if they have an equal or greater number of credits compare with recommended credits.
- The main discrepancies between the EU recommended nursing curricula and Albania non-public universities are reflected in the table, where the red part indicates non-compliance and green compliance with the EU program.
- Courses that have less than the recommended number of credits per subjects are considered as courses that do not meet the standard.

According to the defined standards for nursing study programs, the following criteria must be met: the program must include 180 ECTS credits and maintain a balance between theoretical knowledge and clinical practice, where theory comprises at least one-third and practical training at least half of the duration of the training.

Results

A comparative analysis of the credit structure of nursing programs in public universities, compared to European Union (EU) standards, identified differences in credit completion and subject weighting. The comparison of nursing programs at non-public HEIs with EU recommendations reveals:

Non-alignment with standards defined by the DCM, and EU, such as discrepancies in course credit' allocation. Some universities show significant differences in the ECTS credits assigned to the same course. For example:

- The course "Nursing: General Principles of Health" ranges from 1.5 ECTS (U3) to 11 ECTS (U6).
- The course "Anatomy and Physiology" ranges from 6 ECTS (U6) to 16 ECTS (U1 and U3).

Lack or insufficiency of certain courses: Some universities either do not offer all the required courses or offer them with insufficient credits. For instance, the courses "Preventive Medicine and Hygiene" and "Elderly Care and Geriatrics" do not meet the credit requirements defined in the DCM in several institutions (PMH- U1; U2; U3; U5 and ECG -U1; U4; U3; U4; U5). *Under-crediting in some categories:* Some universities offer fewer than the required ECTS for clinical practice.

Conclusions for the "Theoretical Formation" category

The required credits set by the Government Decision (DCM) and the Bologna Process (BE) are only 39.5 % fulfilled. Notably, one university lacks a core component of theoretical training: "*Maternity Care" (U6).* Another university omits the course *"Elderly Care and Geriatrics."* (U1). Additionally, some other subjects have disproportionately high credit allocations (see Table no 1). From 8 subjects only 4 of them comply with DCM recommendations at a rate > 62,4 % and the other four important subjects have insufficient number of credits allocated to meet the requirements. Despite credits allocation three of universities meet up with credits recommended although the allocation of credits per subject has fundamental inconsistencies. Two of the subjects in this category are not completed by any of the universities. (see Table no. 1).

TABLE NO.1 – Reflection of the 'Theoretical Training' category between the EU recommendations and non-Public Universities.

Nr	TRAINING PROGRAMME	BE	U1	U2	U3	U4	U5	U6	Compli-ance
	Theoretical Instruction	ECTS	ECTS	ECTS	ECTS	ECTS	ECTS	ECTS	%
1.	Nursing: Nature and ethics of the profession	5	3	1	5	3	2	9	33.3
2.	Nursing: General principles of health and nursing	5	6	7	1.5	10	7	11	83.3
3.	Nursing: Nursing principles in relation to: - General and specialist medicine	7	10	9.5	9.5	10	6	7	83.3
4.	- General and specialist surgery:	7	14	11	7	14	5	14	83.3
5.	- Child care and paediatrics	7	6	6	4.5	4	3	7	16.6
6.	- Maternity care	7	5	5	2.5	6	1	0	0
7.	- Mental Health and psychiatry	7	6	2	1	4	2	5	0
8.	- Care of the old and geriatrics	5	0	3	1	2	1.5	5	16.6
	Total credits per category	50	50	44.5	32	53	27.5	58	39.5

Conclusions for the "Basic Sciences" category

Only about 61.8 % of the required credits are met. A key concern is the absence of *"Health Education"* across all faculties and *"Hygiene: - Preventive medicine; -Health education"* is missing in two faculties (U1; U2.), while there are extreme variations in credits for courses like *"Anatomy and Physiology"*, ranging from 6 to 16 ECTS. All universities studied meet and exceed the number of credits recommended for this category. A large difference is seen in the weight of credits in a given subject. (see Table 2).

TABLE NO. 2 – Reflection of the 'Basic Sciences' category between non-Public Universities and the EU.

Nr	TRAINING PROGRAMME	BE	U1	U2	U3	U4	U5	U6	Compliance
	Basic science:	ECTS	ECTS	ECTS	ECTS	ECTS	ECTS	ECTS	%
9.	- Anatomy and Physiology	8	16	9	16	14	8	6	83.3
10.	- Pathology;	4	11	2	1.5	12	9	6	66.6
11.	- Bacteriology virology and parasitology	2	6	6	2.5	10	3		83.3
12.	- Biophysics, biochemistry and radiology	2	5	7.5	8.5		3	4	83.3
13.	- Dietetics	2		1.5	2		3		33.3
14.	- Hygiene: - Preventive medicine -Health education	4			1.5	3	1	15	16.6
15.	- Pharmacology	4	5	3	3	12	4	4	66.6
	Total credits per category	26	43	29	35	51	31	35	61.8

Conclusions for the "Social Sciences" category

Only about 22.2 % of the required credits are fulfilled. Recommended courses in this category are missing, such as "Principles of Administration" in four universities and "Legal Aspects of Nursing" and "Principles of Teaching" in all universities included in the study (see Table no. 3).

TABLE NO. 3 – Reflection of the 'Social Sciences' category between non-Public Universities and the EU recommendations.

Nr	TRAINING PROGRAMME	BE	U1	U2	U3	U4	U5	U6	Compliance
	Social sciences;	ECTS	ECTS	ECTS	ECTS	ECTS	ECTS	ECTS	%
16.	- Sociology	3	6	2	2	3	1.5		33.3
17.	- Psychology	3	6	2	2		1.5		16.6
18.	- Principles of administration	2					3	3	33.3
19.	- Principles of teaching	2			0.5		1		0
20.	- Social and health legislation	2	3	1.5	2		1	4	50
21.	- Legal aspects of nursing	2							0
	Total credits per category	14	15	5.5	6.5	3	8	7	22.2

Clinical Training

Only about 16.6 % of the required clinical training credits are met. Most institutions lack the recommended credit hours for clinical practice. Only one university meets nearly all the required clinical practice hours. Among all clinical areas, nursing in Internal Medicine, Surgery, and Paediatrics receives the most attention compared to other subfields. It should be mentioned that:

Lack of clear data on the practical component

The EU requires that clinical practice account for at least 50% of the program. However, the data regarding clinical training were often unclear or not transparently presented. These discrepancies may impact the alignment of Albanian nursing degrees with EU standards. This means that students have less practical experience in hospitals and clinics compared to their EU colleagues. (see Table no. 4).

TABLE NO. 4 – Overview of the category 'Clinical Training' between non-Public Universities and the EU recommendations.

Nr	TRAINING PROGRAMME	BE	U1	U2	U3	U4	U5	U6	Compliance
	Clinical Instruction	ECTS	ECTS	ECTS	ECTS	ECTS	ECTS	ECTS	%
1	- Nursing in relation to: general and specialist medicine	15	8	8	13	4	5	20	16.6
2	Nursing in relation to: general and specialist surgery	15	8	11	15	6	10	20	33.3
3	Nursing in relation to: child care and paediatrics	15	8		15	8	5	15	33.3
4	Nursing in relation to: maternity care	15	6	10.5	12.5		9	0	0
5	Nursing in relation to: mental health and psychiatry	15			8.5		4.5	10	0
6	Nursing in relation to: care of the old and geriatrics	7					3	7	16.6
7	Nursing in relation to: home nursing	8					4	8	16.6
	Total credits per category	90	30	29.5	64	18	40.5	80	16.6

Compatibility Analysis

These are the subjects that all universities have include and are standardized according to the DCN recommendations: Anatomy and physiology; Pharmacology; Nursing: General principles of health and nursing; Nursing principles in relation to: General and specialist medicine and General and specialist surgery; - Bacteriology, virology and parasitology; Biophysics, biochemistry and radiology; and Pathology.

These are the subjects that all universities have not include and are not standardized according to the EU; - nursing care subjects, clinical training program, principles of teaching, health care education. Practical training is weak in almost all universities, with the exception of U6. Universities lack social sciences and administrative training, which are essential for the nursing profession. Only one university reaches 180 ECTS, indicating the need for major improvements.

TABLE NO. 5 – Completion of credits according to EU and DCM standards.

Category	BE	U1	U2	U3	U4	U5	U6
Theoretical Instruction (ECTS)	50	50	44.5	32	53	27.5	58
Basic science: (ECTS)	26	43	29	35	51	31	35
Social sciences (ECTS)	14	15	5.5	6.5	3	8	7
Clinical Instruction (ECTS)	90	30	29.5	64	18	40.5	80
Total number of ECTS	180	138	108.5	137.5	125	107	180
Compatibility with DCM program	100 %	76%	60%	76%	69%	59%	100%

Limitations

The above analysis is useful for understanding whether universities meet basic EU standards for Nursing education programs; however, it has several disadvantages and limitations.

Differences in course content

Based on the available data, it is not possible to confirm whether the programs fully meet the requirements for clinical practice. Even if universities allocate the same number of credits to certain courses, the specific content of those courses may differ. Two courses with the same title and number of ECTS credits may cover different topics. For example, a Pharmacology course at one university might focus more on nursing applications, whereas another might address general pharmacological principles. Without a detailed analysis of course syllabi, we cannot conclusively determine whether the content aligns with EU standards.

Lack of analysis of teaching methods

The EU does not only require a specific distribution of credits but also emphasizes effective teaching methods. Teaching in EU countries is generally focused on competency-based learning and practical skills development, whereas some universities still rely heavily on theoretical approaches. If a university places excessive focus on theory and lacks simulations, modern laboratories, or hands-on training, its degrees may be less competitive in the job market.

Comparison limited to a single government-provided standard

EU standards provide general guidance, but many EU member states have additional requirements for nursing licensure. For example, Germany and France have stricter criteria for recognizing foreign degrees, even if the program aligns with EU directives. Therefore, even if Albanian programs match EU standards, it is not guaranteed that the degrees will be recognized in every EU country without fulfilling additional requirements.

The primary limitation

The core limitation of this analysis is that it is based solely on credit allocation and does not account for the quality or content of the courses. It is important to note that the EU does not have a single unified program for nursing education but rather sets standards and guidelines for member states. One such regulation is: Directive 2005/36/EC (updated by Directive 2013/55/EU), which is the main regulation establishing minimum standards for the education of general care nurses. The directive requires a minimum of 4,600 hours of training (at least one-third theoretical and at least one-half clinical practice) for programs to be recognized across the EU. It also outlines core subjects such as nursing care, basic sciences, health education, and promotion, and includes a list of competencies that a nurse must possess upon graduation.

Conclusion

A comparative analysis of the credit structure of nursing programs in public universities, compared to European Union (EU) standards, identified differences in credit completion and subject weighting. Albanian university nursing programs do not reach the EU standard in terms of the total number of credits and especially clinical training. Some universities

are closer to the standards (e.g., the U 6 has 180 ECTS), which is closer to the EU 180 ECTS), while others have major shortcomings. Improvements should focus on increasing credits for practical training and the inclusion of missing or low-credit social and medical science subjects.

In conclusion, it can be stated that several universities do not fully meet the EU standards. Improvements are needed in practical training, curriculum structure, and program duration. It is recommended to align nursing programs with EU models to facilitate degree recognition and enhance the mobility of Albanian nurses across Europe.

Some universities have followed a model that closely resembles EU standards, while others have significant gaps in course offerings or insufficient credits in core areas. The variation in credit distribution across institutions indicates a lack of standardization both internally and with the EU framework.

To achieve full compliance with the Decision of the Council of Ministers (DCM) and EU standards, universities must ensure a more balanced distribution of credits and meet the requirements for clinical training.

The path toward aligning nursing education in Albania with EU standards is filled with challenges, but it also presents a unique opportunity for growth and improvement. By reforming curricula, increasing clinical training, investing in faculty development, and promoting standardization, Albanian Higher Education Institutions (HEIs) can ensure that their nursing graduates are well-prepared to meet the demands of modern healthcare and contribute to a more integrated and effective European healthcare system.

Recommendations

Aligning nursing education with EU standards requires a collaborative effort involving policymakers, educational institutions, healthcare providers, and international partners. By doing so, Albania will not only meet EU standards but also set a regional benchmark for excellence in nursing education. To align with EU recommendations', HEI should take reforms in curriculum modernisation, faculty capacity building, clinical training enhancement, and policy implementation. By addressing these challenges, Albania can not only improve the quality of nursing education but also strengthen its healthcare system and move closer to European integration.

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The Influence of Lifestyle on Health Status of Young People

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Abstract

Introduction: *Lifestyle choices among young people significantly impact their health and well-being. This population group is particularly susceptible to developing habits that can positively or negatively affect their long-term health.*

Aim of the study: *This study aimed to investigate the attitude to health and the influence of lifestyle choices on the health outcomes of a sample of young adults.*

Method: *The study was a descriptive cross-sectional study. A structured questionnaire was administered to 100 students, aged 18-25 years old, 60% females and 40% males to collect lifestyle and health status data. The questionnaire included information regarding physical activity, dietary habits, practice of diets, sleeping habits, smoking and alcohol use, health check-ups and information about any health disorder that emerged recently.*

Results: *The study found out that a very high number of young people (about 40%) lacked attention to their health status. Most students were aware that they do not eat healthy food, 35% eat mostly fast foods and 49% of them have practiced diets during the recent year. The majority suffered lack of sleep: 67% slept less than 7 hours per night. 70% smoked and more than one third of the students consumed alcohol regularly every weekend. Regular physical activity was followed by 29% of the sample. Obesity is a major issue of concern, as one quarter of this sample reported obesity (25%) and a further 22% reported suffering hyperlipidemia. 38% of the students self-reported that their health status is bad. One quarter of the students have never had done a health check-up.*

Conclusions: *Young people had little information about lifestyle consequences and showed little care about their health status. Despite referring their bad lifestyle choices, they were not particularly concerned. Their lifestyle aligned with contemporary trends, while health education and early disease prevention is de-emphasized in this age group.*

Keywords: *lifestyle, health status, obesity, nutrition, sleep, substance abuse, young people*

Introduction

A healthy lifestyle for young adults involves making conscious choices about nutrition, sleep, exercise and avoiding alcohol and smoking. Establishing these habits early on can significantly have an impact on their long-term health. Chronic diseases are influenced by long-term inappropriate habits and health behaviors, on the other hand healthy behaviors inhibit the onset of cardiovascular disease, some cancers, and Type-II diabetes, which are leading causes of death and disability.

Studies show that as adolescents transition to young adulthood, they engage in significantly fewer healthy behaviors (Frech, 2012). Young generation is strongly influenced by trends and information in social media, which shape their dietary behaviors and lifestyle. Social media provide a lot of information which might be helpful, but on the other hand it exposes young people to the appeal of fast food and processed snacks, challenging their efforts to maintain a balanced diet.

Research has long established the importance of individual health behaviors for adult morbidity and mortality. In Albania specifically, Non-Communicable Diseases such as diabetes, cardiovascular diseases, chronic respiratory conditions, and

cancer are responsible for approximately 85% of the overall disease burden. Dietary risks account for about 30% of the total mortality rate and about 15% of the overall burden of disease in Albania (Burazeri G., 2020). However, we know little about health behaviors among young adults in Albania. Understanding the correlation between lifestyle factors such as dietary habits, exercise, sleep, substance use and the prevalence of diseases in young people is essential for developing effective health promotion strategies.

Aim of the Study

University students' knowledge of healthy lifestyles has been studied. However, this knowledge often does not necessarily translate to healthy food choices and conscious lifestyle behaviors, and furthermore we know little about health behaviors among young adults in Albania. This study aimed to investigate the influence of lifestyle choices on the health outcomes of a sample of students at the European University of Tirana, as well as their attitude to health, with a focus on identifying key factors that can contribute to the development of illnesses.

Objectives

1. To identify the youth lifestyle and the status of their health.
2. To identify how much the youths care and have a focus on their health.
3. To identify a possible correlation of their health choices in the appearance of illnesses.
4. To identify their attitude to health (health awareness and the measures they take to take care of own healthcare)

Method

We investigated the impact of lifestyle on health status of youths by analysing data collected from a questionnaire administered to 100 students, aged 18-25, 60% females and 40% males. The questionnaire included sociodemographic data, lifestyle information (regarding physical activity, dietary habits, practice of diets, sleeping habits, smoking and alcohol use), self-reported status of their health (any health disorder that emerged recently), as well as health education (health awareness, check-up).

Sample

TABLE 1: Demographic characteristics of the sample

Demographic characteristics of the sample	%
Gender female male	60% 40%
Age groups 18-20 years old 21-23 years old 24-25 years old	 22% 32% 46%

Research Questions

Research Question 1: How do Albanian young people care about own health? Which is their lifestyle regarding eating habits, sleeping habits, physical activity, substance use? Which is their attitude to health and health seeking services?

Hypothesis 1: Young people do not care much about their own health. Their lifestyle follows the trend of their generation, but they are not very interested in medical information or visiting health services.

Research Question 2: How do lifestyle and health choices affect illnesses?

Hypothesis 2: In youths the most prevalent disorder related to lifestyle and health choices is obesity.

Results

Table 2 presents the findings of this study related to the lifestyle of young people, as well as their attitude and health education. Frequency of behaviors show the level of adherence to a healthy lifestyle in respect to healthy eating, exercise, sleeping habits, substance use, self-reported status of their health, as well as health education (health awareness, check-up).

TABLE 2: Level of adherence to healthy lifestyles among respondents

Question topic	Response	(%) n = 100
Healthy eating classification	- bad - average level - good	43% 44% 13%
Eating habits	- mainly at home - mix, mainly at home - mix, mainly eating out - delivery of personalized diet - mainly eating out - mainly fast food	5% 12% 31% 4% 13% 35%
Practice of diets	- no diet - once - several times a year - do not remember	37% 30% 19% 14%
Habits of keeping physical shape	- fasting 24 h - calories reduction - fat reduction - carbohydrate reduction - smaller portions - physical training	7% 15% 8% 10% 45% 15%
Smoking	- no - yes	30% 70%
Alcohol use	- almost never - twice per month - once a week - every weekend	22% 19% 25% 34%
Sleeping hours per night	- 7-8 hours - 5-6 hours - 4-5 hours - do not know	23% 32% 37% 8%
Physical activity	- every day - three to four days a week - irregular - no physical activity	11% 18% 30% 41%
Self-reported health status	- excellent - very good - good - bad	5% 27% 30% 38%
Check-up	- within six months - within the last year - 2-3 years ago - never - do not remember	20% 15% 25% 26% 14%
Health awareness	- very important - average - not so important	20% 38% 42%
Methods of caring for own health	- no specific measures - exercise - check-up - calories reduction - relaxing activities - personalized health - no focus on own health	27% 12% 8% 12% 13% 6% 22%

Healthy eating is one of the major influences on overall health. 57% of the students try to eat healthily. It is concerning that 43% of them report that they do not eat healthily. Eating habits vary from a personalized diet and eating mainly at home to fast food. About 35% of the students eat mainly fast food. Only 5% of the students eat mainly at home. As regards to the use of diets, 37% of the students report that they did not practice any diet. About half of the samples have practiced diets during the last year and roughly one fifth of the students have practiced diets several times during the year. Students choose various habits to keep in shape such as fasting during a 24-hour interval, calories reduction or a selective reduction on lipids and carbohydrates, eating smaller portions of food and exercising. The preferred option practiced by 45% of the students was to eat smaller portions of food.

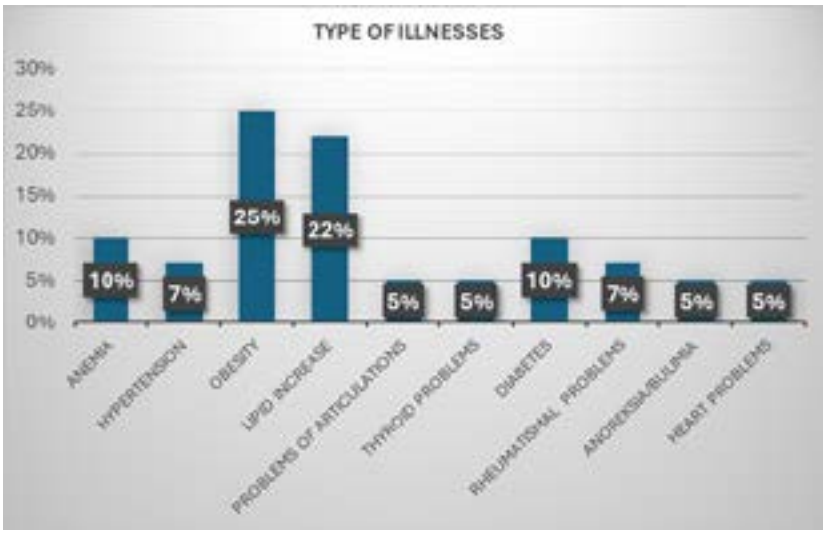
Substance abuse is a great concern in this young population 18-25 years old. 70% of the students smoke and more than one third of them reported to consume alcohol regularly every weekend.

In respect to sleeping habits about 70% of the students have bad sleeping circadian rhythms: about 37% of the students sleep 4-5 hours per night and in addition 32% sleep 5-6 hours per night. Only 23% of youths sleep at the right amount of time.

Most of the students (about 60%) exercise, considering this behavior at a good level of adherence to a healthy lifestyle. 29% of the students exercised regularly and 30% reported doing it irregularly. Out of the group who practiced physical activity the majority went to gym, followed by running, bicycle and swimming. About 40% of students do not practice any physical activity.

When asked to self-report their health status only 5% classified their health status as excellent. It is striking that 38% of the students self-reported their health status as bad. During the last year 60% experienced illnesses versus 40% who did not. Graphic 1 shows the type of illnesses reported by students during the last year. The most predominant illnesses are obesity and hyperlipidemia, which are both interconnected. It is a striking result that about half of young people included in this study reported obesity and/or hyperlipidemia, making it a predominant and very concerning health condition, especially at this young age group 18-25 years old.

GRAPHIC 1: Type of illnesses of 18-25 years old during the last year



We asked students for health seeking behaviors for assessing their overall health as screenings and found out that out of 100 students, 26% of them reported that they never have had a check-up. Only 35% of the students reported doing regular check-up. Health awareness in this sample of young people is low. Only one fifth of the students have much awareness about health, while 42% of the students do not consider focusing on their health and 27% do not take any specific preventive measures.

Summary of results:

- The study found out that a very high number of young people (about 40%) lacked attention to their health status.
- Most of students are aware that they do not eat healthy food, 35% eat mostly fast foods, 49% have practiced diets during the recent year, 70% smoke and more than one third of them consume alcohol regularly every weekend.
- The majority suffer significant lack of sleep, as only 23% reported to sleep 7-8 hours per night.
- 38% of the students self-reported that their health status is bad.
- One quarter of the students have never had a health check-up.
- Exercise was a habit with a good level of adherence in about 60% of these young people.
- Obesity is a very concerning health issue. We found out a striking result that about half of these young people aged 18-25 years old reported obesity and/or hyperlipidemia.

Conclusions

Young people have little awareness about their lifestyle consequences and show little care about their health status. Despite referring their bad lifestyle choices, they are not particularly concerned. Their lifestyle aligns with contemporary trends, while health education and early disease prevention is de-emphasized in this age group.

Discussions

Findings of our study demonstrated that youths do not take sufficient care for their health and probably do not have sufficient knowledge about health care. Their unhealthy lifestyle has caused various disorders, the most concerning of them is obesity. One quarter of this sample of Albanian students 18-25 years old reported obesity (25%) and a further 22% reported suffering hyperlipidemia. According to World Health Organization data (2024), globally, in 2022, age-standardized prevalence of obesity among adults (18+ years) globally in the world is 15.8% and in Albania has reached 23.4%. In respect to WHO data (2024) of children and adolescents, worldwide the prevalence of obesity among children and adolescents aged 5-19 years old has worsened by 6.3 percentage points from 1.9% in 1990 to 8.2% in 2022 and in Europe 8% respectively. In Albania, the prevalence of obesity among children and adolescents aged 5 to 19 years has worsened by 5 percentage points from 2.5% in 1990 to 7.5% in 2022. So far in Albania, we have reached the obesity figures of 7.5% in children and adolescents 5-19 years old and 23.4% among adults over 18 years old. This alarming high level of obesity should be addressed and treated accurately as it may bring other consequences for both the physical and mental health of young people. Lama and Ferizi (2023) in their study of 200 obese Albanian adolescents draw attention to an association between obesity with low self-esteem, body image concerns, as well as problems of social interaction and bulling.

The findings of our study regarding attitude of young adults to health, their lifestyle (nutritional habits, sleeping habits, physical activity and substance use) are consistent with similar studies in the literature. A study of Çetinkaya and Sert (2021) investigated the healthy lifestyle behaviors of university students and influencing factors. The study found that students generally exhibited healthy or moderately healthy lifestyles, but they showed the least responsible behaviors with regards to physical activity, health responsibility, and nutritional habits (Çetinkaya and Sert, 2021). According to another study by Lawrence et al. (2017) few individuals in this life stage demonstrated an overall healthy lifestyle. Only 27% in the sample of Lawrence and al. was categorized as the healthiest group, which generally exhibited healthier behaviors than average. On the other hand, about one third of the sample had poor diet and no health care (35%), distinguished by high rates of fast food and disordered behaviors and low rates of breakfast and dental exams. A study by Cerqueira Sousa et al. (2022) of 512 university students older than 18 years old, who were enrolled in health courses, showed that only a low percentage of health students had sufficient knowledge about healthy eating. Therefore, there is a need to develop public policies for young people that promote positive healthcare choices, such as healthy meals and stress the importance of regular sleep for preserving circadian rhythms and mental health.

Out of 100 students included in our study, one quarter of them have never followed a checkup. Only 35% of the students of our sample, predominantly females reported doing regular checkups. This gender disparity in health-seeking behaviors is consistent with previous studies of a larger scale population of Albanian students. A study by Gabrani et al. of 7679 Albanian university students, aged 18-25 years, highlighted disparities in health service utilization driven by gender. In that study it was found out that Albanian female students demonstrated significantly higher awareness and engagement in health preventive practices such as gynecological visits and Pap tests in comparison with male students (Gabrani J. et al., 2023).

Educational interventions are important for promoting healthy lifestyle and enhancing health- seeking behaviors of youths. Health educational platforms for young people can sensitize them significantly to the importance of healthcare even at a younger age, thus reducing the prevalence of various diseases and improving their quality of life. Interventions to change students' eating habits and increase their access to healthy foods in the university environment could be very helpful in this respect.

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