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ALBANIA TOURISM FOR PEOPLE, PLANET, AND PROSPERITY

Dr. Blerta Avdia¹

Abstract

At a time when tourism in Albania is booming, the question arises: Is tourism development a function of the local community (people), the planet, and the economy (prosperity)? This paper focuses on a critical approach to tourism development in Albania.

The hypothesis of the research is: Tourism in Albania is for people, the planet, and prosperity.

Different methods, such as description, analysis, comparative, and statistical, will be used to verify the raised hypothesis.

At the end, there will be conclusions and recommendations.

Keywords: Tourism, Albania, people, local community, prosperity, economy

Introduction

Tourism in Albania has experienced significant growth, particularly in recent years, due to the country's rich natural and cultural potential. In September 2024, Albania welcomed 1,146,090 tourists (INSTAT, 2024), who visited for various purposes, including vacations, health treatments, religious activities, transit, and business or professional reasons.

The rapid development of tourism brings both positive and negative economic, social, and cultural consequences. The UNWTO's tourism development policies emphasize the importance of the "People, Planet, Prosperity" framework, which focuses on education, sustainability, and innovation in the sector.

This study aims to assess the impact of Albania's tourism boom, serving as an initial evaluation of its development. Over the past two years, Albania has gained a prominent position in the global tourism market, competing with countries such as Saudi Arabia, Qatar, and Turks & Caicos (UNWTO, 2024).

However, an important question arises: Has tourism in Albania contributed positively to the community, the environment, and economic growth, despite the increase in tourist numbers, the marketing efforts by foreign entities, the Albanian government, and other stakeholders?

Thus, the primary goal of this paper is to determine whether the growth of Albanian tourism aligns with the principles of "People, Planet, and Prosperity"—or if it reflects a focus on education,

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sustainability, innovation, and technology within the sector. The research questions and hypotheses developed will guide the exploration of this issue.

To verify the hypotheses and achieve the research goal, the study will employ a combination of descriptive, analytical, comparative, and statistical methods.

The findings of this paper will be useful for researchers, tourism professionals, businesses within the tourism sector, tour operators, travel agencies, as well as students and scholars in related fields.

The structure of the paper will include the following sections: Introduction, Literature Review, Methodology, Results, Discussion, and Conclusion.

Literature Review

Tourism is widely regarded as a key economic instrument for the development of low-income, developing, and underdeveloped countries (WTTC, 2023). In 2023, the Travel and Tourism sector contributed 9.1% to global GDP, marking a 23.2% increase compared to 2022 and only 4.1% below the 2019 level. Additionally, 27 million new jobs were created, reflecting a 9.1% increase from 2022 and just 1.4% below the 2019 level. Spending by domestic tourists grew by 18.1% in 2023, surpassing pre-pandemic levels, while international visitor spending rose by 33.1%, although it remained 14.4% below 2019 levels (WTTC, 2024).

Albania, emerging from a dictatorial regime with a low economic standing and limited integration into the global market, has worked diligently to foster economic and social development. This effort has led to the advancement of various economic sectors, including tourism. Initially, the focus of tourism development was to raise Albania's profile in the regional and global tourism markets, with the slogan "Albania to be discovered" (MTKRS, 2003). From 2007 to 2013, the vision was to position Albania as "a safe tourist destination with an unparalleled variety of world-class natural and cultural attractions in a small geographical area, managed in an environmentally and socially responsible manner, and easily accessible from European markets" (MTKRS, 2007–2013). For 2019–2023, the vision shifted to "Albania as a welcoming, attractive, and authentic destination that harnesses the economic, natural, and social potential of the country" (MTM, 2019). For 2024–2030, have the vision "Albania, the newest and most exciting destination in Europe, offering the best value based on quality, inclusiveness, and sustainability" (MTM, 2024).

The evolution of this vision highlights the growth trajectory of Albania's tourism industry and its expected contributions to the economy, society, and environment. It also demonstrates the country's efforts to align national tourism policies with international standards.

The impact of the COVID-19 pandemic and climate change has prompted a shift in how tourism is approached. The focus now is on sustainable tourism that benefits "People (Education), Planet (Sustainability), and Prosperity (Innovation and Technology)," a principle reinforced by the

Glasgow Declaration on Climate Action in Tourism and the climate emergency announced by the Council of Europe. These international measures aim to mitigate the negative impacts of tourism while enhancing its positive effects. In response, Albania has adapted its legislation to align with these global policies and action plans.

Sustainability—economic, social, and environmental—is at the core of tourism development. While there is limited research on the intersection of tourism and climate change, works such as "Climate Change and its Impact on Tourism Development: The Case of Albania" (Avdia, B., 2021) and "Assessment of the Climate Tourist Indicator for the Western Lowlands of Albania" (Zorba P., Çela G., 2019) have contributed valuable insights. However, more in-depth studies are needed to assess the role of global challenges, particularly climate change, in shaping tourism development. Moreover, there is a gap in reports and studies evaluating how well Albania has adapted to or implemented international tourism development policies.

The publication *Tourism Doing Business – Investing in Albania* primarily targets foreign investors, rather than focusing on the promotion of green tourism policies. As highlighted by the UNWTO (2024), projects that emphasize sustainable tourism practices are still limited compared to neighboring countries.

The increasing demand for qualified human resources in tourism has led to the establishment of numerous educational programs in hospitality, tourism, and tourism management, ranging from secondary professional levels to Bachelor's, Master's, and two-year programs (Avdia, B., 2024). However, the shortage of skilled professionals in the sector persists.

The COVID-19 pandemic underscored the need for greater innovation and technological integration in the tourism sector, particularly in transportation and the booking process. Improvements are needed not only for booking travel tickets, tourist attractions, accommodations, restaurants, and entertainment activities, but also for offering virtual tours, online reservations, and other digital services. Despite the rise of online platforms like Booking.com and Airbnb, traditional booking methods such as phone reservations remain the most reliable means of securing accommodations in Albania.

Methodology

The methods used in this paper are in function of the topic "Tourism in Albania for people, planet and prosperity" and the research question: Is tourism development in the function of the local community (people), the planet and the economy (prosperity)?

First, a comprehensive literature review was conducted to understand how tourism development affects socio-economic and cultural growth.

The main sources used, including UNWTO, WTTC, INSTAT, and the Ministry of Tourism and Environment, provided not only descriptive knowledge but also statistical data, which formed the basis for analysis. The study is focused on the effects of the tourism boom in Albania. The study analyzes three components that affect tourism development, such as: a) Population/Local Community, b) Planet, and c) Prosperity (innovation and technology). The methods used in the study are a mix of descriptive, analytical, and comparative methods to reach the conclusion that the tourism boom in Albania served the interests of people, the planet, and prosperity.

Results

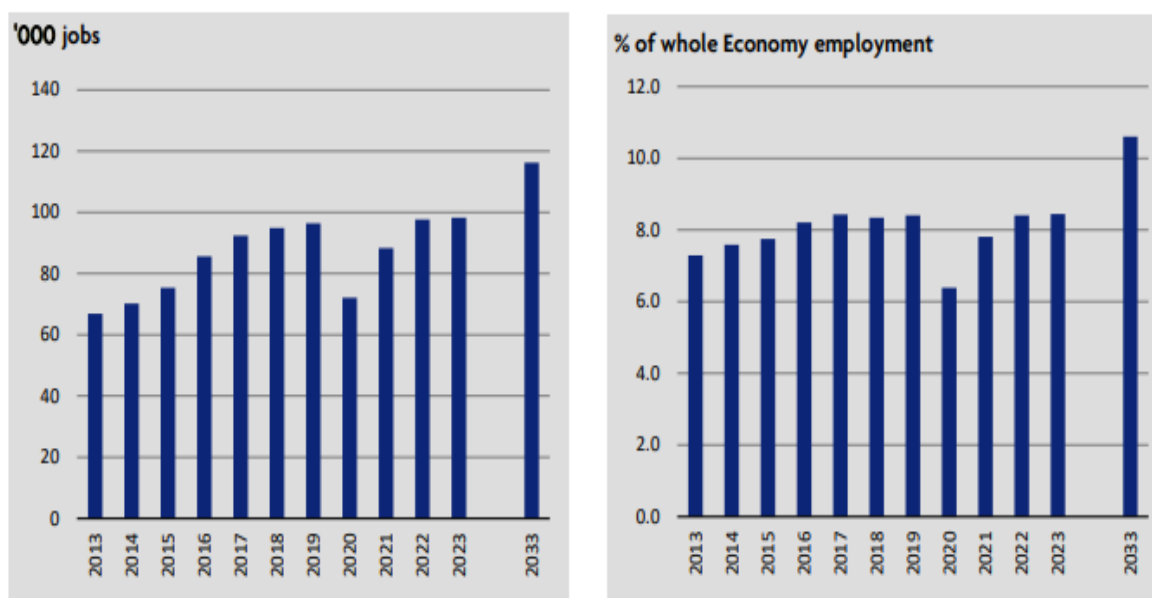
Tourism is a sector with a global impact, closely linked to job creation and the spending of visitors in the countries they visit. The development of tourism also contributes to social and environmental progress. Revenue generated from tourism can be reinvested into education, sustainability, new technology, and nature conservation. Moreover, tourism creates employment opportunities that enhance the economic independence of women, young people, and families facing financial challenges. In this context, it is important to examine statistical data to assess how tourism has affected the population, environment, innovation, and technology.

4.1 Tourism for People

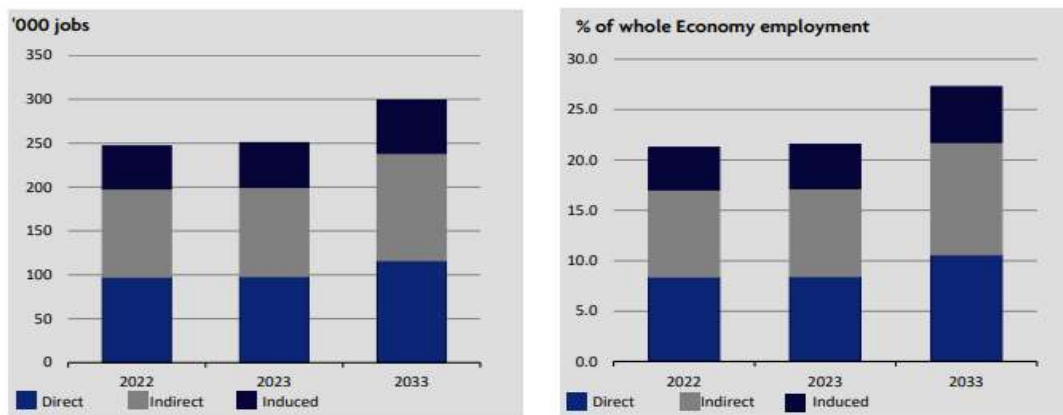
Statistical data indicates that tourism contributed 10.4% to global GDP, with 1 in 5 new jobs globally being created within the tourism sector. In total, tourism supported 334 million jobs worldwide. The sector saw positive growth in 2022, creating 21.6 million new jobs, bringing the total to 295 million. Also, 1 in 11 jobs worldwide were supported by tourism in 2022. International tourists spent \$1.1 trillion globally, marking significant growth, although it remained 40% below 2019 levels (WTTC, 2023).

In Albania, tourism became a key economic engine and employment generator in 2019, contributing 20% to the national economy and creating 244,000 jobs (WTTC, 2022). By 2022, the Travel and Tourism sector generated 97,658 direct jobs, representing 8.4% of total employment. This includes jobs in hotels, travel agencies, airlines, and other passenger transport services (WTTC, 2023). The total contribution of Travel and Tourism to employment—accounting for both direct and indirect effects from investment and the supply chain—amounted to 246,695 jobs, or 21.2% of total employment in 2022 (WTTC, 2023).

Albania: Direct Contribution of Travel & Tourism to Employment



Albania: Total Contribution of Travel & Tourism to Employment



Source UNWTO, 2023

In 2023, global employment in the tourism sector saw a 10% increase compared to 2019 (WTTC, 2024). In Albania, the number of individuals directly employed in the tourism sector reached 42,698 (INSTAT, 2023). With the growing demand for tourism services, it is expected that the number of students enrolled in hospitality and tourism education will increase significantly, reaching 73,778 by 2030. This increase in employment within the tourism sector necessitates a focus on professional preparation, continuous training, and skill development.

In line with this demand, the Ministry of Education and Sports reports that there are currently 2,900 students enrolled in hospitality and tourism programs at public vocational schools, while 2,312 students are pursuing similar studies in higher education institutions (MTM, 2024). The rapid pace of tourism development and the subsequent demand for human resources are contributing to the growing number of students entering the field of tourism and hospitality. The government has also supported (with scholarships) students who enroll in tourism study programs at the Bachelor's and Master's levels. Despite the availability of study programs at the professional secondary level, Bachelor's, and Master's degrees in tourism, hospitality management, and related fields, as well as numerous professional courses, the tourism sector still faces challenges in finding qualified staff. This shortage is due to factors such as the seasonal nature of tourism, low wages, migration, and the informality of the labor market.

Tourism has become a vital economic sector in Albania. The data indicates that 1 in 5 jobs are now created by tourism. According to the Bank of Albania, the total income from tourism in 2023 is estimated at 4.16 billion euros, with projections showing this figure will rise to 6.7 billion euros by 2030.

Figure 3.5: Albania – Macroeconomic Context



Source UNWTO, 2023

The income from visitor exports in 2022 amounted to 355.7 billion ALL. It is projected that by 2033, international tourists, estimated at 10,246,000, will spend ALL 501.8 billion, reflecting an annual growth rate of 3.5% since 2023.

Albania: Visitor Exports and International Tourist Arrivals

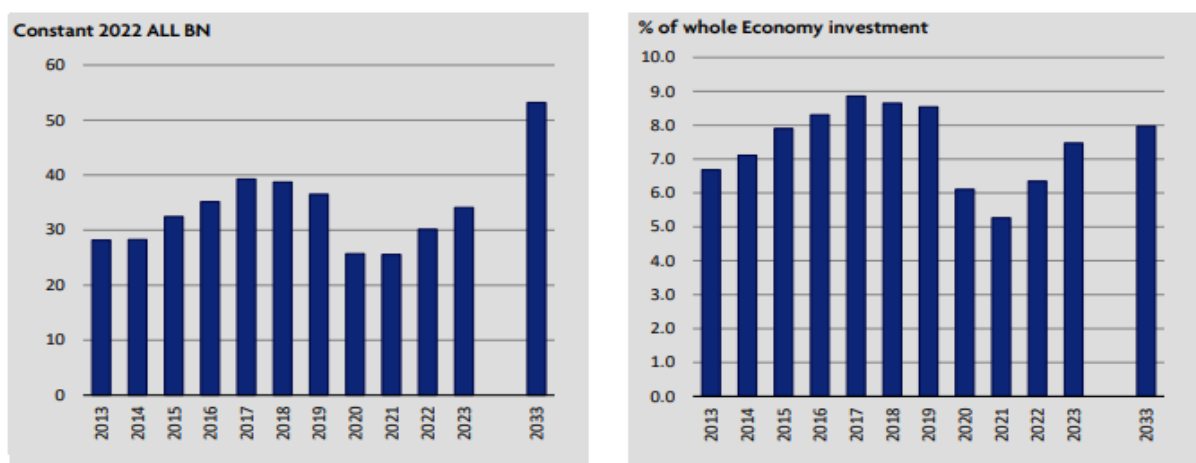


Source UNWTO, 2023

In 2024, according to the Bank of Albania, the number of tourists in Albania was 11.7 million, and tourism revenues were 4.99 billion euros. A foreign tourist spent 426 euros, while Albanians who were on vacation abroad spent 342 euros. Despite this, the tourism balance in Albania was positive with an annual growth of 25% (Bank of Albania, 2025).

Investments also play a crucial role in boosting tourism revenues, which totaled ALL 30.1 billion in 2022. It is projected that national investments in tourism will increase by 8.0% by 2033.

Albania: Capital Investment in Travel & Tourism



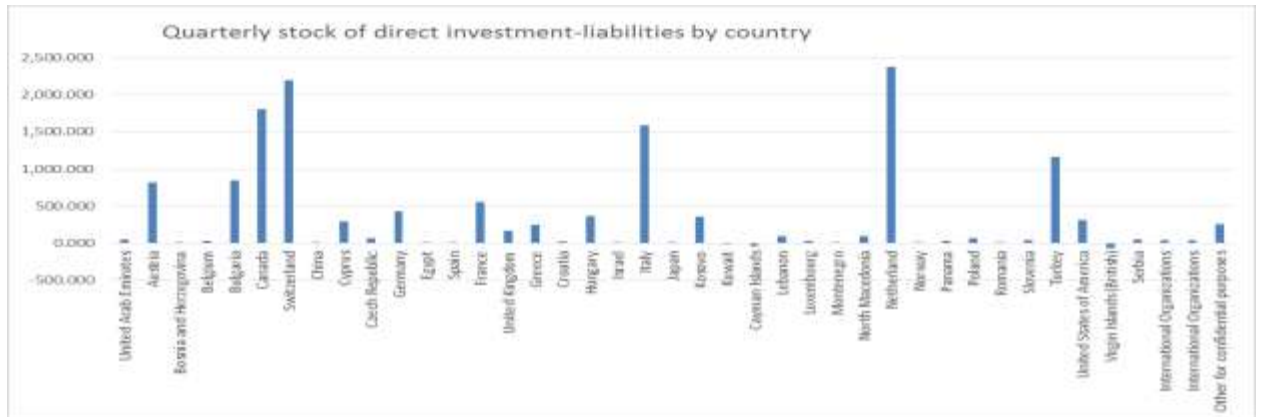
¹ All values are in constant 2022 prices & exchange rates

Source UNWTO, 2023

Sustainability and security in the development of tourism are demonstrated by the increasing investments in Albania from international hotel brands. Notably, Melia brand hotels are set to offer 669 rooms, followed by Accor with 616 planned rooms, and Hyatt with 447 rooms, along with Marriott and Hilton hotels. According to the Ministry of Tourism and Environment, by 2023, a total of 1,850 hotel structures had been officially categorized, with a notable increase in categorizations over the past three years (MTM, 2024).



Note: 2023 includes figures from January to September.
Source: Bank of Albania (2024), Statistics, Foreign Direct Investments, available online: https://www.bankofalbania.org/Statistics/External_sector_statistics/Foreign_Direct_investments/Foreign_direct_investments_flow.html (08-09-2024).



Source Bank of Albania, QII 2024

4.2 Tourism for the planet

Tourism development is inherently tied to the natural potential of a region, but it is often accompanied by negative environmental consequences. The pursuit of large profits in tourist destinations has led to various environmental problems, including an increased carbon footprint, noise pollution, poor waste management, water contamination, soil degradation, and damage to local flora and fauna.

Technological, economic, and social advancements have often resulted in the environment being overlooked. Tourism has a unique relationship with the environment, relying heavily on natural resources such as scientific reserves, national parks, monuments, and recreational areas. However, tourism can negatively impact these areas by exceeding their carrying capacity, leading to increased waste, noise pollution, and overall degradation. Tourism and travel are responsible for approximately 8% of global carbon emissions (Aisha N. Khatib, 2023). According to UNWTO data, transport-related emissions from international tourism are expected to increase by 45% between 2016 and 2030 (from 458 MtCO₂ to 665 MtCO₂), while emissions from domestic tourism are projected to rise by 21% over the same period (from 913 MtCO₂ to 1,103 MtCO₂) (UNWTO, 2019).

In Albania, the number of passengers has increased significantly, from 3.3 million in 2019 to over 7.2 million in 2023, marking the highest growth among major Central and Eastern European airports. By the first eight months of 2024 was accounted 7.2 million passengers. Climate change and its impacts further undermine the sustainability of tourism by damaging both natural and cultural destinations, as evidenced by the 2019 floods in Venice. In response, Italy has promoted environmental education from an early age by incorporating climate change modules into primary school curricula. Similarly, the Council of Europe declared a "Climate Emergency Year," and the Glasgow Declaration on Climate Action in Tourism introduced measures to guide the tourism sector in safeguarding the planet (B. Avdia, 2024).

In Albania, both the government and tourism enterprises have taken steps to mitigate the negative environmental effects of tourism. However, challenges persist, such as visible waste

along rivers, trash outside designated bins, and noise pollution. These issues emphasize the need for a balanced approach to tourism development, one that considers not just economic growth but also the protection and management of the environment.

A review of the literature reveals that while efforts are being made within Tourism Development Strategies to align tourism with environmental goals, the number of environmentally friendly tourism projects remains limited compared to neighboring countries. Albania currently has 21 such projects, with a total budget of 3.09 billion Euros (UNWTO, 2023). On a positive note, there is an increasing trend toward adopting green principles in accommodation structures as Green Cost, in Palasë. Albania boasts one sustainable tourism destination, Belshi (<https://www.greendestinations.org/belsh-albania/>), along with Fairy Tales Agrotourism initiatives.

It is important to highlight that Albania is prioritizing tourism development in alignment with green policies. The country's recent accession to the Global Sustainable Tourism Council (GSTC) on December 6, 2024, is a significant milestone in its commitment to environmentally friendly tourism practices.

4.3 Tourism for prosperity (Innovation and technology)

In the development of tourism in Albania, a great contribution was made by the development of technology in the function of tourism industry, meeting the demands of consumers. Examples of how innovation and technology have influenced the development of tourism are:

The use of booking platforms such as booking.com and Airbnb influenced not only the ease of accessibility of accommodation structures but also the visibility of Albania on these platforms.

Using visual media to promote tourist destinations and the innovations they bring through travel blogs, documentaries, and advertisements.

The use of social networks as a marketing platform influenced the influence and increased visibility for Albania.

The pace of tourism development led the National Tourism Agency to publish the TEA application so that tourists can determine the itineraries and events they will participate in before they arrive.

Innovation and technology in the development of tourism will be the future for the development of green tourism. The focus of the government is on the design of a tourism management information system. This system will help not only in the easy identification of statistical data for tourists, accommodation capacities, but also the expenses that tourists will incur. All this process will be in real time.

However, we emphasize that in Albania, we have a lack of mapping of tourist destinations, tourist paths according to different topics. The contribution of technology to the development of online platforms, virtual tours or the production of tourist maps would help in the development of tourism. Creation of virtual tours, application of visits to virtual museums. The use of virtual museums also as an education platform, the exchange of information, contributes to the development of green policies in tourism, since the pollution is lower.

Discussion and Conclusion

The development of tourism for people, planet, and prosperity in Albania is challenging. Despite the fact that tourism has progressed from literature research and observation, it is evident that it has not yet reached the level it should.

The contribution to the GDP, the creation of jobs, the increase in opportunities for professional development, and the increase in the capacities of employees have influenced the performance of tourism, the efforts to adapt to international policies and new developments.

The development of tourism must be developed with all sustainable components: economic, social, and environmental. For this, a great commitment of the government, tourism enterprise, education, experts is needed so that the transition of tourism to climate change is gentle and in function of the local community.

Social problems remain challenging, such as migration that affects the lack of work staff, the expansion of the tourist offer in 365 days and the application of green policies in the development of tourism.

Innovation and technology in the field of tourism in Albania should be seen as an opportunity to meet the needs of consumers/tourists and to facilitate access to tourist destinations. The TEA application is an important step for knowing the calendar of events before the tourist comes to Albania, access to the online guides available at the National Tourism Agency (AKT).

But tourism should also be equipped with interactive tourist maps for the paths with different themes, and the tourism management information system should be developed.

In conclusion, we conclude that the development of tourism in Albania has progressed, but it has not yet managed to be for the people, the planet, and prosperity.

Tourism for People, tourism has influenced the creation of new jobs and professional development in aspects: a) the opening of study programs in the field of tourism at the professional and university level, b) the increase in the number of students enrolled in these study programs and c) support with study scholarships from the government for students enrolled in these programs. Despite this, the tourism sector suffers from a lack of qualified staff

Tourism for Planet, it is evident that there are efforts to make tourism development in Albania environmentally friendly through: a) Albania's membership in GSTC, b) efforts to make some accommodation structures green, such as Green Cost, Palase, or green destinations like Belshi. However, for tourism to be environmentally friendly, problems with pollution management, lack of green destinations, and certified accommodation structures must be resolved.

Tourism for Prosperity notes that there is progress in the use of technology in the function of tourism development, but so far, there has been little application of technology and innovation in tourism development in everyday life.

Belshi, Mrrizi i Zanave, Green Cost, TEA Application, new studies programs of tourism cannot represent the development of tourism for people, the planet, and prosperity. Albania still has work to do so that tourism is a function of the local community, the environment, and the development of technology and innovation.

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MANAGERIAL ROLES IN TRANSITION: FROM HIERARCHICAL CONTROL TO ADAPTIVE LEADERSHIP IN THE AGE OF EMPOWERED EMPLOYEES, CUSTOMER ORIENTATION AND ARTIFICIAL INTELLIGENCE

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Florea Rareș Gabriel²
Albulescu Dan Marian³

Abstract: *Contemporary management is no longer defined only by authority, planning and control. In increasingly dynamic organizations, the manager becomes a shifting actor whose relevance depends on the ability to move between roles, contexts and expectations. This paper develops a literature based analysis of managerial roles in transition, focusing on the movement from hierarchical control to adaptive leadership. The analysis explores how classical managerial roles are reconfigured under the influence of empowered employees, customer orientation and artificial intelligence. Instead of treating managerial roles as fixed categories, the paper argues that their strategic value depends on contextual activation: the manager acts as leader when autonomy must be supported, as monitor when customer signals and data must be interpreted, as entrepreneur when change must be transformed into opportunity, and as resource allocator when technology and people must be balanced. The paper contributes by proposing a conceptual reading of the adaptive manager as a role integrator, not simply a decision maker. The main conclusion is that modern managerial effectiveness does not result from replacing traditional roles, but from recombining them intelligently in response to organizational complexity.*

Keywords: *managerial roles; adaptive leadership; employee empowerment; customer orientation; artificial intelligence; organizational change*

JEL classification: M10, M12, O33

1. Introduction

For a long time, management was imagined as a vertical exercise of authority. The manager planned, organized, controlled and corrected, while the organization was expected to follow a relatively stable chain of command. In this traditional logic, managerial effectiveness was strongly associated with order, hierarchy and the capacity to transform decisions made at the top into actions executed below. However, contemporary organizations no longer function in such a predictable environment. Employees expect autonomy and meaningful participation, customers reshape business priorities through continuous feedback, and artificial intelligence increasingly enters the managerial space as a tool for analysis, prediction and decision support. As a result, the manager is no longer only the guardian of control, but becomes an adaptive actor who must constantly move between roles, expectations and contexts.

This transition does not mean that classical managerial roles have become obsolete. On the contrary, their relevance may be even stronger today, precisely because modern organizations are more complex, more connected and more exposed to change. Mintzberg's analysis of managerial

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work remains important because it showed that managers do not perform a single, linear function, but combine interpersonal, informational and decisional roles in fragmented and dynamic work situations (Mintzberg, 1975). What changes in contemporary organizations is not the existence of these roles, but their intensity, meaning and strategic use. The manager as figurehead, leader, liaison, monitor, disseminator, spokesperson, entrepreneur, disturbance handler, resource allocator and negotiator does not disappear. Instead, these roles are reconfigured by new organizational pressures.

One of the most visible shifts is the movement from hierarchical control to empowered employees. In organizations based on strict authority, the manager could rely mainly on formal position and command. In organizations that encourage participation, autonomy and bottom up communication, the manager must act more as a facilitator of initiative and less as a controller of obedience. Empowering leadership is connected with employees' adaptive performance because it supports autonomy, psychological empowerment and stronger work relationships (Xu and Zhang, 2022). This means that the role of leader becomes less directive and more developmental, while the roles of liaison and disseminator become essential for trust, cooperation and information flow.

A second pressure comes from customer orientation. In many contemporary organizations, the customer is no longer a passive receiver of products or services, but an active source of information, evaluation and strategic pressure. Customer orientation pushes managers to look beyond internal efficiency and to understand how market signals, expectations and feedback should influence organizational decisions. From this perspective, the manager becomes a monitor of external changes, a spokesperson of organizational value and an entrepreneur capable of transforming customer expectations into innovation. Research on customer orientation and innovation shows that top management plays an important role in connecting customer knowledge with organizational change (Widelska and Krot, 2021). Therefore, customer orientation is not only a marketing concern, but also a managerial condition for adaptability.

A third transformation is generated by artificial intelligence. Artificial intelligence changes the managerial landscape because it alters the relationship between human judgment, data and decision making. It can automate certain tasks, but it can also augment managerial work by offering new analytical possibilities. Jarrahi (2018) describes the future of organizational decision making through the idea of human artificial intelligence symbiosis, where technology and human judgment can complement each other. Similarly, Raisch and Krakowski (2021) discuss the automation augmentation paradox, emphasizing the tension between replacing human activity and enhancing human capabilities. For management, this paradox is essential. The manager is not simply replaced by intelligent systems, but must decide how these systems are selected, interpreted, governed and ethically integrated into organizational life.

In this context, the central argument of this paper is that managerial roles are in transition from a logic of hierarchical control toward a logic of adaptive leadership. The contemporary manager is not defined by one dominant role, but by the ability to activate the appropriate role according to the situation. When employees require autonomy, the manager must act as leader, liaison and disseminator. When customers reshape expectations, the manager becomes monitor, spokesperson and entrepreneur. When artificial intelligence enters decision making, the manager must become interpreter, resource allocator and responsible decision maker. Managerial effectiveness therefore depends less on rigid authority and more on role intelligence: the capacity to understand which managerial role becomes strategically relevant in a specific organizational context.

The objective of this paper is to analyse, based on the literature, how classical managerial roles are reconfigured in the age of empowered employees, customer orientation and artificial intelligence. The paper contributes to the discussion by proposing a conceptual interpretation of the adaptive manager as a role integrator. This perspective does not reject classical management theory, but updates its meaning in relation to current organizational transformations. The structure of the paper follows this logic. First, the literature review presents the main theoretical foundations of managerial roles and adaptive leadership. Second, the paper examines the main drivers of managerial role transition: employee empowerment, customer orientation and artificial intelligence. Third, a conceptual framework is developed to show how traditional managerial roles acquire contemporary relevance. Finally, the discussion and conclusions underline that the future of management is not the disappearance of managerial roles, but their intelligent recombination in response to organizational complexity.

2. Literature review

Managerial work has always lived between two forces: the need for control and the need for adaptation. In the classical view, the manager was mainly associated with order, authority and coordination. In contemporary organizations, however, the manager increasingly becomes a translator between people, markets, information and technology. This does not mean that traditional managerial roles have disappeared, but that they are no longer activated in the same way. The manager is less a fixed point at the top of the hierarchy and more a moving point between employees, customers, data and strategic decisions.

The starting point of this analysis is Mintzberg's interpretation of managerial work. His framework remains relevant because it challenged the simplified image of the manager as a person who only plans and controls. Mintzberg showed that managerial activity is fragmented and role based, combining interpersonal, informational and decisional dimensions (Mintzberg, 1975). The manager represents the organization, connects people, collects and distributes information, initiates change, manages disturbances, allocates resources and negotiates. This multidimensional view is useful because it allows the manager to be understood not as a single function, but as a portfolio of roles that can be intensified or reduced depending on the context.

Recent literature suggests that this portfolio of roles is being reorganized by the transition from hierarchical control to adaptive leadership. Uhl Bien and Arena (2018) argue that leadership for organizational adaptability depends on the capacity to enable innovation and adaptive responses in dynamic environments. Similarly, Chughtai et al. (2023) connect adaptive leadership with learning organizations, change self efficacy and organizational innovation. These perspectives move leadership away from command and closer to orchestration. The adaptive manager does not simply impose direction, but creates the conditions in which the organization can respond intelligently to change.

Digital transformation strengthens this transition because it changes not only tools, but also work design, communication and leadership expectations. Schwarzmüller et al. (2018) show that digital transformation affects organizations through changes in work structures, leadership and responsibility distribution. In the same direction, Larson and DeChurch (2020) emphasize that leading teams in the digital age requires new ways of coordinating people and technology. Therefore, the informational roles of monitor and disseminator become more strategic. The manager must no longer only possess information, but must filter, interpret and circulate it quickly enough for the organization to remain responsive.

Another important transformation concerns empowered employees. In a top down model, employees are expected to execute decisions. In an empowerment based model, they are expected to think, participate and adapt. Xu and Zhang (2022) show that empowering leadership can support adaptive performance through psychological empowerment and stronger leader member exchange. This changes the meaning of the leader role. The manager is no longer valuable only because of formal authority, but because of the ability to build autonomy, trust and competence inside the team. Leadership becomes less about controlling movement and more about increasing the organization's capacity to move.

Customer orientation also redefines managerial roles. The customer is no longer positioned only at the end of the value chain, but becomes a continuous source of pressure, feedback and innovation. Widelska and Krot (2021) link customer orientation with innovation from the perspective of top management, showing that customer knowledge must be translated into managerial action. In this context, the manager becomes a monitor of market signals, a spokesperson of organizational value and an entrepreneur who turns customer expectations into strategic renewal. Customer orientation therefore transforms management from an internal exercise of efficiency into an external exercise of responsiveness.

Artificial intelligence introduces perhaps the most visible contemporary challenge to managerial roles. Jarrahi (2018) describes organizational decision making through the idea of human and artificial intelligence symbiosis, suggesting that human judgment and machine intelligence may complement each other. Raisch and Krakowski (2021) develop this issue through the automation augmentation paradox, showing that artificial intelligence can both replace certain tasks and enhance human capabilities. For managers, this paradox is crucial. Artificial intelligence does not simply remove managerial responsibility; it changes where responsibility is located. The manager must decide what can be automated, what should be augmented and what must remain a human judgment.

The impact of artificial intelligence is also visible in people management. Vrontis et al. (2022) show, through a systematic review, that artificial intelligence, robotics and advanced technologies increasingly affect human resource management practices. This reinforces the idea that artificial intelligence is not only a technical instrument, but a managerial condition. It influences how people are recruited, evaluated, trained and coordinated. As a result, the adaptive manager must balance efficiency with responsibility, data with interpretation and automation with human meaning.

Overall, the literature indicates that managerial roles are not being replaced, but recombined. Mintzberg's classical roles still provide the grammar of managerial work, while recent studies show how this grammar is rewritten by adaptability, digital coordination, employee empowerment, customer orientation and artificial intelligence. The contemporary manager becomes effective not by abandoning hierarchy completely, but by knowing when hierarchy is useful and when it must give way to participation, responsiveness and intelligent technological support.

3. Managerial roles in transition

The transition of managerial roles should not be understood as a simple replacement of old management with new management. It is more accurate to see it as a change in the managerial centre of gravity. In traditional organizations, the manager was placed above the system, as a point of control, supervision and formal authority. In contemporary organizations, the manager is increasingly placed between systems: between employees and autonomy, between customers and internal processes, between data and judgment, between technology and responsibility. As

Mintzberg (1975) suggests, managerial work has never been a single linear activity, but a set of interpersonal, informational and decisional roles. What changes today is the intensity and strategic meaning of these roles..

3.1. Employee empowerment and bottom up communication

Employee empowerment represents one of the clearest signs that managerial authority is changing its form. In a hierarchical model, the employee is mainly seen as the receiver of decisions. In an empowerment based model, the employee becomes a participant in interpretation, initiative and problem solving. As Xu and Zhang (2022) show, empowering leadership can support adaptive performance by strengthening psychological empowerment and the quality of the relationship between leader and employee. This means that the manager is no longer effective only because he occupies a formal position, but because he can create the conditions in which others become capable of acting responsibly.

This transformation changes the leader role in a profound way. The leader is no longer only the person who gives direction, but the person who increases the decision capacity of the team. In this sense, empowerment does not weaken management; it changes its source of power. Authority moves from command to credibility, from control to trust, and from obedience to participation. As Chughtai et al. (2023) argue in relation to adaptive leadership and learning organizations, innovation and change depend on the capacity to create confidence in the ability to respond to new situations. The adaptive manager therefore becomes less of a gatekeeper and more of a builder of organizational confidence.

Bottom up communication reinforces the same transition. In a traditional organization, communication often functions as a downward channel through which instructions are transmitted. In adaptive organizations, communication becomes a living system through which information, feedback and meaning circulate. As Larson and DeChurch (2020) state, leading teams in the digital age requires new ways of coordinating people, technology and interaction. Therefore, the manager as disseminator is no longer only a transmitter of decisions, but a designer of clarity. He must reduce noise, connect perspectives and transform dispersed information into shared understanding.

The liaison role also becomes more important in this context. Empowered employees cannot work effectively in isolation, because autonomy without connection can produce fragmentation. As Schwarzmüller et al. (2018) emphasize, digital transformation changes work design and the distribution of responsibilities inside organizations. This means that managers must connect departments, teams and informal networks in order to prevent autonomy from becoming disorder. The modern manager does not control every movement of the organization; he builds the bridges that allow movement to become coordinated.

3.2. Customer orientation and market responsiveness

Customer orientation creates another major pressure on managerial roles. In an internally focused organization, managers can concentrate mainly on efficiency, procedures and cost control. In a customer oriented organization, however, the external environment constantly interrupts internal routines. The customer becomes more than a buyer; he becomes a signal, a judge and sometimes even an informal co designer of organizational change. As Widelska and Krot (2021) show, customer orientation is connected with innovation from the perspective of top management. This places customer orientation not only in the field of marketing, but at the centre of managerial responsibility.

In this context, the monitor role becomes more strategic. The manager must observe not only financial indicators or internal performance, but also customer expectations, complaints, preferences and behavioural signals. A customer complaint is not only a service failure; it is organizational information. A change in customer preference is not only a market trend; it is a warning that internal routines may need to be revised. As Mintzberg (1975) explains, the manager as monitor collects and processes information, but in contemporary organizations this role becomes more external, more interpretative and more connected to innovation.

Customer orientation also reconfigures the spokesperson and entrepreneur roles. The spokesperson role is no longer limited to formal communication with external actors. It becomes the ability to express the organization's value in a credible way and to maintain trust in a market where customers compare, evaluate and react quickly. The entrepreneur role also changes because innovation increasingly begins with the customer's problem, not with the manager's assumption. As Uhl Bien and Arena (2018) suggest, organizational adaptability depends on enabling responses to dynamic environments. Customer orientation is one of the mechanisms through which this dynamic environment enters managerial decision making.

The adaptive manager therefore becomes a translator of customer pressure. He must translate what customers say into what the organization understands, and then translate organizational capabilities back into customer value. This double translation is strategic because customer knowledge has little value if it remains outside the organization, and internal innovation has little value if it does not answer a real market expectation. As Widelska and Krot (2021) state, the link between customer orientation and innovation depends strongly on top management. The manager is thus not only a decision maker, but a bridge between the market's voice and the organization's response.

3.3. Artificial intelligence and managerial decision making

Artificial intelligence introduces a different type of transition, because it affects one of the most sensitive areas of management: decision making. For a long time, managerial judgment was associated with experience, intuition and personal interpretation. Artificial intelligence does not eliminate these elements, but it changes the environment in which they operate. As Jarrahi (2018) argues, organizational decision making can be understood through a form of symbiosis between human intelligence and artificial intelligence. The manager does not simply compete with the machine; he must learn how to work with it without surrendering responsibility to it.

This changes the monitor role in a significant way. The manager no longer monitors only people, processes and markets, but also data systems, algorithmic outputs and technological assumptions. AI can identify patterns that are difficult for humans to see, but the meaning of those patterns still requires managerial interpretation. As Jarrahi (2018) states, the value of artificial intelligence lies in complementing human judgment, not in making human judgment irrelevant. The manager can see more through data, but must still decide what should be done with what is seen.

The automation augmentation paradox described by Raisch and Krakowski (2021) is central for understanding this transformation. If AI is used mainly for automation, it may reduce the human role in certain tasks. If it is used for augmentation, it can expand managerial capacity by supporting analysis, prediction and decision quality. This paradox changes the resource allocator role. The manager must decide not only how money, people and time are distributed, but also where technology should replace work, where it should support work and where human judgment must remain dominant.

Artificial intelligence also reconfigures the entrepreneur role. Innovation is no longer generated only through human creativity or market observation, but also through the capacity to use intelligent technologies responsibly. As Vrontis et al. (2022) show in relation to artificial intelligence, robotics and advanced technologies in human resource management, intelligent systems increasingly influence recruitment, training, evaluation and employee support. This means that AI is not only a technical tool, but a managerial environment that changes how people are organized and developed. The adaptive manager must therefore innovate without reducing the human side of work to a technical variable.

The challenge is not to make management more artificial, but to make it more intelligent. AI can recommend, calculate and predict, but the manager must evaluate, contextualize and assume responsibility. AI can accelerate decisions, but speed without judgment can become managerial risk. AI can optimize resources, but optimization without ethics can weaken trust. As Raisch and Krakowski (2021) suggest, the tension between automation and augmentation requires managers to rethink the relationship between technology and human capability. In this sense, AI does not cancel managerial roles; it makes them more demanding.

Table 1. Reconfiguration of managerial roles under contemporary organizational pressures

Organizational pressure	Traditional managerial logic	Main roles reconfigured	Contemporary meaning of the role	Strategic managerial response
Employee empowerment	Authority based on hierarchy and formal position	Leader, Liaison, Disseminator	The manager supports autonomy, trust and shared responsibility	Coaching, participation and internal confidence
Bottom up communication	One way transmission of instructions	Disseminator, Monitor, Liaison	The manager listens, filters and transforms feedback into meaning	Transparent communication and cross functional coordination
Customer orientation	Internal efficiency and procedural stability	Monitor, Spokesperson, Entrepreneur	The manager interprets customer signals and transforms them into change	Market responsiveness and customer based innovation
Artificial intelligence	Decision making based mainly on human experience	Monitor, Resource allocator, Entrepreneur	The manager interprets data, allocates technological resources and protects human judgment	Data supported decisions and responsible technological adoption
Crisis and uncertainty	Routine control and planned stability	Disturbance handler, Negotiator,	The manager stabilizes priorities and protects	Rapid prioritization, negotiation and resilience

Organizational pressure	Traditional managerial logic	Main roles reconfigured	Contemporary meaning of the role	Strategic managerial response
		Resource allocator	organizational continuity	

Source: Developed by the authors based on Mintzberg (1975), Schwarzmüller et al. (2018), Uhl Bien and Arena (2018), Jarrahi (2018), Larson and DeChurch (2020), Raisch and Krakowski (2021), Widelska and Krot (2021), Vrontis et al. (2022), Xu and Zhang (2022) and Chughtai et al. (2023).

The table highlights that the transition of managerial roles is not a movement from relevance to irrelevance, but from fixed execution to contextual activation. The same classical roles remain visible, but their meaning changes according to the organizational pressure. The leader role becomes developmental when employees are empowered. The monitor role becomes interpretative when customer signals and AI generated data multiply. The entrepreneur role becomes more connected to market responsiveness and responsible technological use. As Mintzberg (1975) provides the original architecture of managerial roles, more recent literature shows that this architecture is now being reorganized by adaptability, digital coordination, empowerment, customer orientation and artificial intelligence (Schwarzmüller et al., 2018; Uhl Bien and Arena, 2018; Raisch and Krakowski, 2021).

The main implication is that the adaptive manager is not the opposite of the traditional manager. He is the traditional manager under pressure from a more complex environment. Hierarchy still matters, especially in crisis, resource allocation and negotiation. However, hierarchy is no longer enough. As Larson and DeChurch (2020) suggest in relation to digital teams, coordination increasingly depends on communication and technological mediation, while Xu and Zhang (2022) show that empowerment depends on leadership capable of supporting autonomy. Therefore, managerial effectiveness comes from role intelligence: the capacity to understand which role must become dominant in a specific context and how it should be combined with the others.

This interpretation also gives the article its central conceptual direction. The manager of the future is not only a planner, controller or decision maker. He is a role integrator. He integrates autonomy with coordination, customer pressure with internal capabilities, artificial intelligence with human responsibility and crisis response with organizational continuity. As Vrontis et al. (2022) indicate, intelligent technologies increasingly influence human resource practices, while Widelska and Krot (2021) connect customer orientation with innovation. The adaptive manager becomes the actor who prevents these pressures from remaining separate and transforms them into coherent managerial action.

4. Conceptual framework and discussion

The previous analysis suggests that managerial transition is not a linear movement from old roles to new roles. It is rather a movement from fixed role execution to adaptive role composition. The contemporary manager does not abandon the classical roles identified by Mintzberg (1975), but learns to combine them differently depending on the pressure faced by the organization. In this sense, the manager becomes a role integrator, because he must connect authority with participation, customer expectations with internal capabilities, and artificial intelligence with human judgment.

This idea is important because many contemporary debates describe management as if it were moving from one dominant model to another: from control to autonomy, from hierarchy to participation, from human decision making to algorithmic support. However, organizational reality is more complex. Hierarchy does not disappear when employees become empowered, because people still need direction, coordination and priorities. Customer orientation does not eliminate internal efficiency, because market responsiveness still depends on organizational discipline. Artificial intelligence does not remove managerial responsibility, because data and algorithms still require interpretation, ethical evaluation and contextual judgment. As Uhl Bien and Arena (2018) suggest, adaptability is not the absence of structure, but the capacity to enable responses to dynamic environments.

The central idea of this conceptual framework is therefore that each organizational pressure activates a different managerial configuration. Employee empowerment activates the leader, liaison and disseminator roles, because autonomy requires trust, communication and relational support. As Xu and Zhang (2022) show, empowering leadership is connected with adaptive performance through psychological empowerment and stronger leader member exchange.

Customer orientation activates another configuration of roles. The manager becomes monitor, spokesperson and entrepreneur because he must observe market signals, communicate organizational value and transform customer knowledge into innovation. As Widelska and Krot (2021) argue, customer orientation becomes strategically relevant when top management connects customer knowledge with innovation. In this logic, the customer is not only a buyer, but a source of managerial intelligence. The manager must listen to the market without allowing the organization to become reactive and fragmented.

Artificial intelligence creates a third configuration, centred on the monitor, resource allocator and entrepreneur roles. As Jarrahi (2018) states, the relationship between humans and artificial intelligence in organizational decision making should be understood as complementarity rather than simple replacement.

Thus, the adaptive manager can be understood as a managerial actor who reads the context before choosing the role. He does not lead in the same way when employees need autonomy, when customers reshape expectations, when AI changes the decision process or when crisis threatens continuity. As Mintzberg (1975) shows, managerial work is built from multiple roles, but the contemporary contribution of this paper is to argue that effectiveness depends on the intelligent activation of these roles. The question is no longer only what roles managers perform, but when, why and how these roles should become strategically dominant.

Table 2. Conceptual framework of adaptive managerial role integration

Contemporary pressure	Role configuration	Main managerial tension	Adaptive managerial logic	Expected organizational contribution
Employee empowerment	Leader, Liaison, Disseminator	Autonomy versus coordination	The manager gives direction without blocking initiative	Higher engagement, trust and adaptive performance
Bottom up communication	Monitor, Disseminator, Liaison	Voice versus clarity	The manager transforms feedback	Better learning, faster reaction and internal alignment

Contemporary pressure	Role configuration	Main managerial tension	Adaptive managerial logic	Expected organizational contribution
			into shared understanding	
Customer orientation	Monitor, Spokesperson, Entrepreneur	External expectations versus internal routines	The manager translates customer signals into organizational change	Stronger responsiveness, innovation and value creation
Artificial intelligence	Monitor, Resource allocator, Entrepreneur	Automation versus human judgment	The manager uses AI to support decisions while maintaining responsibility	Better decisions, responsible innovation and technological balance
Crisis and uncertainty	Disturbance handler, Negotiator, Resource allocator	Speed versus stability	The manager prioritizes, negotiates and protects continuity	Resilience, continuity and strategic focus

Source: Developed by the authors based on Mintzberg (1975), Uhl Bien and Arena (2018), Jarrahi (2018), Raisch and Krakowski (2021), Larson and DeChurch (2020), Xu and Zhang (2022).

The table shows that adaptive management is not created by one privileged role, but by the intelligent combination of several roles. For example, employee empowerment cannot rely only on the leader role, because participation without information may create disorder. It also needs the disseminator role, which clarifies meaning, and the liaison role, which connects people and teams. As Xu and Zhang (2022) show, empowering leadership is related to adaptive performance, but this relationship becomes practically relevant only when leadership is supported by communication and relational exchange.

The same logic applies to customer orientation. A manager who only monitors customers may understand market signals, but may fail to transform them into action. A manager who only acts as entrepreneur may innovate, but without customer understanding innovation can become disconnected from real expectations. Therefore, customer orientation requires a combination between monitoring, external communication and entrepreneurial renewal. As Widelska and Krot (2021) suggest, customer orientation becomes strategically meaningful when top management connects customer knowledge with innovation.

Artificial intelligence makes this framework even more important because it increases the risk of confusing information with wisdom. AI can enlarge the manager's informational horizon, but it cannot replace the need for interpretation, responsibility and ethical judgment. As Jarrahi (2018) argues, the most productive relationship between humans and AI is based on complementarity, not simple substitution. In the same direction, Raisch and Krakowski (2021) show that the tension between automation and augmentation remains central for understanding AI in management. Therefore, the adaptive manager must decide not only what AI can do, but also what AI should be allowed to do.

This framework also shows that hierarchy has not disappeared. In crisis situations, organizations still need decision, prioritization, negotiation and resource allocation. However, hierarchy becomes only one managerial instrument among others, not the whole logic of management. As Uhl Bien and Arena (2018) emphasize, organizational adaptability requires leadership that enables dynamic responses, while Chughtai et al. (2023) connect adaptive leadership with innovation and learning. This means that the manager must know when to use authority and when to create participation.

The conceptual contribution of this paper is the idea of role intelligence. Role intelligence refers to the manager's capacity to identify which role must become dominant in a given context and how that role must be combined with other roles. A manager with low role intelligence applies the same managerial style to every situation. A manager with high role intelligence changes his managerial posture according to the problem: he becomes a coach when employees need autonomy, a translator when customers reshape expectations, an interpreter when AI produces data, and a stabilizer when crisis threatens continuity (Mintzberg, 1975; Larson and DeChurch, 2020; Vrontis et al., 2022).

From this perspective, the adaptive manager is not simply a modern version of the traditional manager. He is a more complex managerial figure, positioned at the intersection of human expectations, market pressure and technological intelligence. The traditional manager was often evaluated by his ability to control the organization. The adaptive manager is evaluated by his ability to keep the organization responsive without losing coherence. This is why managerial effectiveness in contemporary organizations depends less on rigid authority and more on the capacity to recombine roles in a way that creates trust, responsiveness, innovation and responsibility.

5. Conclusions

The analysis developed in this paper shows that managerial roles are not disappearing in contemporary organizations, but are being reconfigured under the pressure of new organizational realities. The movement from hierarchical control to adaptive leadership does not eliminate the classical role of the manager. Rather, it changes the way in which this role is understood and practiced. As Mintzberg (1975) suggests, managerial work has always been composed of multiple interpersonal, informational and decisional roles. What is different today is that these roles must be activated with greater flexibility, depending on the specific pressure faced by the organization.

The main conclusion of the paper is that the adaptive manager is not defined by a single dominant function, but by the capacity to integrate different roles in a coherent managerial response. In the context of employee empowerment, the manager must act as leader, liaison and disseminator, creating autonomy without losing coordination. As Xu and Zhang (2022) show, empowering leadership supports adaptive performance through psychological empowerment and stronger leader employee relationships. Therefore, employee empowerment does not reduce the importance of management, but requires a more relational, communicative and developmental form of management.

Customer orientation also changes the meaning of managerial effectiveness. The manager is no longer only an internal administrator of resources and procedures, but a translator of market signals into organizational decisions. As Widelska and Krot (2021) argue, customer orientation becomes strategically relevant when top management connects customer knowledge with innovation. This means that the contemporary manager must combine the roles of monitor,

spokesperson and entrepreneur in order to transform customer expectations into organizational value.

Artificial intelligence adds another layer of complexity to managerial work. It does not simply replace human decision making, but changes the conditions in which managerial judgment operates. As Jarrahi (2018) states, the relationship between human intelligence and artificial intelligence can be understood as a form of complementarity in organizational decision making. Similarly, Raisch and Krakowski (2021) highlight the tension between automation and augmentation. From this perspective, the manager remains responsible for interpreting data, allocating technological resources and protecting the human meaning of organizational decisions.

The conceptual contribution of this paper is the idea of role intelligence. Role intelligence refers to the manager's ability to identify which role must become dominant in a specific situation and how it should be combined with other roles. A manager with role intelligence does not apply the same style to every context. He becomes a coach when employees need autonomy, a translator when customers reshape expectations, an interpreter when artificial intelligence produces data and a stabilizer when uncertainty threatens organizational continuity. This idea extends the classical understanding of managerial roles by placing them inside the contemporary pressures of empowerment, customer orientation and intelligent technologies.

Overall, the paper argues that the future of management is not the replacement of human managers by technology, nor the complete disappearance of hierarchy. The future of management lies in the intelligent recombination of roles. Contemporary organizations still need authority, direction and decision making, but these must be combined with participation, responsiveness, ethical judgment and technological understanding. The adaptive manager is therefore not merely a modernized version of the traditional manager. He is a managerial actor capable of connecting people, customers, data and strategy into a coherent organizational response. In this sense, managerial performance no longer depends only on the ability to control organizational processes, but on the capacity to understand when control is necessary, when autonomy should be encouraged, when customer signals must reshape priorities and when artificial intelligence should support, but not replace, human judgment. The adaptive manager becomes valuable precisely because he can maintain coherence in an environment where expectations are multiple, information is abundant and decisions must remain both efficient and responsible.

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A SYSTEMATIC REVIEW OF NIGERIAN GOVERNMENT POLICIES AND PERFORMANCE OF MICRO, SMALL AND MEDIUM ENTERPRISES

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Abstract

Micro, Small, and Medium Enterprises significantly influence the economic diversification and social inclusion, making government to implement policies that contribute to the sector's performance. This review article explored these policies from 2020 to 2023. The study used Preferred Reporting Items for Systematic Review and Meta-Analysis to identify, screen, and select eligible articles. Secondary data were sourced from the Micro, Small and Medium Enterprises' Survey Report and databases such as Google Scholar and Elsevier. The review included studies published in English, peer-reviewed journals, and those cited from 2018 till date and exclude unpublished articles, non-English publications, and those published before 2018. Policies put in place between 2020 and 2023 were also investigated to assess their objectives. Based on the inclusion and exclusion criteria, the study reviewed 25 empirical papers and 13 policies. It was established that the objectives of these policies were not fully achieved due to challenges such as inadequate regulatory reforms, limited capacity building, bureaucratic hurdles, and restricted market access. The study recommends intensified government intervention in Nigeria, focusing on regulatory reforms, capacity building, reducing bureaucracy, and improving market access. These efforts are very important for nurturing sustainable growth and ensuring the long-term viability of the sector.

Keywords: Government policies, Micro, Small, Medium Enterprises

JEL Classification: L26, O25, E61

1.0 Introduction

Economic growth and development of any nation depend majorly on the effectiveness and efficiency of Micro, Small, and Medium Enterprises (MSMEs) subsector. The subsector is the major means through which an economy can achieve its Sustainable Development Goals (SDGs) such as employment generation, reduction of poverty to the barest minimum, industrialization, innovation and sustainable economic development. The subsector accounts for 90% of businesses, 60 to 70% of employment and 50% of Gross Domestic Product (GDP) globally (Oke, Soetan & Ayedun, 2023).

In most countries, industrial growth and development as well as sustainable economic growth and development can be traceable to a well-coordinated MSME sub-sector. This is due to the fact that MSMEs are labour intensive, act as catalyst for the creation of jobs to sustain livelihoods particularly among women and youths, capable of reducing inequality and major contributor of

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Gross Domestic Product of any nation (Makinde, 2019; Hassan, Akor, Bamiduro & Ibrahim 2020). MSMEs are also seen as a highly essential breeding and fostering environment for domestic entrepreneurial activities, technical skills, and management expertise to facilitate private sector expansion. (National Policy on MSMEs 2021–2025). Consequently, MSME subsector is the backbone of economies because it contributes to local and national economies. There is always a higher level of development exhibited by economies that actively promote enterprise at any level either national or regional than economies whose institutions, policies and culture do not support enterprises (Landes, 1998; Oke, 2023). Therefore, industrial sector can be identified as one of the components and the hallmark of economic development (Muhammad et al., 2010; Dada, 2018).

Also, in American nations which are classified as developed economies, it was observed that the economic boom between the 1970s and 1980s were traced to the development of SMEs. Similarly, SMEs accounted for the economic growth in India through 20th and 21st centuries (Obboh, 2003; APEC, 2002; Alabi, David & Aderinto, 2019).

In developing countries, the subsector is known for its ability to transform the economy through rapid industrialization which brings about accelerated sustainable economic development (Adeoti, 2019; Dada & Asaolu 2023). The story is not different in Nigeria. Nigerian MSMEs represents 96.7% of all businesses and contribute 46.31% to the Gross Domestic Product (National Policy on MSMEs 2021–2025).

In the Southwestern part of Nigeria, it was discovered that most MSMEs are not performing due to factors such as insufficient access to capital, low income levels, multiple taxation, inadequate infrastructure, corruption, poor managerial skills and insecurity as well as unstable government policies (Olowe, Moradeyo & Babalola 2013, Gololo, 2017; Oke, Soetan & Ayedun, 2023).

Government policy is referred to as a broad statement of goals and means adopted by government to guide its actions and decisions in order to address certain issue areas. (United Nations, 2007). Government policy can also be referred to as a statement of objectives and a negotiated result stemming from the execution process (Galli 2015). The role of Government policy in MSMEs is to encourage and facilitate the growth of this subsector in Nigeria (Rafua, Beme, & Ebele 2024). Thus, for MSMEs to perform and contribute immensely to economic growth and development there should be a very good policy-making institutions and effective government policies (Abiola, 2024). Consequently, the Nigerian government since 1970 has introduced initiatives to promote, boost and expand MSME sub-sector. This initiative is presented in form of laws and regulations, administrative guidelines, strategic plans and frameworks and budgetary allocation to make funding decisions in areas such as training and infrastructures in order to facilitate the development and competitiveness of MSMEs (Dada, 2016).

Also, in year 2020, the subsector was seriously affected due to economic crisis caused by COVID-19 pandemic. And some initiatives were designed in favour of MSMEs by Nigerian government to counter the economic challenges caused by the pandemic. This was done to provide financial relief, promote digital transformation and ensuring long term sustainability for MSMEs. Some of these initiatives are MSME Survival Fund Policy (2020) which was designed and outlined to support MSMEs distressed by COVID-19 pandemic. And the major objective is to support self-employed individuals, artisans and transport workers through provision of direct financial assistance and employee salary subsidy. Central Bank of Nigeria (CBN) Targeted Credit Facility Policy (2020) which aimed at providing credit facilities for MSMEs to survive the economic downturn, boost liquidity for MSMEs in sectors such as agriculture, healthcare, and manufacturing for them to manage operational expenses and maintain production in order to meet domestic demands. Reduction of Regulatory and Tax Burdens Policy (2020) was introduced after the

pandemic in which tax relief measures and simplified regulatory processes were the goal. The objective was to ease the burden and economic crisis caused by COVID-19 on MSMEs as well as reducing cost of operation for MSMEs in an effort to promote a more favorable business climate to facilitate their recovery and growth. Central Bank of Nigeria (CBN) MSME Intervention Funds (2021) which aimed at making provision of low interest credit facilities available for MSMEs especially women and youth entrepreneurs. Bank of Industry (BOI) MSME Programs (2021), the policy focused on industries such as manufacturing, agriculture, and ICT. This program was designed to ease access to credit for MSMEs through lower interest rates and favorable repayment terms. Youth Entrepreneurship Support (YES) Program (2021) which was designed to provide capacity building, mentorship and access to finance to young entrepreneurs in Nigeria. Economic Sustainability Plan (2022) focused on providing financial assistance to MSMEs and encouraging economic recovery. Nigeria Youth Investment Fund (NYIF 2022) aimed at providing financial support to youth-owned MSMEs for them to start and grow their business. SMEDAN Conditional Grant Scheme (2022) aimed at offering financial assistance, training, and business development services to micro-enterprises to improve their access to markets. African Continental Free Trade Area Implementation (AfCFTA 2022) focused on assisting MSMEs prepare for regional trade opportunities, making provision for training and support export-oriented businesses. MSME Survival Fund (2023) focused on supporting small enterprises distressed by the COVID-19-induced economic down. Startup Policy and Innovation Focus (2023) was initiated to align MSMEs with the digital economy particularly in the startup ecosystem for them to remain innovative and globally competitive (National Policy on MSMEs, 2021-2025).

Unfortunately, despite all these policies by Nigerian government, many MSMEs in Southwest do not survive more than a year. Previous studies such as Ayedun, Asikhia and Oduyoye, (2015); Oke, Soetan and Ayedun (2023) observed that performance of the subsector in Southwest has been retarded by inadequate access to finance, corruption, poor managerial skills, unstable political and economic environment.

Therefore, this study is informed by unstable and ineffective government policies combined with the huge number of MSMEs that wind down yearly in the Southwest Zone of Nigeria despite all policies put in place. The study is also informed by dearth of study on influence of government policy in the Zone.

2.0 Theoretical framework

This work adapted Keynesian economic theory which was propounded in the 1930s by John Maynard Keynes. The theory was developed in response to the great depression in 1930. Keynes argued that government should intervene in times of economic recession by increasing government expenditure and reducing taxes in order to stimulate aggregate demand. This argument was in contrary to the classical theory which proposed that there shouldn't be anything like government intervention and that the economy must be left in the invisible hands of demand and supply. Keynes further explained that private sector demand is not enough to maintain full employment. Therefore, government spending is necessary to stimulate aggregate demand, create employment and stabilize the economy. Likewise, government policies on MSMEs from year 2020 to 2023 were in response to the economic downturn caused by COVID-19 pandemic.

2.1 Empirical evaluation of Nigerian Government policies

Warsiyah, Saputeri, Nurulia and Fakhrurozi (2024) investigate how government policies have promoted MSMEs in Lampung, Indonesia. The authors collected secondary data and was analyzed with regression analysis. The authors revealed that government policies are in support of the subsector in Lampung because government policy influenced their growth positively. Kumar & Kumar (2022) in an overview of how government policies have impacted entrepreneurship development programs in micro, small & medium sized enterprises in India. The authors emphasized that government development programmes boost and expand SMEs. The Authors recommend that SMEs should embrace government entrepreneurship development programme through its technology. Mwasiagi (2019) investigated the influence of government policies on performance of medium scale manufacturing enterprises in Kenya using descriptive research analysis. The study showed that manufacturing enterprises face challenges such as complex regulatory framework, hostile trade and customs laws, strict credit and monetary policies, corruption and higher rate of taxation. The study therefore concluded that government policies do not improve the performance of manufacturing enterprises in Kenya. The Author recommended policy initiatives that support removal of bottlenecks, lower rate of taxation, embracing information technology to cut down on bureaucracy. Hassan, Akor, Bamiduro and Rauf (2020) assessed how Nigerian small and medium-sized businesses' productivity is influenced by government policies and insecurity factors. The researchers used a survey conducted in 2020 from 590 SMEs respondents. The data collected was analyzed using logistic regression. The authors emphasized that policy of multiple taxation brings about increase in cost for SMEs with negative impact on SMEs productivity. Turkson, Addai, Chowdhury and Mohammed (2021) examined the effect of government policies on business' performance before and during the economic downturn caused by COVID-19 in Italy. The authors estimated the data collected from 419 Italian firms with first difference estimation. They revealed that firms that received grants from government during COVID-19 pandemic had an increase of 11% increase on average. Obialor (2020) assessed the impact of government regulations on new businesses in Owerri. The author used a sample size of 310 beverage industries. The data collated were analyzed using regression and correlation. He found out that operations of start-ups in Imo state are severely hampered by expensive statutory fees and regulatory hurdles. Ibrahim and Muritala (2023) in their work "Do Government Policies Improve Business Performance? Evidence from Nigeria" explored the effect of fiscal and monetary policies on performance of firms in Nigeria. The researchers used regression analysis to analyze the data collected and revealed that inflation and exchange rate have a negative effect on rate and return on assets (ROA). Salami, Ekakitie and Ebinim (2023) in their work "Government Policy on Entrepreneurship Growth and Development of Small-Scale Business" measured government policy with entrepreneurship policy interventions and monetary policy. The data collated from 272 copies of questionnaire were analyzed by using Pearson's product-moment correlation coefficient. The authors emphasized that entrepreneurship policy intervention and monetary policy enhance entrepreneurship growth and development. Alabi, David and Aderinto (2019) assessed the effect of government policies on the growth of enterprises across South Western Nigeria. The study involves secondary data. Pearson Product Moment Correlation Coefficient (PPMC) was employed in analyzing the data generated. The authors found a significant relationship between government policy and business growth of Small and Medium Enterprises (SMEs) in South Western Nigeria. Ebire and Onmonya (2018) investigated how SMEs financing in Nigeria from the first quarter of 1992 to the last quarter of 2016 has been influenced by monetary

policy. Error Correction Model (ECM) and Cointegration techniques were both used to analyze the data collated. And it was revealed that interest rate has influenced the SMEs financing significantly while SMEs financing is negatively influenced by inflation rate. Ramadhona, Syafri, Maryani and Achmad (2023) explored the effect of government support and policy design on MSME's Performance in Indonesia. Data was obtained with the use of questionnaire given to MSMEs Pesawaran Regency in Indonesia. The data collated was analyzed with Structural Equation Model using AMOS software. The authors revealed that both financial and non-financial support influenced MSMEs performance in Pesawaran Regency, Lampung. Ibrahim (2022) assessed the effect of government's financial support on the performance micro, small and medium scale enterprises (MSMEs) through the effectiveness of Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) programme on the performance of MSMEs. Data was sourced from online electronic survey (google form). And the data was analyzed using descriptive and chi – square. It was found that Central Bank of Nigeria (CBN) Loan Schemes under NIRSAL programme had improved the performance of MSMEs in Nigeria. Obananya and Ojukwu (2022) examined the extent to which government policies influenced the performance of Small and Medium Enterprises (SMEs) in Anambra State, Nigeria. Regression was employed in analysing the data collected from 300 SMEs. The Authors revealed that government policies in the state have contributed immensely to the growth of small and medium enterprises in Onitsha North Local Government area, Anambra State Nigeria. Oparah, Nwagbala and Iloanya (2023) investigated government policies' effects on Nigeria's small and medium-sized business growth between 1999 and 2022 using Ordinary least Square (OLS) technique method. The Authors observed that government expenditure has contributed to the performance of SMEs in Nigeria. While unemployment and interest rate are negatively related to SMEs. Harini, Sudarijati and Arsyad (2018) analyzed the effects of government policies and the involvement of stakeholders on MSMEs growth in Indonesia. Regression analysis was used to analyze the data gathered. The authors established that government policy and the involvement of stakeholders funding, training and mentoring improved the performance of MSMEs. Onyeje, Court and Agbaeze (2022) assessed how the national enterprise policy has been able to sustain micro, small and medium enterprises in Nigeria. Descriptive and Inferential statistics were employed to analyze the data collected from 506 respondents. It was observed that national policies have been able to contribute to the sustainability of MSMEs in Nigeria. Oke (2023) assessed the performance of MSMEs in Southwest, Nigeria using descriptive analysis, Spearman and Kruskal-Wallis H tests. The result shows that insufficient business financing has an adverse effect on MSMEs performance while building good customer's relationship has contributed to the performance of MSMEs. Rafua, Beme and Ebele (2024) explored the contribution of government policy initiatives to the expansion and growth of MSMEs in Nigeria using Chi-Square. The authors found that government policies have been able to contribute positively to resource mobilization and increase in output. Ezeilo and Ike (2024) analyzed government policies and growth of SMEs in Asaba, Delta State, Nigeria using Ordinal Logistic Regression analysis. The researchers established that SMEs' performance is significantly and favorably impacted by government taxation policies and fluctuating foreign exchange rates, but government infrastructure has no impact on SMEs' growth.

Salami, Ekakitie and Ebinim (2023) investigated the influence of government policies on growth of entrepreneurship and performance of small-scale businesses in Asaba, Delta State, Nigeria using Pearson's product-moment correlation coefficient to analyze the data collated during survey. It was revealed that entrepreneurship policy intervention and monetary policies has improved

entrepreneurship growth and development. Agbim (2020) assessed the effect of government policy and financial inclusion on the financial and non-financial performance of SMEs in South Eastern Nigeria using thematic content analysis and it was established that government policies and financial inclusion have impacted the SMEs performance positively. Tochukwu, Onwucheka and Ndubuisi, (2022) worked on how government policies can sustain MSMEs in Nigeria using regression analysis to analyze three hundred and fifty -one (351) questionnaires collected from MSMEs' operators. It was revealed that inability to access loan from banks and high rate of tax reduces working capital which hinders the sustainability of start-ups. Awe and Omoniyi (2023) analyzed the contribution of microfinance to Micro, Small and Medium Enterprises (MSMEs) in Southwest, Nigeria using OLS regression analysis to analyze three hundred copies of questionnaires (300) collated from MSMEs operators. The Authors established that microfinance has contributed immensely to the development of Micro, Small and Medium Enterprises (MSMEs) in Southwest, Nigeria but the researchers discovered that short term loan repayment was not convenient for business operators. The researchers therefore recommended that government should make necessary policy to enable microfinance bank to offer medium term loan to MSMEs.

Thankgod and Igbinovia (2023) investigated effect of monetary policy tools on the expansion of small and medium-sized businesses in Nigeria by analyzing secondary data from the Central Bank of Nigeria (CBN) statistical bulletin using Auto-Regressive Distributed Lag (ARDL). The Authors revealed that if expansionary monetary policy (increase in money supply) is channeled towards SMEs in Nigeria, Small and medium-sized businesses will grow and expand. It was recommended that commercial banks should allow registered SMEs access to loans for them to boost their productive base in order to reduce unemployment in Nigeria.

2.2 Research Gap

From the policies reviewed, this work discovered that the set objectives were not totally achieved due to some challenges such as limited reach caused by insufficient awareness especially in rural areas, administrative inefficiencies, policy continuity and coordination issues, policy implementation gaps, bureaucratic hurdles as well as inadequate monitoring and evaluation. Also, most micro enterprises had the problem of meeting up with eligibility criteria like collateral and formal registration which debarred them from accessing the loan. This inability of the total achievement of these stated objectives was pronounced in the contribution of MSMEs to Nigerian GDP. According to Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) MSME 2021, the contribution of this sector to national GDP was 46.3% as against 48% in 2019. In fact, despite efforts to improve MSME participation in export markets through African Continental Free Trade Area (AfCFTA), their contribution to export trade remains low at 6.2%. This shows that while MSMEs are trying to improve in terms of domestic economic impact, they still struggle with international market access.

Furthermore, it was discovered from the works reviewed that all the researchers except Mwasiagi (2019) who investigated how government policies has contributed to the performance of medium scale manufacturing enterprises in Kenya focused on government policy in form of finance and R&D but overlook the aspect of laws and regulatory frameworks for MSMEs such as low taxes, simplified registration processes and licensing processes to reduce bureaucratic hurdles, intellectual property rights which gives room for protection of invention and innovation, flexible labour laws to help manage workforce effectively as well as standard and quality regulations with easy administrative procedures to provide a conducive business environment needed for

facilitation and enhancement of production and competitiveness

3.0 Methodology

Preferred Reporting Items for Systematic Review and Meta Analysis (PRISMA) method was used. Four stages are involved in PRISMA to select articles for review. The four stages are identification, screening, eligibility and inclusion. Identification stage consists of the used database and search terms. The study made use of SMEDAN MSME Survey Report and different data base such as Google Scholar and Elsevier. The focus was on articles and initiatives with “Government policy” and “Performance of MSMEs”. The study identified articles by including synonyms of government policy like tax policy, fiscal policy, national policy and public policy. All articles collated from the aforementioned databases including title, keywords, authors’ names and journal names were imported to reference management software in order to search and remove duplicate.

The identified articles and policies were later screened using inclusion and exclusion criteria. The screened articles and policies include empirical studies published in English language and in a peer-reviewed journal on government policy and performance of MSMEs from year 2018 to 2024. While the policies that relates to MSMEs from 2020- 2023. Those articles and policies that did not meet up with inclusion criteria were eliminated. And those articles that were not published in English, peer-reviewed journal, studies that were not related to effect of government policies on performance of MSMEs were excluded. Articles published before 2018 and policies made before 2020 were also excluded.

Full-text articles of studies that pass the abstract screening were retrieved in order to evaluate the methodology, population, sample used. Policies were also retrieved in order to evaluate the objectives. All these were assessed for eligibility based on inclusion and exclusion criteria specified above thereby removed irrelevant articles.

The study eventually considered twenty-five (25) articles from 2018 till date and thirteen (13) policies from 2020 to 2023 for review.

4.0 Results and Discussion

Several policies and initiatives from year 2020 to 2023 have been evaluated. The study discovered that the stated objectives were partially achieved due to some factors such as limited reach to MSMEs caused by insufficient awareness especially in rural areas, administrative inefficiencies, policy continuity and coordination issues, policy implementation gaps, bureaucratic hurdles, inadequate monitoring and evaluation as well as inability of MSMEs to meet up with eligibility criteria like collateral and formal registration which debarred them from accessing the loan. This inability of total achievement of these stated objectives was pronounced in the contribution of MSMEs to Nigerian GDP. According to NBS/SMEDAN MSME 2021, the contribution of this sector to national GDP was 46.3% as against 48% in 2019. In fact, despite efforts to improve MSME participation in export markets through AfCFTA, their contribution to export trade remains low at 6.2%.

Also, some of the works done by researchers on the contribution made by government policies to the performance of MSMEs in various countries and geopolitical zones across Nigeria have been systematically reviewed. From the works reviewed, it was discovered that some researchers such as Warsiyah, Saputeri, Nurulia and Fakhrurozi (2024), Kumar & Kumar (2022), Turkson, Addai, Chowdhury and Mohammed (2021), Salami, Ekakitie and Ebinim (2023), Alabi, David and Aderinto (2019), Ramadhona, Syafri, Maryani and Achmad (2023), Ibrahim, I. (2022), Harini, Sudarijati and Arsyad (2018), Onyeje, Court, and Agbaeze (2022), Oke (2023), Rafua, Beme and

Ebele (2024), Salami, Ekakitie and Ebinim (2023), Agbim (2020), Thankgod and Igbinovia (2023), Ezeilo and Ike (2024) discovered that government policies has improved the performance of MSMEs. While other researchers such as Hassan, Akor, Bamiduro and Rauf (2020), Tochukwu, Onwucheka, and Ndubuisi, (2022), Mwasiagi (2019) found a negative relationship between government policy and MSMEs' performance. This means that some of the government policies are favorable while some are not favourable.

Furthermore, all the aforementioned researchers worked on government policy in the area of taxation, finance, money supply, interest rate, infrastructure and research and development. But none of works was focused on aspects of laws and regulatory frameworks for MSMEs such as simple bureaucracy, standard and quality regulations with easy administrative procedures to provide a conducive business environment needed for facilitation and enhancement of production and competitiveness except Mwasiagi (2019) who recommended this in Kenya. Consequently, there is need for further studies on the influence of government policies on performance of MSMEs in Southwest zone of Nigeria because there is a dearth of study on the contribution of government policies to MSMEs' in the zone.

5.0 Conclusion and Policy Directions

Government policies have a critical role to play in enhancing the performance of MSMEs. These roles can only be established, pronounced and make significant differences if government can intensify its intervention in the Southwest zone of Nigeria on major areas such as regulatory reforms, capacity building, bureaucracy and market access facilitation, formalizing informal businesses, integrating MSMEs into global trade network as well as those policies that are favorable to MSMEs and not on financial support only. This will go a long way in removing the bottlenecks and challenges faced by MSMEs and bring about expansion in their productive base. Government should also intensify effort in creating awareness so that MSMEs in the rural areas and the informal sector can benefit from government initiatives. However, continuous evaluation and adaptation of these policies are very important to meet the recurrent needs of MSMEs and facilitate their competitiveness so as to guarantee their sustained growth and contribution to the economy.

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INNOVATION AND ADAPTABILITY IN TOURISM BUSINESS MANAGEMENT, ENTREPRENEURIAL STRATEGIES FOR A COMPETITIVE MARKET

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Summary:

The economic, social and technological transformations of the last decades have fundamentally redefined the structure and functioning mechanisms of the tourism sector. In an interconnected world, characterized by volatility and increased competition, innovation and adaptability become essential strategic benchmarks for the survival and development of businesses in the field. This paper analyzes the theoretical and applied dimensions of these concepts, focusing on how strategic management and entrepreneurship can transform market challenges into a competitive advantage.

The research focuses on the role of digitalization, sustainability, and innovative leadership in building resilient tourism organizations. Through a multidimensional approach, the article identifies development directions for tourism enterprises, advancing proposals regarding educational policies, technology investments, and intersectoral partnerships.

Keywords: innovation, adaptability, tourism management, entrepreneurship, competitiveness, digitalization.

JEL Classification : L83, M10, M31

Introduction

Tourism, as an economic and social phenomenon, most accurately reflects the dynamics of globalization and the profound changes in consumer behavior. In recent decades, the tourism industry has transformed from a predominantly supply-oriented sector into one governed by demand, in which the customer experience and the personalization of services have become the main criteria for competitiveness. In this context, innovation and adaptability are no longer just strategic advantages, but basic conditions for the existence of tourism organizations.

Over the past two decades, tourism has become one of the most dynamic sectors of the world economy, contributing significantly to the gross domestic product of many countries. According to the World Tourism Organization (UNWTO, 2022), before the COVID-19 pandemic, the tourism industry generated over 10% of global GDP and provided approximately one in ten jobs worldwide. However, this expansion has been accompanied by an increase in the vulnerability of the tourism system to external factors, such as economic crises, geopolitical instability or climate change.

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In such a context, **the capacity for adaptation and innovation** has become a criterion for survival. The global pandemic represented a major inflection point for tourism, leading organizations to reconfigure business models, invest in digital transformation, and rethink customer relationships. As Buhalis (2019, p. 28) states, *“technology has become the backbone of modern tourism competitiveness, integrating innovation into every stage of the travel experience”*.

Nowadays, the success of a tourism business depends not only on the quality of the services offered, but also on the speed with which the organization can reinvent itself. Drucker (1985, p. 19) emphasizes that *“the entrepreneur always searches for change, responds to it, and exploits it as an opportunity”*, a statement that acquires special relevance in an industry where change is the only constant.

Therefore, this paper aims to:

1. Analyze the role of innovation and adaptability in the current context of tourism management;
2. Identify entrepreneurial strategies that can boost the competitiveness of tourism organizations;
3. It proposes directions for sustainable development, with an emphasis on digitalization and entrepreneurial education.

The paper is structured in five main chapters, which address, in logical order, the theoretical foundations of innovation, the mechanisms of strategic management, entrepreneurial strategies, the role of innovative marketing and, finally, the perspectives of sustainability in contemporary tourism.

Chapter I. Theoretical foundations of innovation and adaptability in tourism management

1.1. The concept of innovation in the context of tourism business

The concept of innovation has been analyzed since the classic works of Joseph Schumpeter (1934), who considered innovation as the "engine of economic development" and the main source of competitive advantage. In the field of tourism, innovation manifests itself through product diversification, modernization of management processes, implementation of digital technologies and creation of personalized experiences.

Specifically, innovation can be:

- **product**, by developing thematic tourist packages, authentic experiences or integrated services (for example, local gastronomic tourism);
- **process**, by digitizing reservations, optimizing logistics and using artificial intelligence to analyze customer behavior;
- **organizational**, by modifying the internal structure and introducing new methods of coordinating human resources;
- **marketing**, by using storytelling, sensory marketing or influencer marketing in promoting destinations.

Innovation, in this sense, is not just a result, but a continuous process, dependent on organizational culture and management's willingness to support change.

In the last two decades, the perspective on innovation in tourism has broadened considerably, being influenced by phenomena such as hyperconnectivity, the emergence of the collaborative economy and the change of consumption paradigms. Thus, innovation can no longer be viewed only through the lens of the development of new products, but as an integrative process that reconfigures the relationships between actors, production structures and the way of distributing value in the entire tourism ecosystem. In a context in which tourists adopt hybrid behaviors, oscillating between digital preferences and the desire for authentic experiences, organizations are forced to generate convergent solutions, in which technology, culture and creativity combine in an adaptive logic.

A new element is the orientation towards co-created innovations, developed in partnership with local communities, tourists and regional stakeholders. By directly involving beneficiaries in the idea generation process, tourism companies manage to reduce strategic risk, identify emerging trends and create products adapted to the cultural identities of destinations. This approach, widely used in the concept of "living labs", transforms innovation from an internal act into a collaborative one, strengthening organizational resilience.

In the literature, disruptive innovation is associated with technologies or processes that fundamentally transform existing economic structures. In tourism, this form of innovation manifests itself through:

- peer-to-peer platforms (Airbnb, Couchsurfing), which have reshaped the hospitality market;
- the digitalization of payments and the emergence of blockchain technologies, which reduce transaction costs and increase transparency;
- artificial intelligence and recommendation systems, which personalize the tourist experience in a way that was impossible a decade ago;
- robotics and automation of hotel services, which provides speed, precision and operational consistency.

These phenomena fundamentally change **the tourism value chain**, generating new interdependencies between actors and redistributing profit margins towards companies with high innovation capacity.

1.2. Organizational adaptability – a condition for resilience

Adaptability is defined as the ability of an organization to react quickly and effectively to changes in the external environment, maintaining its competitiveness. In tourism, where demand is sensitive to external factors such as the global economic situation, security or climatic conditions, adaptability is a fundamental strategic competence.

According to dynamic systems theory (Burnes, 2017), an adaptable organization is characterized by structural flexibility, openness to learning, and internal feedback mechanisms. In tourism, this implies

the ability to quickly adjust marketing strategies, reorient the offer towards emerging segments, and integrate technological innovations into operational processes.

Adaptability becomes a critical competency in an industry where demand is subject to extreme variations, and uncertainty driven by political, climatic and technological changes directly influence tourism flows. From the perspective of organizational evolution theory, tourism firms can no longer be viewed as static entities, but as dynamic systems that continuously adjust their internal structures to respond to the external environment.

Today, adaptability involves developing fluid organizational architectures that can support both traditional processes and innovative experiments. This involves the use of modular digital platforms, the diversification of supply chains, and the shift to flexible work models based on autonomous micro-teams. In addition, high-performing organizations implement strategic foresight mechanisms, through which they anticipate macroeconomic developments and migrate to alternative scenarios before change has destabilizing effects.

Adaptability at the organizational level extends to the level of destinations – conceived as “socio-ecological systems” that require integrated management tools. A resilient destination involves:

- the ability to absorb external shocks (pandemics, economic crises, geopolitical instability);
- diversifying types of tourism to reduce dependence on a single flow;
- intelligent infrastructures capable of regulating tourist flows;
- participatory governance mechanisms between the public, private and community sectors.

This type of resilience is not only structural, but also cultural, assuming a high degree of institutional learning and collective adaptation.

Digital transformation as a national competitiveness strategy

Countries that have integrated digitalization into their national tourism strategies (Estonia, Singapore, Finland) have succeeded in creating smart tourism ecosystems. They use:

- national digital identity systems for flow management;
- fully digitized DMOs (Destination Management Organizations) platforms;
- electronic signatures, integrated payments and aggregated data for real-time decisions.

Comparatively, traditional destinations, dependent on analog models, are becoming less competitive.

Chapter II. Strategic management of innovation in tourism

2.1. Innovation-oriented strategic planning

Strategic management in tourism aims to align organizational objectives with the opportunities offered by the external environment. Innovation-oriented strategic planning involves adopting a proactive vision, in which the analysis of trends, emerging technologies and consumer behavior guides managerial decisions.

Thus, high-performing tourism organizations structure their strategies around axes such as:

- continuous investment in research and development (R&D);
- collaboration with academic institutions and innovation centers;
- employee involvement in creative processes;
- using data (big data) to support decisions.

By correlating these dimensions, strategic management becomes a catalyst for systemic innovation, not just marginal improvement of tourism products.

In the current context of global tourism, strategic planning oriented towards innovation is increasingly based on the use of predictive analysis techniques and the identification of emerging opportunities in volatile markets. Tourism organizations that integrate contextual intelligence into strategic processes manage to develop multiple evolution scenarios and adopt proactive policies, avoiding the "late reaction trap".

In this sense, strategic planning becomes a circular process, which is carried out continuously and allows for the permanent adjustment of organizational objectives. A novelty is the incorporation of "social added value" indicators, which evaluate the impact of tourism products on the community, the environment and the local culture. These indicators complement the traditional financial perspective, providing a holistic picture of the sustainability of the adopted strategy.

2.2. Innovative leadership in tourism organizations

Leaders play a critical role in stimulating creativity and transforming organizational culture. Innovative leadership involves the ability to inspire teams, manage risk, and turn ideas into tangible results.

In tourism organizations, innovative leaders promote interdisciplinary collaboration, decentralization of decision-making, and ownership. They also support continuous employee training, recognizing that innovation is born from an open and stimulating organizational climate.

In contemporary tourism organizations, leaders are no longer limited to simply coordinating resources, but become facilitators of innovative processes and architects of organizational culture. Transformational leadership, increasingly present in competitive destinations, requires the leader's ability to inspire, create meaning and generate emotional involvement around the concept of innovation.

A transformational leader cultivates a climate in which employees are encouraged to take initiative, propose unconventional ideas, and experiment with original solutions without fear of failure. In addition, he develops cross-functional communication mechanisms, through which information flows freely between departments, accelerating the decision-making process. In the digital age, the skills of leaders necessarily include technological literacy and the ability to manage projects in virtual environments, where teams work distributed and need new forms of organizational cohesion.

2.3 Advanced theoretical models applied in tourism

The "Smart Tourism" Model (Smart Tourism Framework)

The model proposes an architecture based on three pillars:

1. **Intelligent technologies** – big data, IoT, cloud systems;
2. **Smart governance** – multi-stakeholder cooperation, integrated public policies;
3. **Smart experiences** – personalization, interactivity, digital memory.

The interaction between these pillars generates a self-regulating tourism ecosystem, capable of anticipating and adapting demand flows.

The "Triple Helix" model and the extended "Quadruple Helix" version

The Triple Helix model (universities–industry–government) explains how innovation is generated through the interaction of three central actors. In tourism, the applications are obvious:

- universities generate knowledge and skills;
- the industry adopts technologies and implements innovation;
- governments provide the legislative and financial framework.

Quadruple Helix version adds the role of **community**, reinforcing the idea of co-creation of value. This extension is essential in sustainable tourism, where social acceptance determines the success of projects.

Destination Lifecycle Model (Butler) – modern reinterpretation

The classic model includes: exploration – involvement – development – consolidation – stagnation – decline – renewal.

The upgraded version includes:

- **adaptive cycle**, in which destinations can go through microphases of reinvention;
- elements of technology, in which digitalization becomes a factor in extending the cycle;
- integrating sustainability, which can prevent premature decline.

Chapter III. Entrepreneurial strategies for a competitive market

3.1. Entrepreneurship as a vector of innovation in tourism

Entrepreneurs are the main agents of economic change. In tourism, they contribute to the development of regions by capitalizing on local resources, creating jobs and diversifying the offer.

Entrepreneurship stimulates innovation by identifying market niches, introducing unconventional business models (eco-lodges, rural tourism, agritourism) and adapting quickly to tourists' needs. According to Morrison (2006), tourism entrepreneurs are "practical visionaries", able to balance risk with opportunity.

Tourism entrepreneurs are no longer limited to capitalizing on existing resources, but are creating new tourism identities, built around local narratives, intangible heritage and regional specificities. In an era dominated by the "experience economy", tourism entrepreneurship is acquiring cultural valences, becoming a form of mediation between tradition, innovation and global demand.

A new element is the orientation towards hyper-personalized micro-experiences, which transform each tourist into a co-creator of the product. By using artificial intelligence, entrepreneurs can anticipate individual preferences of visitors and adjust the offer in real time, thus generating authentically differentiated experiences. At the same time, entrepreneurship becomes a vector of revitalization of rural areas, through community tourism projects that reduce migration and support the local economy.

3.2. Flexible and sustainable business models

In a global market, structural rigidity becomes a major obstacle. Modern business models must include elements of flexibility, such as outsourcing, digitalization of services or collaboration with online platforms (Booking, Airbnb).

At the same time, sustainability is becoming a competitive differentiator. Consumers prefer companies that respect the environment and local community, which leads companies to adopt green practices, waste management and carbon footprint reduction.

Contemporary tourism business models increasingly adopt an evolutionary structure, based on modularity and the ability to quickly integrate new technologies or strategic partners. One new model is the shift towards "circular tourism", in which resources are reused and economic flows are rethought to minimize waste and maximize social impact.

Successful companies use digital platforms that connect local suppliers, carriers, guides and operators in a fluid ecosystem, capable of optimizing the distribution of resources. Operational flexibility thus becomes an essential attribute of sustainability, and companies that adapt quickly to unpredictable circumstances become market leaders in an industry characterized by structural uncertainty.

3.3. Partnerships and entrepreneurial ecosystems

Entrepreneurial ecosystems, formed by collaboration between businesses, universities, local authorities and NGOs, constitute the invisible infrastructure of innovation. In tourism, public-private partnerships can support infrastructure development, destination promotion and the creation of strong territorial brands.

The development of entrepreneurial ecosystems in tourism is increasingly oriented towards the formation of specialized thematic clusters – for example, mountain tourism clusters, wellness tourism or cultural tourism. These structures allow the rapid circulation of knowledge, attract investment and facilitate technology transfer between companies.

The novelty lies in the integration of common digital tools at cluster level, such as booking platforms, augmented reality applications or data management systems that monitor tourist flows in real

time. By coordinating marketing and innovation strategies, these clusters generate competitive advantages at regional level and create coherent, attractive and sustainable destinations.

Chapter IV. Innovative marketing and digitalization in tourism

4.1. Digital transformation of the tourism experience

Digitalization has revolutionized tourism with the emergence of booking platforms, mobile applications and augmented reality. Artificial intelligence provides predictive tools for demand analysis, and virtual reality allows for interactive promotion of destinations.

Through digital transformation, companies can reduce operational costs, personalize services, and increase customer satisfaction, generating loyalty and a positive reputation.

Digitalization is no longer just a technological component, but an entire architectural framework that redefines the tourist experience from inspiration to post-consumption. Smart platforms allow tourists to access information in real time, interact with the destination through augmented reality and receive personalized recommendations based on machine learning algorithms.

A significant innovation is the development of “digital twins” of tourist destinations – virtual replicas that allow for the simulation of visitor flows, optimization of accommodation capacities and anticipation of environmental impact. With these advanced tools, organizations can reduce costs, improve the visitor experience and sustainably manage natural resources.

4.2. Experiential marketing and customer loyalty

Contemporary tourism no longer just sells products, but **experiences**. Experiential marketing creates an emotional connection between the customer and the destination, capitalizing on cultural authenticity, local traditions and contact with nature.

Loyalty is no longer achieved through price, but through memorability. Tourism brands must tell stories ("destination storytelling") and involve the tourist in the act of consumption, transforming him into an ambassador of the destination.

Experiential marketing is evolving towards emotional marketing, where messages are built around the cultural identity and deep values of the destination. Modern tourism brands base their communication on multisensory stories, where sounds, images, tastes and traditions are integrated into a coherent narrative.

In addition to loyalty, emotional marketing creates a relationship of belonging between the tourist and the destination, generating a community of supporters who actively contribute to promotion. Tools such as digital travel diaries, personalized gamified experiences or collaborative storytelling campaigns intensify tourist involvement and amplify brand visibility.

Chapter V. Development and sustainability perspectives in tourism businesses

5.1. Sustainable tourism as a competitiveness strategy

Sustainability is increasingly seen as a differentiation strategy and not just an ethical commitment. In a world where tourists are becoming more aware of their environmental impact, tourism organizations are called upon to adopt responsible policies.

Green tourism, ecological certifications and local community involvement are becoming essential tools in building a sustainable competitive advantage.

The modern concept of sustainability goes beyond the traditional model focused on minimizing impact and is oriented towards "regenerative tourism", which aims not only to protect but also to improve local ecosystems. Thus, tourism organizations implement practices that restore biodiversity, stimulate the local economy and contribute to the revitalization of cultural heritage.

Sustainable performance assessment tools include ecological footprint analyses, social resilience indicators and cultural contribution measurement. In this context, tourism companies take on a role as a catalyst for regional development, actively participating in the creation of a sustainable socio-economic framework.

5.2. Entrepreneurship education and skills development

To support the transition to smart and sustainable tourism, investments in entrepreneurial education are needed. Universities and training centers must include disciplines dedicated to innovation, digitalization and strategic management in their curricula.

The training of digital skills, critical thinking and ethical leadership represents the foundations of a new generation of professionals capable of ensuring the continuity and competitiveness of the industry.

Entrepreneurship education is becoming a multidimensional process, integrating advanced digital skills, soft skills and applied knowledge about sustainability. Educational institutions are introducing practical programs based on digital simulations, international case studies and projects carried out in partnership with tourism organizations.

An innovative direction is the development of smart tourism laboratories, where students experiment with technologies such as virtual reality, big data analysis or destination management systems. Thus, future professionals gain a deep understanding of the complexity of the industry and become able to propose solutions adapted to a constantly changing market.

Conclusions and proposals

The analysis highlights that innovation and adaptability are the main pillars of sustainable development in tourism businesses. Companies that orient their strategies towards digitalization, collaboration and sustainability have the ability to remain competitive in an uncertain and constantly changing environment.

Main proposals:

1. Developing national support programs for tourism innovation, by financing start-ups and regional incubators.
2. Introducing entrepreneurial training in higher and vocational education institutions in the tourism field.
3. Stimulating partnerships between academia, the private sector and public administrations for sustainable tourism projects.
4. Creating networks of smart destinations that leverage digital data for better management of tourist flows.

Future research directions

1. **Ethical artificial intelligence in tourism** – how to avoid algorithmic manipulation and preserve decision-making autonomy?
2. **Space tourism** – the emerging impact of the new industry on global mobilities.
3. **Digital twins for destination management** – predictive simulations of tourist behavior.
4. **Regenerative cultural capital indicators** – how can positive cultural impact be measured?
5. **Psychology of the tourist experience** – analysis of emotions in consumer decisions, through neurotourism.

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PERCEIVED USEFULNESS OF DIGITAL TECHNOLOGIES AND RISK PROPENSITY IN ENTREPRENEURSHIP: PLS-SEM EVIDENCE

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Abstract

This study investigates the influence of perceived usefulness (PU) of digital technologies on risk propensity (RP), a critical indicator of entrepreneurial intention, among students of Kwara State Polytechnic, Ilorin, Nigeria. Grounded in the Technology Acceptance Model (TAM) and entrepreneurship theory, the study adopted a cross-sectional quantitative survey design with 306 valid responses from HND II students. Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed in SmartPLS 4 to test the hypothesised relationship, with 5,000-subsample bootstrapping for hypothesis testing. A very strong, statistically significant positive relationship was identified between PU and RP ($\beta = 0.798$, $t = 35.693$, $p < 0.001$, $R^2 = 0.637$, $f^2 = 1.757$). Perceived usefulness explained 63.7% of the variance in risk propensity. Measurement model assessment confirmed excellent reliability (Cronbach's $\alpha \geq 0.968$; CR ≥ 0.973) and convergent validity (AVE ≥ 0.838), with HTMT discriminant validity confirmed at 0.823. The study is confined to a single polytechnic, employing cross-sectional data that precludes causal inference. Future longitudinal and multi-site studies are recommended. Entrepreneurship educators should frame digital tools as active risk-mitigation instruments, demonstrating their utility in reducing information asymmetry and business uncertainty to cultivate informed, technology-enabled risk tolerance among students. This is among the first studies to empirically examine the direct PU–risk propensity pathway using PLS-SEM in a sub-Saharan African polytechnic setting, contributing novel evidence to the digital entrepreneurship and risk-taking literature.

Keywords: Perceived usefulness; Risk propensity; Digital technology adoption; Entrepreneurial intention; TAM; PLS-SEM; Nigeria; Calculated risk-taking

INTRODUCTION

Risk-taking lies at the philosophical heart of entrepreneurship. Since Knight's (1921) foundational distinction between measurable risk and unmeasurable uncertainty, scholars across economics, psychology, and management have grappled with the question of what motivates

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individuals to accept the inherent uncertainties of venture creation (Ratten, 2023; Steenkamp, Meyer, & Bevan-Dye, 2024). The contemporary consensus in entrepreneurship research suggests that successful entrepreneurs are not, as popular myth would have it, indiscriminate risk-takers, but rather calculated risk-takers, individuals who deliberately assess the probability distribution of potential outcomes, leverage their resources and competencies to shift that distribution favourably, and act on perceived opportunity when the risk-reward calculus becomes acceptable (Kim et al., 2025; Wang, Yeo, & Shou, 2025).

The emergence of digital technologies has profoundly altered this risk-reward calculus for aspiring entrepreneurs, particularly in developing economies where structural barriers to entrepreneurship, including information asymmetry, limited market access, high operational costs, and restricted financial resource availability, have historically been prohibitive (Nkwei, Rambe, & Simba, 2023; Prasetyani et al., 2025). When digital tools provide students with access to real-time market analytics, social media marketing channels, e-commerce platforms, digital financial management systems, and competitor intelligence capabilities, the perceived uncertainty associated with entrepreneurship diminishes (Wahab & Akintade, 2025). Consequently, students who perceive these technologies as genuinely useful for entrepreneurial activities may develop a more favourable risk propensity, a greater willingness to accept and engage with the inherent uncertainties of venture creation.

This theoretical proposition finds its formal expression in Davis's (1989) Technology Acceptance Model (TAM), which defines perceived usefulness (PU) as the degree to which a person believes that using a particular system will enhance their job performance or outcomes. Applied to the entrepreneurial context, PU captures students' beliefs about the degree to which digital technologies can enhance their entrepreneurial performance, efficiency, market reach, and competitive positioning. When these beliefs are positive and strong, students may be more willing to invest resources, accept uncertainty, and pursue entrepreneurial opportunities that would otherwise appear unduly risky.

Despite the theoretical plausibility of this PU–risk propensity linkage, it has received remarkably little direct empirical attention. Studies of digital entrepreneurship among Nigerian students have largely focused on the technology adoption decision itself (Kirfi et al., 2025; Majd et al., 2024) rather than on the downstream psychological consequences of utility perception for entrepreneurially relevant dispositions such as risk tolerance. The polytechnic student population, constrained by limited financial resources, uncertain employment prospects, and a practical vocational orientation, represents a particularly important and understudied context for this investigation.

This study addresses the following specific research question: What is the influence of perceived usefulness of digital technologies on risk propensity among students of Kwara State Polytechnic, Ilorin, Nigeria? By doing so, it makes three key contributions: (1) it provides direct empirical evidence for the PU–risk propensity pathway in an entrepreneurial context, extending TAM beyond adoption behaviour into psychological disposition formation; (2) it contributes to

the digital entrepreneurship literature in sub-Saharan Africa by providing PLS-SEM evidence from a previously underrepresented institutional context; and (3) it offers practically actionable evidence for entrepreneurship education curriculum design aimed at cultivating technology-enabled risk tolerance.

THEORETICAL FOUNDATION AND LITERATURE REVIEW

Perceived Usefulness and the Technology Acceptance Model

Davis (1989) operationalised perceived usefulness (PU) as the extent to which a user believes that employing a specific system will increase their work performance. Within the TAM framework, PU is theorised to be the strongest direct predictor of usage intention, reflecting the instrumental, performance-oriented dimension of technology evaluation. Extensive empirical evidence has consistently validated PU's predictive power across diverse technological contexts. Kurniasari and Gunardi (2023), studying sales productivity applications in Indonesia's fintech sector, found that PU significantly influenced actual usage behaviour among Direct Sales Agents, with its effect mediated by perceived risk, suggesting a nuanced relationship between utility perception and risk cognition. Cohen et al. (2022), in a large-scale bi-national survey of 3,003 students in Israel and Australia, confirmed that perceived usefulness was the primary driver of both official and non-official digital resource usage in higher education, demonstrating its cross-cultural robustness.

In the entrepreneurial context, the role of PU extends beyond simple adoption decisions to shaping broader entrepreneurially relevant attitudes and behaviours. Jain and Raman (2023) found that perceived benefits, closely related to PU, exerted a stronger influence on digital financial service adoption than perceived risks, particularly among Gen Z cohorts, suggesting that young adults' assessment of digital tools' utility actively moderates their risk cognition. Prasetyani et al. (2025), in a systematic literature review of SME technology adoption, concluded that perceived usefulness was the most consistently significant predictor of technology integration in small business contexts, with downstream effects on business performance and market competitiveness.

Risk Propensity in Entrepreneurship

Risk propensity, the willingness to take risk or bet on a risky alternative (Steenkamp et al., 2024), occupies a central position in entrepreneurship theory. Since Knight's (1921) foundational work, the entrepreneurial function has been conceptualised as fundamentally involving the bearing of uncertainty: the entrepreneur accepts the residual uncertainty of venture outcomes in exchange for the possibility of profit. Contemporary research has refined this conceptualisation considerably, distinguishing risk propensity from risk perception (the subjective assessment of objective risk) and from risk tolerance (the maximum level of risk an individual can accept without abandoning an activity).

Kim et al. (2025) demonstrated that risk-taking propensity significantly influenced decision-making performance in high-uncertainty conditions, arguing that entrepreneurs' risk propensity is anchored to their confidence in their ability to identify, assess, and manage the risks involved rather than to a personality-based indifference to risk. Wang et al. (2025) characterised entrepreneurial risk-taking as a cognitive-motivational process in which perceived control over outcomes and access to relevant information resources both significantly moderate risk acceptance. Importantly, O'Keeffe (2024) found that familiarity with and confidence in digital platforms reduced perceived risk in online environments, suggesting that technology competence perceptions have a direct bearing on risk cognition in technology-mediated contexts.

In the Nigerian polytechnic context, youth entrepreneurs face a distinctive risk profile. The high rate of graduate unemployment (Onwuka et al., 2025), limited access to formal credit and seed funding (Odihe & Aro, 2025), infrastructure deficits (Nkwei et al., 2023), and uncertain market conditions create a risk environment in which entrepreneurship may appear, a priori, to be a highly risky choice. Against this backdrop, digital technologies, by reducing information asymmetry, lowering startup costs, and democratising access to markets, represent powerful risk-mitigation tools that may substantially enhance students' willingness to engage with the uncertainties of entrepreneurship.

The PU–Risk Propensity Nexus: Theoretical Synthesis

The theoretical mechanism linking perceived usefulness to risk propensity can be understood through the lens of cognitive risk recalibration. When students believe that digital technologies can provide them with competitive market intelligence, efficient financial management tools, low-cost marketing channels, and access to broader customer bases, their subjective assessment of the entrepreneurial risk-reward equation is systematically shifted. The perceived probability of business failure diminishes when reliable information and capable tools are available; the perceived accessibility of market opportunities increases when digital platforms reduce geographical and institutional barriers (Mashpure et al., 2025; Nayak et al., 2025).

This recalibration mechanism is consistent with decision theory's treatment of information and its effect on risk attitudes. In the classic expected utility framework, additional information reduces uncertainty and changes both the probability assessments and the utility evaluations associated with uncertain outcomes (Rauch, Wenzel, & Wagner, 2017). In the present context, perceived usefulness of digital technologies signals to students that entrepreneurial information will be more accessible, business operations more efficient, and outcomes more predictable than would be the case in a technology-free entrepreneurial attempt. This perceived reduction in uncertainty translates into a greater willingness to accept the residual risk of entrepreneurship, that is, higher risk propensity.

Drawing on this theoretical synthesis, the following hypothesis is proposed:

H1: Perceived usefulness of digital technologies has a significant positive influence on risk propensity among polytechnic students.

Entrepreneurship and Digital Technology in Nigeria

Nigeria's entrepreneurial ecosystem is simultaneously characterised by enormous opportunity and formidable structural constraint. With a youth population exceeding 60 million and a chronic formal employment deficit (Olaore et al., 2021), entrepreneurship is both a necessity and a development imperative. The federal government's emphasis on entrepreneurship education in tertiary institutions, manifested in the mandatory entrepreneurship courses in polytechnic curricula, reflects a policy recognition that cultivating entrepreneurial intent and capability at the institutional level is essential for structural economic transformation (Oluwalola, 2025; Wahab & Akintade, 2025).

Digital technology represents both a challenge and an opportunity in this context. While internet penetration and smartphone adoption have grown rapidly (Nkwei et al., 2023), digital infrastructure remains uneven, and the perceived usefulness of specific digital tools for entrepreneurial activities varies considerably across student populations, institutions, and regional contexts. Understanding the degree to which PU translates into risk propensity, and thereby entrepreneurial intention, is therefore a research question of direct policy and curriculum relevance.

RESEARCH METHODOLOGY

Research Design

A positivist, quantitative, cross-sectional survey design was employed to test the hypothesised PU–risk propensity relationship. This design was selected for its alignment with the study's deductive, hypothesis-testing objectives and its appropriateness for PLS-SEM analysis (Hair et al., 2019; Saunders et al., 2019). PLS-SEM was selected over covariance-based SEM (CB-SEM) due to the study's predictive focus, the use of formatively originated reflective constructs, and the moderate sample size relative to the complexity of the structural model (Hair et al., 2019).

Population, Sampling, and Response Rate

The study population comprised 1,174 HND II students registered at the Institute of Finance and Management Studies (IFMS), Kwara State Polytechnic, Ilorin. HND II students were selected as the target population because they represent the final year of the polytechnic programme, having undergone the full complement of entrepreneurship education and having the most developed digital technology exposure and entrepreneurial cognition. Taro Yamane's (1967) formula at 95% confidence and 5% margin of error yielded a minimum sample of 299; a proportionate stratified random sample of 313 was targeted, and 306 valid questionnaires were retrieved (97.8% response rate).

Measurement Instruments

Perceived Usefulness (PU) was measured using seven validated items (PU1–PU7) adapted from Davis (1989) and contextualised to entrepreneurial digital tool use. The items assessed

students' beliefs that digital technologies are essential for business success (PU1), improve business efficiency (PU2), provide access to market information (PU3), help reach more customers (PU4), are useful for financial management (PU5), reduce operational costs (PU6), and are effective for competitor analysis and market research (PU7). Risk Propensity (RP) was measured using seven items (RP1–RP7) drawn from validated instruments in the entrepreneurship literature (Steenkamp et al., 2024; Liñán & Chen, 2009), assessing willingness to take financial risks (RP1), comfort with uncertainty (RP2), lack of fear of failure (RP3), readiness to invest personal funds (RP4), perception of risk as opportunity (RP5), willingness to pursue high-failure-risk ventures (RP6), and ability to thrive in uncertain conditions (RP7).

Validity, Reliability, and Analytical Approach

Content validity was established through expert review by two senior academics in entrepreneurship and technology management. Construct validity and reliability were assessed through the PLS-SEM measurement model. The structural model was evaluated using path coefficients, R^2 , and f^2 effect sizes, with significance established through 5,000-subsample bootstrapping. Common method variance was assessed using the Harman single-factor test; the dominant factor explained 33.1% of total variance, indicating CMV is not a material threat.

RESULTS AND DISCUSSION

Descriptive Analysis

Table 1 presents the descriptive results for PU items. Positive agreement (Agree + Strongly Agree) ranged from 78.8% to 87.6% across all seven items, indicating overwhelmingly favourable perceptions of digital technology usefulness for entrepreneurial activities. The highest agreement was recorded for PU2 ('Digital tools significantly improve business efficiency', 87.6%) and PU4 ('Digital platforms help a business reach more customers', 87.0%), reflecting strong awareness of the market-access and efficiency functions of digital tools. The lowest agreement was for PU7 ('Digital tools are effective for competitor analysis and market research', 78.8%), suggesting that more sophisticated analytical applications of technology may be less well understood among the student cohort.

Table 1. Descriptive Statistics – Perceived Usefulness (PU) Items

Item	Statement Summary	Agree (%)	Strongly Agree (%)	Total A/SA (%)
PU1	Digital technologies are essential for business success	39.2	46.1	85.3
PU2	Digital tools significantly improve business efficiency	42.5	45.1	87.6
PU3	Digital technologies provide valuable market information	41.5	43.8	85.3

Item	Statement Summary	Agree (%)	Strongly Agree (%)	Total A/SA (%)
PU4	Digital platforms help a business reach more customers	39.9	47.1	87.0
PU5	Digital technologies are useful for managing finances	41.2	40.5	81.7
PU6	Digital technologies help reduce operational costs	39.5	39.9	79.4
PU7	Effective for competitor analysis and market research	38.9	39.9	78.8

Note: Note: Percentages for 'Agree' and 'Strongly Agree' responses combined. Source: Field Survey (2025).

Table 2 presents descriptive results for RP items. Agreement rates ranged from 72.5% to 80.7%, reflecting a high but not universal disposition toward entrepreneurial risk-taking. The highest endorsement was for RP5 ('I see business risks as opportunities for growth', 80.7%), consistent with an optimistic, opportunity-focused orientation toward uncertainty. The lowest agreement was for RP6 ('I would pursue a business idea even if it has a high chance of failure', 72.5%), reflecting rational risk calibration rather than recklessness.

Table 2. Descriptive Statistics – Risk Propensity (RP) Items

Item	Statement Summary	Agree (%)	Strongly Agree (%)	Total A/SA (%)
RP1	Willing to take financial risks to start a business	37.9	37.9	75.8
RP2	Comfortable with the uncertainty of entrepreneurship	36.6	37.9	74.5
RP3	Not afraid of the possibility of business failure	35.9	36.6	72.5
RP4	Prepared to invest own money in a new venture	38.6	39.2	77.8
RP5	See business risks as opportunities for growth	39.9	40.8	80.7
RP6	Would pursue a business idea despite high failure risk	35.3	37.3	72.6
RP7	Thrive in situations where business outcomes are uncertain	38.2	38.2	76.4

Note: Note: Percentages for 'Agree' and 'Strongly Agree' responses combined. Source: Field Survey (2025).

Measurement Model Assessment

All outer loadings exceeded the 0.70 threshold (Hair et al., 2019), ranging from 0.899 to 0.932 for PU and 0.898 to 0.929 for RP. Cronbach's alpha values were 0.970 (PU) and 0.968 (RP), and composite reliability (rho_c) values were 0.975 and 0.973 respectively, all substantially exceeding the 0.70 benchmark. AVE values of 0.846 (PU) and 0.838 (RP) demonstrated strong convergent validity. Discriminant validity was supported by HTMT = 0.823 (< 0.85 threshold) and Fornell-Larcker criterion satisfaction (diagonal AVE square roots: PU = 0.920, RP = 0.915; inter-construct correlation = 0.798; both diagonal values exceed the correlation).

Table 3. Measurement Model Results – PU and RP

Construct	Cronbach's α	CR (rho_c)	AVE	Outer Loadings Range	HTMT
Perceived Usefulness of Digital Technologies (PU)	0.970	0.975	0.846	0.899 – 0.932	–

Construct	Cronbach's α	CR (rho_c)	AVE	Outer Loadings Range	HTMT
Risk Propensity (RP)	0.968	0.973	0.838	0.898 – 0.929	0.823

Note: Note: HTMT < 0.85 indicates discriminant validity. Source: Field Survey (2025).

Structural Model and Hypothesis Testing

The structural model results are presented in Table 4. Hypothesis 2 is strongly supported: the path coefficient from PU to RP was $\beta = 0.798$ ($t = 35.693$, $p < 0.001$). The bootstrap mean of 0.788 and standard deviation of 0.022 confirm exceptional estimate stability. The R^2 value of 0.637 indicates that PU explains 63.7% of the variance in risk propensity, a moderate-to-strong degree of explanatory power. The f^2 effect size of 1.757 dramatically exceeds Cohen's (1988) large effect threshold (0.35), indicating that the practical significance of this relationship is exceptionally high.

Table 4. Structural Model Results – Hypothesis Testing

Hypothesis	Path	β (O)	M	STDEV	t-stat	p-value	R^2	f^2	Decision
H1	PU → Risk Propensity	0.798	0.799	0.022	35.693	0.000	0.637	1.757	Supported

Note: Note: O = Original sample; M = Bootstrap mean; 5,000 subsamples. $f^2 > 0.35$ = large effect. *** $p < 0.001$. Source: Field Survey (2025).

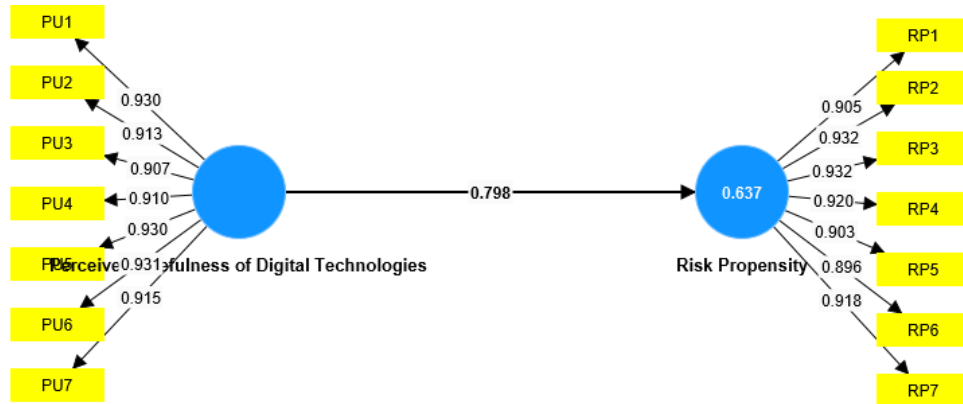


Figure 1. PLS-SEM Path Model: Perceived Usefulness → Risk Propensity. Outer loadings (all > 0.89), path coefficient ($\beta = 0.798^{***}$), and $R^2 = 0.637$ displayed.

Source: Author (2025).

Discussion

Interpreting the PU–Risk Propensity Relationship

The finding of a very strong positive relationship between perceived usefulness and risk propensity ($\beta = 0.798$, $R^2 = 0.637$, $f^2 = 1.757$, $p < 0.001$) confirms Hypothesis 2 and makes a substantial contribution to the intersection of technology acceptance and entrepreneurship risk literature. The exceptionally large effect size ($f^2 = 1.757$), approximately five times Cohen's large effect benchmark, indicates that perceived utility of digital technologies is not merely a statistically significant antecedent of risk propensity but a dominant psychological mechanism shaping students' willingness to engage with entrepreneurial uncertainty.

Theoretically, this finding extends TAM beyond its conventional role as a predictor of adoption behaviour (Davis, 1989; Venkatesh & Davis, 2000) into the domain of entrepreneurial psychological disposition formation. The result suggests that when students perceive digital tools as genuinely useful for business activities, they undergo a process of cognitive risk recalibration: the information asymmetries, operational uncertainties, and market access barriers that characterise entrepreneurship in developing economies are perceived as more manageable, and the expected value of entrepreneurial action increases. This cognitive reframing translates into a higher risk propensity, a greater readiness to accept and engage with the residual uncertainties of venture creation.

This interpretation is consistent with Knight's (1921) foundational insight that entrepreneurial profit is the reward for bearing unmeasurable uncertainty, and that as uncertainty becomes more measurable through information and capability, the psychological cost of bearing it decreases. Digital technologies, by providing analytical tools, market intelligence platforms, and operational efficiency mechanisms, effectively transform some of entrepreneurship's uncertainty into measurable risk, thereby reducing the psychological barrier to risk acceptance. The strong positive PU–RP relationship in this study may thus reflect students' recognition of digital technologies as instruments of uncertainty reduction.

The finding resonates with Kurniasari and Gunardi (2023), who demonstrated that perceived usefulness significantly influenced technology usage behaviour among fintech sales agents, with perceived risk emerging as a critical mediating variable. The directional relationship in the present study, where PU reduces rather than increases risk aversion, is consistent with Jain and Raman's (2023) finding that perceived benefits outweighed perceived risks in digital financial service adoption, particularly for younger cohorts such as this study's HND II students. Wang et al.'s (2025) argument that risk-taking propensity is anchored to perceived control over outcomes and access to relevant information resources further reinforces the theoretical coherence of the PU–RP pathway identified here.

The contextual significance of this finding for Nigerian polytechnic students should not be underestimated. In a context characterised by high youth unemployment, limited access to formal credit, and a historically risk-averse approach to business venturing (Olaore et al., 2021; Onwuka et al., 2025), the finding that 63.7% of risk propensity variance is explained by digital technology

utility perception represents a powerful policy lever. It suggests that interventions specifically designed to enhance students' recognition of how digital tools can mitigate entrepreneurial risks, through market validation, financial simulation, and competitor intelligence, could substantially shift the risk calculus of potential entrepreneurs toward greater acceptance of calculated risk.

The moderate unexplained variance (36.3%) also suggests that personality factors, family background, financial resources, and exposure to entrepreneurial role models contribute independently to risk propensity (Mia et al., 2025; Steenkamp et al., 2024). Future research incorporating these additional determinants would contribute to a more complete theoretical model of technology-mediated risk propensity formation.

Theoretical Contributions

This study makes three theoretical contributions. First, it extends TAM into the domain of entrepreneurial psychology by demonstrating that PU shapes not only adoption decisions but also the psychological dispositions, specifically risk propensity, that underpin entrepreneurial intention. Second, it provides PLS-SEM evidence of a very large effect size relationship ($f^2 = 1.757$) between PU and RP, a pathway that has been theorised but not previously examined with methodological rigour in an African polytechnic context. Third, it contributes a developing economy perspective to the technology-entrepreneurship intersection literature, which has been dominated by studies from high-income and East Asian contexts (Nkwei et al., 2023).

CONCLUSIONS, RECOMMENDATIONS, LIMITATIONS, AND FUTURE RESEARCH

Conclusions

This study demonstrates that perceived usefulness of digital technologies is a highly significant and practically dominant driver of risk propensity among polytechnic students in Ilorin, Nigeria ($\beta = 0.798$, $R^2 = 0.637$, $f^2 = 1.757$, $p < 0.001$). The exceptionally large effect size confirms that the relationship is not only statistically significant but substantively important in practical terms. When students believe that digital tools can enhance their market access, operational efficiency, financial management, and competitive intelligence, their willingness to accept the inherent uncertainties of entrepreneurship is substantially elevated. These findings suggest that enhancing the perceived utility of digital technologies is a powerful lever for cultivating entrepreneurially appropriate risk tolerance.

Practical Recommendations

For polytechnic educators and policy-makers, the findings suggest that the Entrepreneurship Development Centre (EDC) curriculum at Kwara State Polytechnic should be redesigned to incorporate experiential demonstrations of how digital tools actively mitigate entrepreneurial risk. Specifically, case studies featuring Nigerian entrepreneurs who used digital analytics to validate market demand before investing, or social media marketing platforms to test

product viability at low cost, would concretely illustrate the risk-mitigation utility of digital technologies. Similarly, curriculum elements incorporating digital financial management simulations, where students can model the effect of different digital tools on venture cash flows and profitability, could tangibly shift their risk-reward assessments. The National Board for Technical Education (NBTE) should consider mandating digital risk-management competencies within the entrepreneurship education framework for all Nigerian polytechnics.

Limitations and Future Research Directions

The study's limitations include its single-institution focus, cross-sectional design, and self-report methodology. Future research should employ longitudinal designs tracking how PU changes as students gain more digital experience and how this translates into actual risk-taking behaviour upon graduation. Multi-site studies across polytechnics in different Nigerian geopolitical zones would establish regional generalisability. Moderation analyses examining the role of digital infrastructure quality, gender, and prior entrepreneurial exposure on the PU–RP relationship would enrich the theoretical model and inform more targeted interventions.

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NEW STRATEGIES AND GLOBAL CHALLENGES OF THE BANKING SYSTEM - FINANCIAL STABILITY AND ECONOMIC INNOVATION

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Abstract: *The accelerated transformation of the global economy has redefined both the functionality and structure of the banking system, generating a complex interaction between the pursuit of financial stability and the imperative of economic innovation. In a context shaped by digitalisation, market volatility and the emergence of advanced financial technologies, banks are increasingly compelled to recalibrate their strategic frameworks to maintain competitiveness and institutional resilience. This study investigates how banking institutions formulate adaptive policies and mechanisms in response to evolving macroeconomic conditions, under the influence of international prudential regulations and increasing pressures from fintech-driven change. The analysis highlights that financial stability is no longer based solely on systemic risk management, but also on intelligent technological integration, diversification of credit instruments, and optimization of capital allocation. At the same time, economic innovation emerges as a critical determinant of long-term sustainability, enhancing operational efficiency and promoting financial inclusion. The findings suggest that the success of contemporary banking strategies depends on the ability to harmonize regulatory discipline with innovation, stability with adaptability, and profitability with social responsibility. Therefore, the global banking sector is undergoing a phase of structural reconfiguration, in which the balance between risk control and openness to innovation defines the emerging paradigm of economic performance and international financial stability.*

Keywords: *Financial stability; banking innovation; fintech transformation; systemic risk management; corporate governance; sustainable finance*

JEL Classification: G10, G18, O160

1. Introduction

The global banking system is undergoing a profound transformation, driven by technological disruption, regulatory reform, and changing macroeconomic dynamics. Over the past decade, financial institutions have been forced to rethink their traditional operating models as they navigate an increasingly interconnected and volatile economic environment. The interplay between financial stability and economic innovation has become one of the central challenges defining the new global financial architecture. The 2008 financial crisis, followed by the COVID-19 pandemic and recent geopolitical tensions, has exposed the systemic vulnerabilities of global markets and underscored the need for resilient and adaptive banking strategies.

The profound transformations characterising the contemporary global economy have repositioned the banking system at the centre of debates on macro-financial resilience and the sustainability of economic innovation. In an environment marked by advanced financial integration, increased capital mobility, and unprecedented technological acceleration, banking institutions have been forced to redefine their strategic paradigms to ensure both the continuity of their systemic functions and their competitiveness in international markets. The expansion of digitalisation, the proliferation of fintech entities and the emergence of decentralised financial

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infrastructures are putting substantial pressure on the traditional banking model, amplifying the complexity of the financial intermediation process.

In this context, financial stability emerges as a global public good, dependent on the robustness of the regulatory framework, the effectiveness of macroprudential supervision, and the ability of institutions to internalize the endogenous risks of technological innovation. At the same time, economic innovation is an essential driver of intermediation efficiency, financial service diversification, and productivity growth in the financial and banking system. However, the interaction between innovation and stability generates a complex dialectic: while digital transformation stimulates competitiveness and expands financial access, it also introduces systemic vulnerabilities, new types of risk, and major challenges for the global regulatory architecture.

Therefore, analyzing the new global strategies and challenges of the banking system becomes indispensable for understanding how financial institutions can harmonize macrofinancial stability objectives with the imperatives of technological innovation. Studying this interaction provides the basis for assessing the sustainability of the banking sector in an economic ecosystem characterized by structural uncertainty, increased interconnectivity, and disruptive competitive pressures.

In this study, we set out to analyze the relationship between financial stability and economic innovation in the global banking system, characterized by interdependence and fragile equilibrium. On the one hand, innovation stimulates efficiency, competitiveness, and expanded access to financial services, while on the other hand, the rapid pace of technological transformation can generate structural risks that extend across the entire financial system.

Economic innovation, especially that based on digitalisation – such as blockchain technologies, artificial intelligence, open banking or instant payments – enables banking institutions to develop faster, safer and more personalised products. These changes increase operational resilience and provide new sources of revenue. However, they can also create vulnerabilities, such as technological concentration, cyber risks, dependence on external suppliers, or financial products that are not sufficiently understood by the markets.

Financial stability thus becomes conditional on the system's ability to integrate innovation without destabilizing fundamental risk management mechanisms. In recent decades, financial crises have shown that uncontrolled innovation - whether in complex derivatives or fintech banking activities - can amplify systemic risks.

The profound transformations of the global economy in recent decades have amplified the complexity of the international financial environment and redefined the essential functions of the banking system. Increased capital mobility, greater market interconnectivity, and the proliferation of technological innovation are creating an operating environment characterized by uncertainty, volatility, and increased competitive pressures. In this context, ensuring financial stability becomes a strategic imperative, and banking systems are called upon to strengthen their resilience through robust risk management mechanisms, alignment with international macroprudential standards, and the adoption of flexible and adaptable institutional architectures.

At the same time, accelerated digitalisation and the emergence of fintech ecosystems, together with the widespread use of disruptive technologies – artificial intelligence, blockchain, regtech and open banking – are shaping a new paradigm of financial intermediation. These developments are leading to a reconfiguration of both the development strategies of banking institutions and the ways in which they interact with customers, supervisory authorities, and other market players. The convergence between economic innovation and financial regulation requires

the formulation of coherent strategic responses that allow the capitalisation of technological benefits while maintaining the robustness and integrity of the financial system.

In this study, we set out to investigate, from an integrated perspective, the emerging strategies and global challenges of the banking system, through the lens of the interdependencies between financial stability, economic innovation, and contemporary regulatory dynamics.

We also seek to identify the structural determinants of the banking sector's transformation, assess the impact of emerging technologies on financial resilience, and formulate directions for strategic optimization in line with the new realities of the international financial architecture. Through this approach, the research contributes to the development of the theoretical framework and practical applications for modernizing the banking system in an era marked by uncertainty, globalization, and continuous innovation.

2. Review of the literature

The relationship between financial stability and economic innovation has been a central theme in modern economic and banking research, particularly in the wake of the global financial crisis. According to Allen and Gale (2007), financial stability is a precondition for sustainable economic growth, as it ensures the efficient allocation of capital and mitigates systemic risk. Subsequent studies have expanded this notion by integrating the dimension of innovation as both a factor of competitiveness and a potential source of instability (Schumpeter, 1934; Beck, Chen, Lin, and Song, 2016).

In the post-crisis period, researchers such as Laeven, Ratnovski, and Tong (2016) have argued that banking innovation contributes to economic dynamism but can also amplify risk exposure when regulatory mechanisms are insufficient. The emergence of financial technologies (fintech) has intensified this debate by introducing new forms of disintermediation, decentralized financing, and algorithmic credit assessment. Financial Innovation for Global Sustainability offers essential insights and practical strategies for navigating the ever-evolving landscape of sustainable finance, demonstrating how FinTech can drive environmental sustainability and promote inclusive economic growth (Afjal, M., Birau, R. 2025). In other words, sustainable FinTech lies at the intersection of financial innovation, environmental sustainability, and social equity, reflecting a broader shift in how industries and disciplines are evolving to address the complex challenges of the 21st century. Philippon (2016) points out that digital finance increases efficiency and inclusion, but also poses challenges to traditional banking models and prudential supervisory frameworks. Various approaches have been used in the literature to understand the evolution of the banking system (Dekamini, F., et al 2024), and numerous empirical studies (Birau, R., Filip, R.D. , 2025) have shown a significant increase in financial stability.

Last but not least, we can say that in times of crisis, businesses that can adapt their financial strategies are more likely to withstand disruptions and emerge stronger (Dekamini, F., Abadi, A.D.H., Entezari, A., Birau, R., Pourmansouri, R. 2025).

From a regulatory perspective, Basel III and subsequent reforms have sought to strengthen the resilience of the banking system through higher capital requirements, liquidity coverage ratios, and macroprudential supervision (Bank for International Settlements [BIS], 2019). However, several authors have noted that strict regulations can constrain innovation and limit the availability of credit, particularly in emerging markets (Boot, Hoffmann, Laeven, and Ratnovski, 2021). This tension between regulation and innovation remains a defining feature of contemporary financial policy debates.

In parallel, the literature on corporate governance in the banking system emphasizes the role of institutional quality and managerial accountability in maintaining systemic stability. According to Levine (2004), robust governance mechanisms—transparency, board independence, and effective risk oversight—are crucial for aligning managerial incentives with the interests of shareholders and society. More recent studies highlight the integration of ESG (environmental, social, and governance) criteria into banking governance in response to sustainability imperatives and stakeholder expectations (Arjaliès & Mundy, 2013; Galletta, Mazzù, & Naciti, 2021). These frameworks are not only ethical benchmarks but also risk management tools that strengthen long-term financial resilience (Ehsanifar, M., Dekamini, F., Spulbar, C., Birau, R., Filip, R.D., 2023)

Another emerging research direction focuses on digital transformation and systemic risk. Carney (2019) and Brunnermeier et al. (2019) argue that the digitization of financial services creates both opportunities and vulnerabilities, as data-driven finance introduces new channels for contagion and cyber risk. In this regard, the concept of "technological resilience" has gained traction, referring to the ability of financial systems to absorb digital shocks without compromising stability (Borio, 2020).

In the European context, studies by the European Central Bank (ECB, 2022) and the European Banking Authority (EBA, 2023) indicate that fintech integration and the implementation of the EU Digital Finance Package are reshaping the competitive landscape, promoting innovation within a harmonized regulatory regime. These developments demonstrate a paradigm shift from reactive regulation to proactive governance, aiming to reconcile stability objectives with technological progress.

In general, the literature converges on the idea that future banking systems must balance innovation with prudential supervision, promoting an adaptable and robust framework. As Goodhart and Lastra (2018) argue, the ultimate challenge for policymakers and institutions is to design financial ecosystems that are simultaneously innovative, transparent, and resilient to systemic shocks.

3. Methodological approaches and analytical structure of the research

This research adopts a qualitative and analytical methodology designed to examine the relationship between financial stability and economic innovation in the contemporary global banking system. The study combines theoretical synthesis with empirical observation, seeking to identify how financial institutions and regulatory bodies design and implement adaptive strategies in response to structural transformations in the global economy. The methodology is based on the principles of institutional economics and financial systems theory, emphasizing the interaction between policy design, governance mechanisms, and market behavior.

The research framework is structured around three analytical dimensions, namely: (1) the evolution of global financial regulation and its implications for stability; (2) the integration of technological innovation into banking operations; and (3) the strategic alignment between regulatory prudence and economic dynamism. Each dimension serves as a conceptual pillar for understanding how banks manage the trade-offs between innovation and risk, flexibility and control, growth and resilience.

In the context of intensifying economic interdependencies and the proliferation of global macrofinancial shocks, banking institutions are required to adopt increasingly adaptive strategic policies capable of responding rapidly to changes in the external environment. Economic transformations driven by market volatility, geopolitical shifts, and unpredictable economic cycles require banks to continuously reevaluate their business models and risk management tools. Thus,

the process of formulating banking policies becomes a dynamic one, based on anticipating macroeconomic developments, diversifying funding sources, and adopting early response mechanisms to systemic disruptions.

At the same time, the international prudential regulatory framework has a decisive influence on the strategic directions of the banking sector. Post-crisis regulations, reinforced by Basel III standards and future adjustments to the prudential architecture, aim to strengthen financial discipline and reduce systemic risks, but also generate challenges related to additional compliance costs, pressure on bank margins, and the need to optimize balance sheet structure. Banks are thus compelled to integrate macroprudential requirements into their operational strategies, developing robust capital, liquidity, and risk management models capable of maintaining competitiveness in a highly regulated environment.

In this changing ecosystem, technological innovation and the rapid development of fintech are a fundamental driver of financial performance and stability transformation. The digitization of processes, the use of artificial intelligence in risk assessment, the implementation of blockchain technologies, and the expansion of open banking services are profoundly changing the way financial services are provided and the relationships between market participants. These innovations increase operational efficiency and accessibility of services, but also introduce new types of vulnerabilities - from cyber risks to dependencies on global digital infrastructures - that require adapted supervisory and regulatory mechanisms.

The convergence of these transformations is shaping a new strategic paradigm in the banking system, focused on striking a balance between stability and innovation. Financial institutions are called upon to combine the robustness of prudential regulations with technological flexibility, to capitalize on digital opportunities without compromising structural resilience, and to create sustainable business models in an environment characterized by uncertainty and intense competition. This new paradigm highlights the need for modern banking governance that simultaneously integrates financial stability requirements, technological innovation pressures, and economic growth objectives, thus defining the direction of the global banking system's evolution in the coming years.

Methodologically, the study uses comparative case analysis, focusing on the European Union, the United States, and selected Asian economies as representative examples of regulatory diversity and technological progress. The comparative perspective allows for the identification of converging trends in financial innovation-such as the adoption of digital currencies, open banking frameworks, and fintech partnerships-as well as divergent policy responses rooted in institutional path dependence. This analytical strategy enhances the generalizability of findings and supports the development of a coherent theoretical interpretation of the evolving financial landscape.

The European Union operates within a complex supranational framework, in which directives and regulations (e.g., harmonized prudential standards, capital and liquidity requirements, regulations on digital financial services) aim to standardize prudential discipline and consumer protection in integrated markets. This model promotes convergence of standards, but generates fixed compliance costs and requires strong enforcement mechanisms at the national level. European regulation tends to be cautious, prioritizing systemic stability and the protection of user rights within the framework of single market integration.

The United States operates through a decentralized regulatory system, with federal and state agencies having overlapping responsibilities (Reserve Banks, FDIC, OCC, SEC, CFPB). This fragmentation offers flexibility and experimentation (e.g., fintech banking charters, innovative regulatory initiatives at the state level), but complicates macroprudential coordination and can

produce supervisory asymmetries. The US space exhibits a market-oriented approach: regulations often allow for faster technological experimentation, with an emphasis on competitiveness and innovation, while some stability tools are reactive and focused on remedying failures.

There are divergent models in Asia: China follows a state-led architecture, in which authorities rigorously regulate non-bank actors and financial big tech companies, applying direct interventions to limit perceived systemic risks; Japan and South Korea have adopted a mixed model, promoting sandboxes and pro-innovation initiatives, but strengthening supervision. Singapore stands out with a proactive and predictable architecture (the monetary authority adopts clear rules and regulatory sandboxes), aimed at attracting fintechs and establishing a regional hub.

On another note, we can talk about the new types and pace of technological innovation in the European Union, where fintech innovation is geared towards interoperability and protection (open banking, PSD2), common infrastructures and regulations for digital services. The pace of innovation is moderate, influenced by transnational compliance requirements. The result is homogeneous adoption, but fragmented at the operational level due to implementation costs.

The US is experiencing intense internal innovation, fueled by deep capital markets and the venture capital ecosystem; American fintech companies are rapidly experimenting with AI, cloud, and big data solutions, giving them advantages in global scaling. However, this speed comes with increased risks of operational disruption and risk concentration among large players (network effects).

China has seen massive adoption of digital payments and integrated platforms (super-apps), driving rapid transformation of financial intermediation. State-led innovation (including the development of a state digital currency) has led to accelerated technology integration, but also to strong regulatory interventions when systemic risks were assessed as excessive.

Singapore, Japan, and Korea have adopted a piloted innovation model: regulatory sandboxes, public-private partnerships, and infrastructure support policies (API pages, regtech centers). This model combines experimentation with stability protection, facilitating the responsible adoption of emerging technologies.

Implications for financial stability and institutional and regulatory differences determine distinct risk transmission trajectories. Through prudential harmonization, the European Union reduces the risk of cross-border regulatory arbitrage, but may slow down rapid innovation that could improve intermediation efficiency. The US, through accelerated innovation, gains from a competitive perspective, but experiences vulnerabilities related to supervisory gaps and risk concentration in non-bank platforms. China has demonstrated the state's ability to quickly temper destabilizing phenomena, but interventions can alter market signals and affect the efficiency of capital allocation.

Asian models such as Singapore and Japan suggest that a combination of sandboxes and clear standards can maintain an optimal balance between technological incubation and risk control. In all the areas studied, cyber risk management, data governance, and digital infrastructure resilience appear to be critical factors for stability.

The first lesson is that there is no single "optimal model"; convergence between stability and innovation is facilitated by institutions that can combine regulatory predictability with the ability to test new solutions (e.g., sandboxes, regtech frameworks). The European Union offers an example of coherent regulation at scale, but requires more agile mechanisms to support innovation; the US would benefit from better macroprudential coordination to limit the negative externalities of rapid experimentation; China illustrates the effectiveness of state intervention, but also the costs to the market and competitive signals.

Recommended policies include: developing proportionate regulatory frameworks (regulation-by-design), promoting interoperability and common standards for digital infrastructures, strengthening macroprudential supervision for non-bank actors, and adopting rigorous procedures for assessing algorithmic risk and operational resilience. Regional models, such as those in Singapore, show that predictability and regulator-sector dialogue can catalyse innovation without compromising stability.

4. Theoretical context and recent developments

In contemporary economic literature, the concept of financial stability has undergone a significant expansion in its scope of interpretation, going beyond the traditional framework focused exclusively on preventing and managing systemic risks generated by financial cycles and the interconnection of banking institutions. Under current conditions, financial stability is increasingly associated with the banking system's ability to function uninterruptedly and efficiently in an environment characterized by accelerated digitization, technological complexity, and increased exposure to non-financial risks. Thus, operational resilience becomes an essential component of stability, reflecting the ability of credit institutions to maintain their critical functions even in the presence of technological or operational shocks, including disruptions to digital infrastructures or malfunctions of IT systems.

Against this backdrop, cybersecurity is emerging as a central pillar of financial stability, as the proliferation of digital channels and electronic banking services amplifies exposure to cyberattacks with systemic potential. From an economic perspective, cyber incidents can no longer be considered isolated operational risks, but rather potential sources of financial contagion, capable of affecting confidence in the system, market liquidity, and the continuity of financial intermediation. Consequently, financial stability increasingly requires the integration of cybersecurity strategies into the macroprudential framework and banking governance processes, so that digital risks are systematically assessed, monitored, and mitigated.

At the same time, increasing technological complexity poses additional challenges for the architecture of the banking system. The adoption of advanced technologies, such as artificial intelligence, cloud infrastructures, or open banking platforms, enhances operational efficiency but introduces technological and organizational interdependencies that can amplify systemic vulnerabilities. From this perspective, financial stability depends on the ability of institutions to manage technological complexity in a coherent manner, through standardization, interoperability, and appropriate risk control mechanisms. Failure to manage these interdependencies can lead to the emergence of risks that are difficult to anticipate using traditional prudential tools.

Alongside operational and technological dimensions, financial stability is closely linked to how capital is allocated in an environment characterized by economic volatility and structural uncertainty. Interest rate fluctuations, rapid changes in financing conditions, and increased geopolitical uncertainty affect the investment decisions and balance sheet structure of banking institutions. In this context, optimizing capital allocation becomes essential for maintaining stability, requiring more sophisticated risk assessment, dynamic portfolio adjustment, and efficient use of financial resources in relation to prudential requirements and economic growth objectives.

In parallel with the redefinition of financial stability, economic innovation is playing a decisive role in ensuring the long-term sustainability of the banking sector. From a theoretical perspective, innovation is associated with increased productivity and improved financial intermediation efficiency, enabling banks to optimize internal processes, automate operations, and reduce the marginal costs of providing financial services. These efficiency gains are essential in a

context marked by pressures on profitability, generated by strict regulations and intense competition from non-banking players.

At the same time, economic innovation contributes to expanding financial inclusion by facilitating access to banking services for previously underserved segments of the population. Digital technologies reduce geographical and informational barriers, allowing for the personalization of financial products and more accurate credit risk assessment. From a macroeconomic perspective, this process supports a more efficient allocation of capital and can stimulate economic growth, thereby strengthening the role of the banking system as a fundamental intermediary in the economy.

In addition, continuous innovation intensifies the competitiveness of the banking sector globally, forcing institutions to adapt their business models and market strategies. Technology-based competitiveness is not only reflected in increased market share, but also in the ability to respond quickly to changes in consumer demand, integrate secure digital solutions, and maintain a sustainable balance between efficiency and risk control. In this sense, economic innovation and financial stability can no longer be viewed as conflicting objectives, but as complementary dimensions of a modern banking strategy.

5. Banks' adaptive strategies and mechanisms

Digitization is an essential adaptive mechanism in contemporary banking strategies, having a profound impact on operational structure, risk management capacity, and competitiveness in the financial banking market. The literature highlights that digital transformation enables banking institutions to accelerate internal processes, optimize costs, and respond to increasingly demanding customer requirements for fast and personalized services (Manta, Vasile & Rusu, 2025). Therefore, the integration of technologies such as artificial intelligence (AI), modern IT infrastructures, and fintech solutions is no longer optional but a strategic necessity for survival and sustainable growth.

However, digitization brings with it new forms of technological risk. The increasing interconnection of banking systems with external technology providers, cloud services, and AI applications amplifies operational, strategic, and resilience vulnerabilities, requiring robust governance and risk management approaches (Basel Committee, cited in Reuters, 2024). Cyber threats - including phishing, malware, and data breaches - also remain important determinants of digital security, requiring regulatory frameworks and advanced protection practices (Waliullah et al., 2025).

Technological adaptation in the banking sector involves several key strategic directions:

1. *IT infrastructure modernization* - updating legacy technology platforms and adopting scalable architectures reduces operational vulnerabilities, increases system resilience, and supports large-scale digital processes.
2. *Integrating artificial intelligence* - AI models are used for risk analysis, fraud detection, and data-driven decision-making, increasing the accuracy and efficiency of critical functions (Manta, Vasile & Rusu, 2025).
3. *Use of blockchain technologies* - although adoption is variable, blockchain offers potential for high traceability and reduced transaction costs, strengthening trust in decentralized financial infrastructures (Adebayo & Kirikkaleli, 2023).
4. *Cooperation with fintechs* - partnerships with fintech providers facilitate collaborative innovation, API interoperability, and the expansion of digital services, improving the customer

experience and lowering barriers to entry into new markets (Assessing Digital Transformation, 2025).

We can say that banks' adaptation to digitalization not only enhances operational efficiency and transparency, but also strengthens their ability to respond to economic shocks and the dynamism of the global financial market. This process requires a continuous balance between technological innovation and prudent risk management, supported by up-to-date regulations and robust security practices.

6. Evolving prudential regulations and future outlook

Prudential regulations are a fundamental mechanism for maintaining financial stability and preventing systemic crises in the global banking sector. They include minimum capital standards, liquidity requirements, and supervisory mechanisms that reduce the likelihood of individual insolvencies turning into major systemic shocks. The international standards developed by the Basel Committee on Banking Supervision, in particular the Basel III agreement, were the main response to the vulnerabilities revealed by the 2007-2008 financial crisis, strengthening banks' capital and loss-absorbing capacity (Consilium.europa.eu 2025).

A central element of the prudential updates is the implementation in the European Union of the CRR3 regulations and the CRD6 Directive, which transpose the Basel III standards into EU law and update capital and risk management requirements. CRR3 introduces adjustments to the calculation of capital requirements, modernises reporting and transparency requirements, and strengthens market discipline, while CRD6 provides the legal framework for macro- and micro-prudential supervision of credit institutions (PwC, 2024).

In 2025, all the main requirements of Basel III came into force in the EU, with the exception of specific components relating to market risk – for example, the Fundamental Review of the Trading Book (FRTB) – whose implementation date has been postponed until January 1, 2027, to ensure consistent implementation in the international context (European Commission, 2025). This postponement reflects the tension between the need for financial resilience and the competitive constraints of banks in global markets.

Another recent aspect of prudential developments is the legislative and supervisory decisions of European authorities aimed at maintaining or adjusting liquidity requirements in a way that ensures a level playing field for EU banks vis-à-vis their international counterparts. For example, certain rules on the net stable funding ratio (NSFR) have been maintained at transitional levels to avoid competitive disadvantages in the calculation of long-term stability requirements (Consilium.europa.eu, 2025).

Globally, the implementation of Basel III continues to face significant challenges, as some major jurisdictions, such as the United Kingdom and the United States, are reviewing the timing and manner of adoption of the final capital standards, sometimes referred to as the "Basel endgame." For example, the UK Prudential Regulation Authority has decided to postpone some capital requirements until 2027 in response to international uncertainties regarding regulatory coordination and pressures for competitiveness (Reuters, 2025).

Against the backdrop of these developments, three main directions for future prudential regulation can be identified:

1. *Strengthening capital and liquidity requirements*, maintaining high solvency thresholds to strengthen banks' financial base and reduce systemic risk. This is essential to ensure that institutions are able to absorb losses in periods of severe economic stress (Consilium.europa.eu, 2025).

2. *Simplifying and harmonizing the regulatory framework*, as proposed by the European Central Bank, by reducing the complexity of capital buffer rules without lowering the overall level of requirements, in order to balance resilience and operational efficiency (Reuters, 2025).

3. *Extending the scope of supervision to new risks*, including non-traditional financial risks and those associated with digital technologies, fintechs, and non-bank financial entities, to cover gaps that may lead to circumvention of traditional regulations and emerging vulnerabilities in the global financial system.

Prudential regulations are also evolving dynamically in response to global economic and financial realities, combining stability requirements with the flexibility needed to support innovation. This evolution reflects both the ongoing commitment to the resilience of the banking sector and the challenges posed by competitive and technological changes in the global economy.

7. Conclusions

This study shows that the relationship between financial stability and economic innovation within the global banking system is characterized by a dynamic equilibrium that depends on the quality of governance, the adaptability of regulations, and institutional learning capacity. In all regions examined—Europe, the United States, and Asia—financial institutions face the same structural dilemma: how to pursue innovation without compromising prudential soundness. However, empirical evidence suggests that the ways in which this balance is achieved differ substantially depending on regulatory frameworks, market maturity, and political orientations.

In the European context, the implementation of the Banking Union and the Capital Markets Union has strengthened systemic stability by creating supervisory, resolution, and deposit protection mechanisms within a unified regulatory framework (European Commission, 2022). These instruments have mitigated fragmentation risks within the euro area and enhanced cross-border financial integration. At the same time, the European Central Bank (ECB) and the European Banking Authority (EBA) have advanced initiatives such as the Digital Finance Strategy and the Markets in Crypto-assets Regulation (MiCA), promoting innovation in a strictly controlled environment. The European approach thus prioritizes "regulation-based innovation," emphasizing systemic safety and sustainable financing by aligning with ESG criteria. Although this model ensures high resilience, critics argue that excessive regulatory rigidity may hinder agility and limit the competitiveness of European banks compared to their US and Asian counterparts (Boot et al., 2021).

In contrast, the United States presents a more market-oriented model, where innovation precedes regulation. The expansion of fintech ecosystems—particularly in areas such as digital lending, payment systems, and decentralized finance—has been driven by venture capital funding and entrepreneurial experimentation (Philippon, 2016). Regulators, including the Federal Reserve and the Office of the Comptroller of the Currency (OCC), have largely taken a reactive stance, intervening ex post to address systemic vulnerabilities or gaps in consumer protection. This flexible framework has allowed for rapid technology adoption, but it has also produced episodes of instability, exemplified by the collapse of several regional banks in 2023 due to asset-liability mismatches exacerbated by digital withdrawals. The US model demonstrates that innovation without concomitant prudential alignment can amplify liquidity and confidence risks, particularly in conditions of monetary tightening (Federal Reserve, 2023).

In Asia, and particularly in economies such as China, Singapore, and South Korea, the relationship between innovation and regulation has evolved into a model of "state-coordinated adaptability." Governments play an active role in shaping digital financial ecosystems, ensuring

that technological progress aligns with macroeconomic objectives and policy priorities. The rapid expansion of fintech in China, driven by platforms such as Ant Group and Tencent, initially outpaced regulatory capacity but was subsequently tempered by a reaffirmation of state control over digital finance (Chen & Qian, 2022). Singapore, in contrast, represents a hybrid approach—balancing regulatory openness with strict risk management within the Monetary Authority of Singapore's Fintech Regulatory Sandbox. This model demonstrates that innovation can thrive within a predictable and transparent supervisory framework when regulatory experimentation is institutionalized.

Comparative analysis across these regions points to a convergence toward integrated frameworks that reconcile innovation with macroprudential stability. The European emphasis on harmonization, the American emphasis on market dynamism, and the Asian inclination toward regulatory experimentation each illustrate distinct governance philosophies that nonetheless share a common goal: maintaining resilience in the face of technological disruption. Empirical assessments by the World Bank (2023) and the IMF (2024) further confirm that countries that combine strong governance with adaptable regulatory regimes exhibit higher levels of both financial stability and innovation efficiency.

Another key finding concerns the role of corporate governance as a mediating factor in this balance. Financial institutions that integrate ESG principles, strengthen board oversight, and implement transparent risk management systems demonstrate greater adaptability to technological change and lower susceptibility to systemic shocks (Galletta et al., 2021). Governance frameworks that emphasize accountability and long-term value creation appear to moderate the trade-offs between innovation risk and stability outcomes. In contrast, weak governance and misaligned incentives—often evident in deregulated or fragmented markets—tend to exacerbate speculative behavior and increase systemic vulnerability.

With the proliferation of artificial intelligence, blockchain, and digital currencies, systemic stability increasingly depends on the ability of financial infrastructures to withstand cyber threats and data disruptions. International institutions such as the BIS (2023) have highlighted the need to integrate technological risk assessments into macroprudential policies, arguing that financial stability in the digital age requires both cybersecurity robustness and algorithmic transparency.

Taken together, all of this reinforces the theoretical proposition that financial stability and economic innovation are mutually reinforcing when integrated into a coherent governance and regulatory architecture. Systems that encourage responsible innovation—through proportionate regulation, digital literacy, and institutional accountability—achieve superior results in terms of both efficiency and stability. This suggests that the future of the global banking system will not depend on the dominance of a single model, but on hybrid frameworks capable of balancing prudence with progress.

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SCIENTIFIC RESEARCH UNDER THE LENS OF ETHICS

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Abstract

This article analyzes the fundamental mechanisms of academic integrity within Romanian higher education, exploring the intersection between conceptual benchmarks and current legislative rigor. The paper begins by outlining essential deontological values, such as honesty and meritocracy, followed by an examination of the role and responsibilities of University Ethics Committees, in accordance with the provisions of Law no. 199/2023. Particular attention is given to standards of good conduct in scientific research, investigating forms of serious misconduct with an emphasis on the phenomenon of plagiarism and conflicts of interest. The analysis highlights that, while the regulatory framework and the sanctions system are necessary tools for maintaining quality, long-term success depends on internalizing a culture of integrity. The conclusions emphasize the importance of shifting from an exclusively punitive approach toward a preventive one, rooted in ethical education. The article offers an integrated perspective on how universities can protect their prestige against contemporary challenges of intellectual imposture.

Keywords: academic integrity, university ethics, Ethics Committee, good conduct in research, plagiarism, Law no. 199/2023.

JEL Classification: A11, B41, I23.

1. Introduction

Academic integrity represents the very essence and the fundamental condition for the existence of the academic world, guaranteeing the validity of the research process and the prestige of the awarded degrees. In the current context, marked by the pressure of scientific productivity, compliance with ethical norms becomes an imperative condition for the credibility of knowledge.

This article aims to analyze the ethical architecture in higher education, highlighting the connection between the legislative framework, the jurisdictional role of ethics committees, and the standards of good conduct.

The objective of this endeavor is to highlight the manner in which deontological values are operationalized to prevent and sanction serious misconduct, particularly plagiarism, thereby ensuring a climate of equity and honesty.

2. Conceptual Approaches to Ethics and Academic Integrity. Contemporary Legislative Challenges

Ethics represents one of the forms of social consciousness, as it addresses the ability of individuals to distinguish what is legitimate and acceptable in the pursuit of their goals.

While theoretical ethics reflects the philosophical theory of morality, normative ethics refers to the grounding of individual and collective behavior on a system of norms, principles, values, and moral categories.

Moral norms (general, particular, or specific) emerge as a result of objective needs generated by the specific nature of relationships between individuals, as well as between individuals and the community. Consequently, the existence of a system of norms to regulate human activity (particularly scientific research) represents an indispensable requirement.

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The legislative and institutional system in Romania provides the necessary premises for conducting research activities within a controlled and ethical environment, by ensuring the tools required to prevent and sanction breaches of academic integrity. This fact transforms the regulation of scientific research activities into a guarantee of scientific prestige.

Although often used as synonyms, the terms "*ethics*" and "*integrity*" carry different nuances in the academic environment. **Academic ethics** represents a system of moral principles and norms (defining what is "right" and what is "wrong") that guides the conduct of the university community members; it constitutes the theoretical and philosophical dimension. In contrast, according to the *Guide for Integrity in Scientific Research*, **academic integrity** represents the adherence to values that satisfy both researchers and research institutions through principles, practices, and products of knowledge. Essentially, the Guide is built upon four core values: *honesty*, *accountability*, *verifiability*, and *the validity of knowledge*.

The Higher Education Law no. 199/2023 stipulates, in Chapter XX entitled "*University Ethics and Deontology*," the mandatory compliance with ethical and deontological norms in teaching and scientific research activities. Under this law (Art. 162, Art. 166), the responsibility for upholding these norms entails the establishment of university ethics committees and the existence of codes of university ethics and deontology as part of the university charter, in accordance with legal provisions. Furthermore, the present law specifies the breaches of ethical and deontological norms in teaching and scientific research (Art. 168), as well as the corresponding sanctions (Art. 171).

The vision of the present law is centered on the following values:

- a) *Equity*, by ensuring equal educational opportunities for young people, regardless of their background or other risk factors;
- b) *Excellence*, by supporting and motivating it throughout the educational process;
- c) *Integrity*, by establishing value benchmarks and promoting ethics in education.

Although it is an older regulation, *Law no. 206/2004 on good conduct in scientific research, technological development, and innovation* clearly defines the concepts of "*data fabrication*," "*falsification*," and "*plagiarism*," as well as "*conflict of interest in research*." Furthermore, it establishes the role of the National Council for Ethics in Scientific Research, Technological Development, and Innovation (CNECSDTI).

The university ethics and deontology norms provided by the present law are complemented by: a) The Framework Code of University Ethics and Deontology, adopted by Government Decision (GD no. 305/2024); b) The Framework Regulation on the Organization and Functioning of University Ethics Committees at the level of higher education institutions, approved by Order of the Minister of Education (OM no. 6869/2024); c) Standards and Guidelines for Ethics Management, as part of the External Evaluation Methodology, standards, reference standards, and the list of performance indicators, approved by Government Decision; d) The Code of University Ethics and Deontology (at the institutional level).

By *Ministerial Order no. 6085/2016*, the Council for University Ethics and Management (CEMU) was established as a consultative body of the Ministry of Education. The mission of CEMU is to develop a culture of ethics and integrity within Romanian universities. In this regard, the council determines and supports universities in implementing university ethics and integrity policies in an organized, transparent, and efficient manner, in accordance with the relevant legal provisions.

To underscore the importance of complying with university standards in scientific research, the Ministry of Education, through *Order no. 3131/2018*, mandated the inclusion of ethics and

academic integrity courses in the curricula of all university study programs organized by higher education institutions within the national education system.

Current legislative challenges in this field focus on the following:

- *Higher Education Law no. 199/2023*, part of the "Educated Romania" project, **standardizes sanctioning** procedures for university misconduct, addressing subjectivity in internal ethics committees. The new law introduces improved centralization and monitoring mechanisms, replacing the ambiguous regulations of the previous *Law no. 1/2011*. Furthermore, the law requires each university to have its own code of ethics, aligned with a Framework Code of University Ethics and Deontology approved by ministerial order. This ensures that the commission of a serious misconduct (such as plagiarism) will be defined and treated consistently, regardless of the university. CEMU becomes the oversight body that verifies whether universities actually enforce their own regulations. If a university attempts to "cover up" a misconduct or demonstrates subjectivity, CEMU can intervene with severe administrative sanctions against the institution. By strengthening the role of national bodies (such as CEMU and CNATDCU), the legislator aims to standardize sanctions and analysis procedures, ensuring that academic integrity standards are applied uniformly across all institutions. Subjectivity is countered through the new procedures for analyzing plagiarism allegations.

- **Digitalization, AI, and Transparency:** Current legislation is being challenged by the emergence of generative artificial intelligence. To reduce the margin of interpretation behind "closed doors," the law mandates the compulsory publication of all decisions made by Ethics Committees and the use of national platforms for verifying the originality of academic works.

- **The "Publish or Perish" Pressure:** The race for academic points (required for promotion according to CNATDCU standards) often pushes the boundaries of ethics, leading to phenomena such as "paper mills" or coerced reciprocal citations.

Despite increasingly strict laws, the major challenge remains their implementation and the resistance to political or administrative pressures.

3. The Role of the Ethics Committee in Maintaining Academic Values

According to the Higher Education *Law no. 199/2023*, the University Ethics Committee (CEU) is the supreme internal control structure.

The University Ethics Committee operates independently of any other structure or individual within the higher education institution. Within the committee, a subcommittee dedicated to research ethics is established. It monitors the implementation of research ethics policies in accordance with scientific research ethics regulations, which must cover the following aspects: a) *publication and authorship*; b) *respect for the dignity of research participants*; c) *research data management*; e) *collaboration*; d) *conflicts of interest*; e) *fraud*; f) ensuring effective research environments, namely *the prevention of harm in research and innovation*.

The composition of university ethics committees (consisting of faculty members and students) is proposed by the administrative boards, endorsed by the senate, and approved by the rector's decision. The members of the committee must be individuals of professional prestige who have not violated the norms of university ethics and deontology.

Individuals holding the following positions are ineligible to serve on university ethics committees: rector, president of the senate, vice-rector, dean, vice-dean, administrative director,

deputy administrative director, head of department, or director of a research-development, design, or micro-production unit, as well as branch directors within the higher education institution.

According to Article 162, *the prerogatives of university ethics committees* are as follows:

- to monitor compliance with the codes of university ethics and deontology;
- to ensure the implementation of the Minister of Education's orders regarding the legal framework of university ethics and deontology;
- to analyze and resolve breaches of ethical and deontological norms, based on third-party complaints or through *ex officio* (self-initiated) procedures;
- to contribute to the drafting of the Code of University Ethics and Deontology by submitting proposals to the University Senate for adoption and inclusion in the University Charter;
- to produce an annual report on the state of compliance with ethical and deontological norms, which is presented to the Rector and the University Senate and constitutes a public document;
- to conduct preventive activities regarding the violation of ethical and deontological norms;
- to monitor the delivery of ethics and academic integrity courses;
- to propose the Organization and Functioning Regulation for adoption by the University Senate;
- to collaborate with national-level advisory commissions;
- other duties provided by the present law or established according to the University Charter.

A pertinent example is *the Code of Ethics and Professional Deontology of "Constantin Brâncoveanu" University of Pitești*, which stipulates *the prerogatives of the ethics committee* (Art. 44):

- „analyzes and resolves breaches of university ethics, based on third-party complaints or through *ex officio* (self-initiated) procedures, in accordance with the Code of University Ethics and Deontology;
- produces an annual report on the state of compliance with university ethics and research ethics, which is presented to the Rector and the University Senate and constitutes a public document;
- contributes to the drafting of the Code of University Ethics and Deontology, which is proposed to the University Senate for adoption and inclusion in the University Charter;
- exercises the prerogatives set forth in Law no. 206/2004 on good conduct in scientific research, technological development, and innovation;
- monitors compliance with the specific codes of ethics of the field;
- investigates cases of professional ethics misconduct and proposes the necessary measures to the leadership of the unit or institution;
- immediately informs the university leadership of cases falling under criminal law and provides all relevant information regarding the respective case;

- exercises other prerogatives provided by law or established within the University Charter”.

The Ethics Committee does not operate in isolation. Its decisions can be contested or monitored by: the National Council for the Attestation of University Titles, Diplomas, and Certificates (CNATDCU) and the National Council for Ethics in Scientific Research, Technological Development, and Innovation (CNECSDTI).

A major challenge for Ethics Committees is the avoidance of conflicts of interest (when a committee member must investigate a colleague from the same department) and the necessity for total transparency in publishing decisions to deter future misconduct.

4. An Analysis of the Code of Ethics and Responsibility in Research

The code of ethics is not merely an administrative document, but also serves an educational and normative role. From this perspective, the purpose of the code of ethics is to direct the activities of the academic community members, defining the moral-professional relationships among them, as well as between them and external collaborators.

The Code of Ethics and Professional Deontology of "Constantin Brâncoveanu" University of Pitești regulates the conduct of the academic community members, promoting the norms and principles of university ethics and deontology. *The values promoted by this Code* include: justice, equity, equal opportunities, dignity, individual and academic freedom, intellectual property, professional and moral integrity, honesty, truthfulness, fairness, duty, public responsibility etc., values that are correlated with the universal principle of non-maleficence. "Constantin Brâncoveanu" University of Pitești protects these values and sanctions any restriction on their promotion, under the conditions of university autonomy, transparency, and public accountability (Art. 3 of this document).

Among the principles addressed in *the Code of Ethics of UCB Pitești* are the following:

„1) the principle of ensuring academic freedom, provided that every member of the academic community respects scientific truth, ethical truth, individual and group dignity, and refrains from damaging the institution's image;

2) the principle of ensuring intellectual property rights, both at the individual and institutional levels, correlated with public accountability for damages caused to third parties through the illegal and immoral exploitation of these rights. Intellectual property includes inventions, innovations, and copyrights for various categories of scientific, psycho-pedagogical, or didactic works;

3) the principle of avoiding situations of incompatibility and conflicts of interest, as regulated by Law no. 199/2023 and other relevant legislation in the field;

4) the principle of joint liability of authors and supervisors of bachelor's theses, master's dissertations, and doctoral theses for inaccuracies affecting scientific content, as well as for acts of plagiarism and the commercialization of content to third parties interested in the drafting of such works;

5) the principle of individual liability of authors of studies, articles, monographs, treatises, guides, educational works, etc., for the scientific quality, data accuracy, and originality of the content, in accordance with the law;

6) the principle of evaluation transparency and accountability for incorrect evaluations. "Constantin Brâncoveanu" University of Pitești sanctions plagiarism, as well as the entrustment of

published scientific products by any author to another person to be republished under names other than those of the primary author(s). Such an act constitutes complicity in plagiarism;

7) the principle of stimulating creativity and ensuring appropriate remuneration for high-performance activities."

Academic freedom (the right to research without censorship, yet with responsibility), *intellectual honesty*, and *meritocracy* (respect for intellectual property and copyright, the recognition of value based exclusively on performance and competence), *transparency* (clarity in evaluation and funding processes), *confidentiality*, and the implementation of values within the professor-student relationship represent the core ethical principles addressed in a university code of ethics.

There is an interdependent relationship between conflicts of interest and the integrity of evaluation. A conflict of interest arises when the personal, financial, or professional interests of a researcher may influence (or appear to influence) the objectivity of the research or evaluation process:

- *In the Peer-Review Process*: A reviewer who evaluates the work of a close friend, a rival, or a former student without declaring the relationship violates ethical norms **Research Funding**: Failure to disclose the funding source.

- *Disclosure Obligation*: According to *Law no. 206/2004*, researchers are mandated to declare any potential conflict of interest to maintain the transparency of the scientific process.

- *Undeclared Conflict of Interest (COI)*.

5. From the Code of Ethics to Good Conduct: Mechanisms for Preventing and Combating Plagiarism

The Guide for Integrity in Scientific Research (12.11.2020) serves as the foundation for developing a Code of Ethics and Deontology in Research. It can function as a core for integrating and stimulating the structuring of Ethics Guides/Codes within research and educational institutes. The drafting of the Guide was based on key Romanian legislation, national ethics/integrity guidelines (such as the Danish Code of Conduct for Research Integrity), the European Code of Conduct for Research Integrity, as well as specialized literature mentioned in the reference list.

Essentially, the Guide is built upon four core values: 1) *honesty*; 2) *responsibility* (proper resource management and care for research subjects); 3) *verifiability*; 4) *the validity of knowledge*. These values must be effectively applied in scientific research practice through specific conducts of integrity.

Honesty in research entails:

- 1) Rejecting and preventing all forms of intellectual theft (plagiarism) by misappropriating or inadequately citing text, ideas, data, methods, or original analysis results;

- 2) Rejecting and preventing all forms of data fabrication and their presentation as if they were real;

- 3) Rejecting and preventing all forms of falsification or manipulation of research data;

- 4) Explicitly recognizing the contributions made by authors to a collective work presented in the public sphere through specifications regarding the order of names in the authorship list;

- 5) Coordinating the work within the author team;

6) Specifying the distinct contributions of particular authors, where applicable, within the body of the work;

7) Explicitly acknowledging the reuse of the author's previously published texts to avoid self-plagiarism;

8) Respecting the joint ownership resulting from participation as a co-author in collective volumes or articles. The subsequent use of parts from co-authored works in solo-authored publications or with different co-authors, without proper citation of the primary reference work, constitutes a breach of research integrity;

9) Explicitly mentioning authorship even for works produced under contract, ensuring that the contract beneficiary does not undeservedly claim a role in the authorship team;

10) Complete and accurate reporting of research results.

In the *Higher Education Law no. 199/2023* (Art. 167), the following breaches of ethical and deontological norms in teaching and university research activities are stipulated: a) including a person in the authorship list of a scientific publication without their consent; b) the unauthorized publication or dissemination by authors of unpublished scientific results, hypotheses, theories, or methods; c) the fabrication of results or data which are not the actual outcome of a research-development activity; c) the falsification of results or data for the purpose of distorting scientific truth; d) **plagiarism**; e) **self-plagiarism**.

According to the present law (Art. 171), based on the rulings of the university ethics committees, higher education institutions apply sanctions to teaching, auxiliary teaching, and research staff, including those in leadership positions. **The sanctions** are enforced through the Rector's decision. The types of sanctions provided for the violation of university ethical and deontological norms are: a) *A written warning*; b) *The withdrawal and/or correction* of all works published in violation of university ethical and deontological norms; c) *Dismissal from a leadership position*; d) *Prohibition*, for a determined period, of access to funding from *competitive public funds*; e) *Suspension*, for a determined period of *1 to 5 years*, of the right to apply for a higher position, a leadership position, or to serve as a member of examination committees; f) *Dismissal* from the teaching or research position.

Regarding **plagiarism**, the *Guide for Integrity in Scientific Research (2022)* presents the general principles and best practices for diagnosing this form of fraud. According to this document, **plagiarizing** is defined as "an author taking elements from the intellectual creation of another author and presenting them in the public sphere as components of their own work." In a simplified, yet accurate phrasing, **"plagiarism is intellectual theft."**

Furthermore, it is also considered plagiarism to "use a portion of a text signed as a co-author without clearly specifying the collective source work." This "appears as the **misappropriation of a collective asset** for personal interest. "

According to the same document, **a form of plagiarism** is considered to be the appropriation without proper citations from works signed as a co-author, if conducted on a large scale, repeatedly, and in a manner that may cause reputational damage to the other co-authors.

A form of intentional plagiarism also includes *"the translation of any type of text from a foreign language and presenting it-either as a compact block or in a mosaic style-as one's own text."*

Regarding **self-plagiarism**, the guide specifies that "it is not plagiarism in the strict sense adopted by the given definition, but it is a **breach of research ethics**. In this case, the appropriation is not made from another author's work, but from the author's own previous works, without specifying that the current work reproduces, in whole or in part, an older work by the same author."

Since self-plagiarism can lead to **undeserved professional recognition**, the Guide discourages the possibility of claiming it as "a new intellectual production."

According to the *Guide for Integrity in Scientific Research (2020)*, plagiarism within a scientific work can have varying degrees of severity. In this regard, four defining criteria are specified for diagnosing the **severity of plagiarism**: 1) **The extent** of the illegitimate appropriations; 2) **Their placement** within the architecture of the work; 3) **The truly voluntary or involuntary nature** of the acts of plagiarism; 4) **The repeatability** of the author's fraudulent acts across different works.

A fifth criterion for the gravity of plagiarism is **extrinsic in nature** and refers to the **undeserved advantages** obtained by the author as a result of the plagiarism.

In practice, plagiarism occurs in several forms, such as:

- ✓ "copy-paste plagiarism,"
- ✓ "mosaic or fragmented plagiarism,"
- ✓ "involuntary plagiarism,"
- ✓ "incorrect paraphrasing,"
- ✓ "translation plagiarism,"
- ✓ "cyberplagiarism" or internet-based plagiarism (Ștefan, 2018, pp. 152-155).

Conflicts of interest and **authorship issues** (*ghost or honorary/guest authorship*) are more subtle but extremely widespread forms of ethical misconduct, which often precede or accompany plagiarism.

The suspicion of **ghostwriter** involvement is difficult to verify, but it may result from: a. *listing a large number of bibliographic references* that do not appear explicitly used within the work, despite the fact that correct citations appear frequently throughout the same paper; b. *repeated errors in the text*, indicative of a ghostwriter's involvement (who is far from understanding elementary particularities of drafting a scientific text).

In evaluating plagiarism suspicions, according to the guide, expertise must be multiple and transparent; this can be achieved through:

a) **The involvement of independent specialists in diagnosing plagiarism cases.** The evaluation groups for works suspected of plagiarism must, first and foremost, include experts from the specific field to which the analyzed work primarily belongs. Secondly, it is advisable to include a specialist from a field different from that of the evaluated work within the evaluation group, in order to avoid the emergence of misguided professional solidarity.

b) **Software applications** that estimate the weight of text similarities between the reference work and other authors' texts available online cannot replace expert evaluations through qualitative analysis. Both the extent of the plagiarism and the nature of the misappropriated content are what truly matter.

According to *Ministerial Order no. 3,692/2024 (Art. 2)*, the list of nationally recognized programs for establishing the degree of similarity in graduation theses includes:

- „iThenticate;
- Turnitin;
- Plagiarism detector + PDAS (PDAS-Plagiarism Detector Accumulator Server);
- SafeAssign;
- SEMPLAG;
- www.sistemantiplagiat.ro.”

Textual similarity identification software must fulfill the following requirements: 1) ensures verification against databases owned by the developer (including subscriptions held by the developer to various magazines, journals, publishing houses etc.); 2) ensures verification against the internet/web content; 3) ensures the creation of an internal database and allows cross-referencing with these documents; 4) allows the uploading and verification of files in the following formats: *.doc, .docx, and .pdf; 5) allows the recognition of Romanian characters; 6) generates analysis reports.

"The list of nationally recognized programs may be supplemented, at the request of higher education institutions, doctoral schools, or the Romanian Academy, with software purchased by them, provided they comply with the requirements set forth in Art. 2" of the present law (Art. 3).

A low similarity coefficient does not guarantee the absence of plagiarism, just as a high one does not automatically confirm fraud; the final interpretation always belongs to the human expert within the Ethics Committee.

6. Conclusions

Therefore, academic integrity represents a commitment by any educational institution to five fundamental values that aspire to excellence: honesty, trust, fairness, respect, and responsibility.

The analysis of the regulatory framework (particularly the provisions of the Higher Education Law no. 199/2023) demonstrates that Romanian society is moving toward a culture of integrity and accountability for social actions. It currently possesses the necessary instruments to monitor and sanction research ethics misconduct. The existence of ethics committees and anti-plagiarism software represents only part of the solution. The effectiveness of these mechanisms depends on the transition from a culture of punishment to one of prevention and assumed fairness. Furthermore, it is essential that the principles stated in the code of ethics do not remain mere declarative statements but are integrated into both research and teaching activities.

Respect for intellectual property and its protection represent guarantees of the quality of the academic act. The future of scientific research depends on the academic community's ability to value meritocracy and to reject intellectual imposture.

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LEGAL ASPECTS REGARDING THE PROTECTION OF THE ATMOSPHERE IN DOMESTIC LAW

Isabela Stancea¹

Abstract

The legal basis is represented by Law no. 104/2011 of June 15, 2011 regarding ambient air quality.

This normative act aims to protect human health and the environment as a whole through the regulation of measures intended to maintain the quality of the surrounding air where it corresponds to the objectives for the quality of the surrounding air established by law and its improvement in the other cases.

In all areas and agglomerations, in the areas classified under the graded evaluation regime high risk of pollution for sulfur dioxide, nitrogen dioxide and nitrogen oxides, suspended particles, lead, benzene and carbon monoxide, the assessment of the quality of the surrounding air is carried out by measurements at fixed points.

These fixed point measurements can be supplemented with modeling techniques and/or indicative measurements to provide adequate information regarding the spatial distribution of ambient air quality.

Key words: *atmosphere, the constitutional right to a healthy environment, air quality.*

JEL classification K0, K1

The legal basis is represented by Law no. 104/2011 of June 15, 2011 on ambient air quality. This normative act aims to protect human health and the environment as a whole through the regulation of measures intended to maintain the quality of the surrounding air where it corresponds to the objectives for the quality of the surrounding air established by law and its improvement in the other cases.

This law provides measures at the national level regarding:

- a) defining and establishing objectives for the quality of the surrounding air intended to avoid and prevent the occurrence of harmful events and reduce their effects on human health and the environment as a whole;
- b) assessment of the quality of the surrounding air throughout the country based on common methods and criteria, established at the European level;
- c) obtaining information on the quality of the surrounding air to support the process of combating air pollution and the discomfort caused by it, as well as to monitor long-term trends and improvements resulting from the measures taken at national and European level;
- d) guaranteeing that the information on the quality of the surrounding air is put to public disposition;
- e) maintaining the quality of the surrounding air where it is appropriate and/or improving it in other cases;

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f) promoting increased cooperation with the other member states of the European Union in order to reduce air pollution;

g) fulfilling the obligations assumed by the agreements, conventions and international treaties to which Romania is a party.

The National System for the Evaluation and Integrated Management of Air Quality, hereinafter referred to as SNEGICA, ensures the organizational, institutional and legal framework for cooperation between authorities and public institutions, with competences in the field, for the purpose of evaluating and managing the quality of the surrounding air, in a unitary manner, on the entire territory of Romania, as well as informing the population and European and international bodies regarding the quality of the surrounding air.

SNEGICA includes, as integral parts, the following two systems:

a) The National Air Quality Monitoring System, hereinafter referred to as SNMCA, which ensures the organizational, institutional and legal framework for carrying out ambient air quality monitoring activities, in a unitary manner, on the territory of Romania;

b) The National System for the Inventory of Atmospheric Pollutant Emissions, named in continued SNIEPA, which provides the organizational, institutional and legal framework for carrying out inventories of pollutant emissions into the atmosphere, in a unitary manner, throughout the country.

SNEGICA performs the following duties:

a) ensures the evaluation of the quality of the surrounding air, in a unitary manner, in the agglomerations and areas throughout the country;

b) ensures the classification and delimitation of areas in zones and agglomerations in assessment regimes and in regimes for managing the quality of the surrounding air;

c) ensures the completion of the national inventory regarding pollutant emissions into the atmosphere;

d) ensures the development and implementation of air quality maintenance plans, air quality plans and short-term action plans;

e) provides the necessary information for making reports to European bodies and international;

f) ensures public information about the quality of the surrounding air.

The central public authority for environmental protection has the following attributions and responsibilities:

a) follows the application of the provisions of the law;

b) elaborates, approves, promotes and, as the case may be, approves normative acts, as well as the necessary measures for the uniform application of the provisions on the entire territory of the country the assessment and management of ambient air quality, established by European legislation and by international conventions in the field to which Romania is a party;

c) coordinates the development, updating and application of rules and regulations regarding the control and measurement of pollutant emissions in the surrounding air;

d) coordinates SNEGICA and administers RNMCA;

e) coordinates the creation of the national inventory regarding pollutant emissions into the atmosphere and approves it with a view to its transmission to the European Commission and international bodies to which Romania is a party;

f) organizes and coordinates at national level the evaluation and management of the surrounding air quality, including by ensuring the development of studies on the dispersion of

pollutants in the atmosphere, in order to establish evaluation regimes, management regimes and the contributions of natural sources to exceeding limit values;

g) establishes the number, type and location of fixed measurement points and pollutants evaluate;

h) approves the inclusion of the areas in ambient air quality assessment regimes and initiation of indicative measurement programs;

i) carries out the methodology for developing air quality plans, plans for short-term action and air quality maintenance plans and submits it for approval the Government;

j) ensures the maintenance or improvement of the ambient air quality by following the application by the competent authorities and bodies or specialized institutions of the measures for the management of the ambient air quality;

k) reports data and information, including those related to air quality plans, in the terms and formats established by the European Commission and in accordance with the provisions of international conventions in the field to which Romania is a party;

l) approves the report on the quality of the surrounding air at the national level for the year previously, with reference to all pollutants covered by the law;

m) approve the proposals for measurement systems: methods, equipment, networks and laboratories, used for air quality monitoring and methods, systems and equipment for controlling and measuring emissions;

n) approves the standard operating procedures and the framework procedures for ensuring and controlling the quality of the data from the RNMCA;

o) approves, within the data quality assurance system, interlaboratory comparison programs at the national level;

p) approves the participation of the National Reference Laboratory for Air Quality at the European programs of interlaboratory comparisons, organized by the European Commission;

q) establishes, on the basis of studies, the protection zones for all fixed measurement points and informs the competent authorities about their delimitation;

r) approves the lists of administrative-territorial units drawn up as a result of being included in the management regimes of areas in zones and agglomerations;

s) informs the competent public authorities about the results of the quality assessment of the surrounding air and the inclusion of areas in zones and agglomerations in management regimes;

ș) ensures public information;

t) fulfills the obligations assumed by the international agreements and treaties to which Romania is a party and ensures participation in international cooperation in the field;

ț) cooperates with the authorities that have competences in the field, from the other member states of the European Union and with the European Commission.

In order to assess the quality of the surrounding air for sulfur dioxide, nitrogen dioxide, nitrogen oxides, suspended particles PM10 and PM2.5, lead, benzene, carbon monoxide, arsenic, cadmium, nickel, benzo(a)pyrene, in each zone or agglomeration the areas are delimited which are classified in evaluation regimes according to of the upper and lower evaluation thresholds, as follows:

a) assessment regime A, in which the level is higher than the upper assessment threshold;

b) assessment regime B, in which the level is lower than the upper assessment threshold, but higher than the lower assessment threshold;

c) assessment regime C, where the level is lower than the lower assessment threshold.

The classification in evaluation regimes is reviewed at least once every 5 years.

Evaluation of the quality of the surrounding air regarding sulfur dioxide, nitrogen dioxide and nitrogen oxides, suspended particles, lead, benzene and carbon monoxide

In all areas and agglomerations, in the areas classified under the evaluation regime with a high degree of pollution risk for sulfur dioxide, nitrogen dioxide and nitrogen oxides, suspended particles, lead, benzene and carbon monoxide, the assessment of the quality of the surrounding air is carried out by measurements at fixed points.

These fixed point measurements can be supplemented with modeling and/or measurement techniques indicative to provide adequate information about the spatial distribution of the quality of the surrounding air.

Pollution of the atmosphere due to human activity can occur:

- through industrial pollution – the most extensive and harmful form of pollution;
- through the pollution produced by motor vehicles and aircraft through exhaust gases and aviation engine emissions, noise, vibrations, etc.

Smog as a form of air pollution - is a mixture of various pollutants and water vapor that they condense, has a negative impact on the environment, life and human health.

Evaluation of ambient air quality regarding ozone

In all areas and agglomerations where ozone concentrations have exceeded the objectives on long term, during any of the previous 5 years of measurement, the assessment of the quality of the surrounding air is carried out by measurements at fixed points.

In the areas and agglomerations where the information from measurements at fixed points are supplemented with information resulting from modeling techniques and/or indicative measurements, the number of sampling points for ozone can be reduced, if the following conditions are met:

a) additional methods provide sufficient information for air quality assessment environment in terms of target values, long-term objectives, information and alert thresholds;

b) the number of sampling points to be installed and the spatial resolution of other techniques are sufficient to establish the ozone concentration in accordance with the data quality objectives and allow the evaluation results to comply with the criteria provided by law;

c) the number of sampling points in each area or agglomeration is at least one sampling point per two million inhabitants, or one per 50,000 km², the number chosen being the highest number that results, but not less than one sampling point in each area or agglomeration;

d) in all the remaining sampling points, with the exception of the rural background stations, it is measured nitrogen dioxide. The results from modeling and/or indicative measurements are taken into account for the assessment of the ambient air quality in relation to the target values.

Protection zone

To ensure the representativeness of air quality data, for each fixed point of measurement, a protection zone is established, through specific studies to evaluate the quality of the surrounding air, on a micro scale, taking into account at least the following aspects:

a) type of fixed point of measurement;

b) the topography/orography of the land;

c) the pollutant/pollutants taken into account;

d) micrometeorological conditions;

e) significant constructions in the respective area;

f) sources of emission of pollutants into the atmosphere.

The protection zone must be highlighted in the town planning plans. Inside the area of protection, warning panels are placed on which the meaning and limits of the area are marked and in this area it is forbidden to carry out any works or carry out any activities that could influence the representativeness of the ambient air quality data, without prior information of the territorial public authorities for environmental protection. The information is accompanied by documents that demonstrate, through specific methods or techniques for assessing the quality of the surrounding air, how the quality of the surrounding air is affected. The territorial public authority for environmental protection analyzes in the shortest possible time from the date of the information and transmits to the owner the conditions under which temporary activities or works can be carried out in the protection zone.

The start of temporary works or activities is allowed only after receiving the response from the territorial public authority for environmental protection.

The air quality maintenance plan is drawn up, as the case may be, by the county council, for administrative-territorial units belonging to the same county, or by the General Council of the Municipality of Bucharest, for the sectors of the municipality of Bucharest and is approved by decision of the county council, respectively by decision of the General Council of the Municipality of Bucharest. The air quality maintenance plan contains measures to keep the level of pollutants below the limit values, respectively below the target values and to ensure the best quality of the surrounding air under the conditions of a sustainable development. Emissions in the atmosphere

The development of existing activities, as well as the start of new activities with a possible significant impact on the quality of the surrounding air, is carried out only on the basis of the integrated environmental authorization/authorization issued according to the legislation in force.

The environmental authorization/Integrated environmental authorization establishes emission limit values for pollutants specific to the activity carried out, taking into account the best techniques applicable in the field, as well as the level of ambient air quality at the local level.

In the areas where the limit values regarding the quality of the surrounding air are exceeded for one or more pollutants, based on environmental impact assessment studies, the territorial public authorities for environmental protection establish, as the case may be, emission limit values for these pollutants that are more restrictive than the values established by the legislation in force specific to the activity carried out.

In case of exceeding the emission limit values for one or more pollutants, the competent authority decides to take all the necessary measures to remove the causes and consequences on the quality of the surrounding air of these exceedances, including the temporary interruption of the activity of the installation that generated this situation.

In case of exceeding the emission limit values for one or more pollutants, the owners of the activities have the obligation to inform the competent authorities and to comply with the measures imposed by them.

Business owners have the obligation to monitor the level of pollutant emissions and to periodically report the requested information to the competent authority, according to the acts of regulation based on which they carry out their activity.

The monitoring results are recorded, processed and presented in a form appropriate, established by the competent authority for environmental protection.

The holders of activities have the obligation to take all the necessary measures in view limiting pollutant emissions into the atmosphere, including by collecting and directing fugitive emissions and the use of pollutant retention equipment at the source.

The transfer of pollutants from the air to another environmental factor, as a result of the measures of reduction of ambient air pollution, is allowed under the conditions of maintaining the level of pollutants below the limit values for that environmental factor, with the agreement of the territorial public authority for environmental protection.

The use of air quality improvement methods and systems is allowed environment that do not lead to exceeding the norms established by the legislation in force for the workplace.

Pollutant emissions in the atmosphere with an impact on human health and the environment are subject to taxation, and the related amounts are paid to the Environmental Fund, according to the law.

The central public authority for transport and the central public authority for industry, in collaboration with the central public authority for environmental protection, establish, as the case may be, the limit values for pollutants emitted by mobile sources, in accordance with the provisions of European and international standards.

Users of mobile sources of pollution have the obligation to ensure compliance with the emission limits established for each specific type of source, as well as to submit them to technical inspections, according to the provisions of the legislation in force. If it is possible from a technical and economic point of view, diffuse sources are transformed into directed emission sources.

Public information

The public authorities for environmental protection ensure the information of the public, as well as of interested organizations, such as: environmental protection organizations, consumer protection organizations, organizations that represent the interests of sensitive groups of the population, other relevant bodies in the field of health and industrial organizations relevant, in an adequate and timely manner, regarding the quality of the surrounding air, air quality plans, etc.

The mayors, local councils, local councils of the sectors of the city of Bucharest, county councils or the General Council of the City of Bucharest, as the case may be, ensure the information of the public, as well as of interested organizations, such as environmental protection organizations, consumer protection organizations, which represents the interests of sensitive groups of the population, the other relevant bodies in the field of health and the relevant industrial organizations, in an adequate and timely manner, regarding the air quality plans, respectively the air quality maintenance plans and the reports on the status of the fulfillment of the measures, under the law.

This information is made available to the public free of charge, through any easily accessible media, including the Internet or other means of telecommunications suitable.

Offenses related to air pollution

Failure to comply with the following obligations constitutes a misdemeanor and is punishable by a fine from 3,000 lei to 10,000 lei, for legal entities:

a) the obligations of the holders of activities that have fixed sources of atmospheric pollution to participate in the development of emission reduction programs, air quality plans and short-term action plans;

b) the obligations of the holders of activities that have fixed sources of atmospheric pollution, according to the provisions included in the emission reduction programs, in the air quality maintenance plans, in the air quality plans and in the short-term action plans;

c) the obligations of the owners of activities upon the triggering by the territorial public authority for the protection of the environment of the short-term action plan, to take urgent and effective measures to reduce the emissions of pollutants in the air, so that their concentration in

the surrounding air be reduced until reaching the limit value level, including by temporarily stopping the activity, if necessary.

Failure to comply with the following obligations constitutes a misdemeanor and is sanctioned with a fine from 500 lei to 10,000 lei, for individuals, and from 5,000 lei to 15,000 lei, for legal entities:

a) the obligation of users of mobile sources to ensure compliance with the emission limits established for each specific type of source, as well as to subject them to technical inspections, according to the provisions of the legislation in force. This provision is not applicable to users of road vehicles for which the legislation in force regarding traffic on public roads applies;

b) the obligation to obey all legal procedures and requirements that lead to the prevention, elimination or reduction of the impact on the surrounding air and the environment as a whole;

c) the obligation to transform diffuse sources into directed emission sources, if it is technically and economically possible.

Failure to comply with the following obligations constitutes a misdemeanor and is sanctioned with a fine from 500 lei to 2,000 lei, for individuals, and from 5,000 lei to 10,000 lei, for legal entities:

a) the obligation of the owner of the activity to provide the competent authorities with the information requested for the elaboration of inventories of atmospheric pollutant emissions;

b) the obligation of the owner of the activity to inform the competent authorities in case of exceeding the emission limit values, imposed by the regulatory acts.

Failure to comply with the following obligations constitutes a misdemeanor and is punishable by a fine from 50,000 lei to 100,000 lei, for legal entities:

a) the provisions relating to the protection of the atmosphere from the agreement and/or environmental authorization/integrated environmental authorization;

b) the obligations of business owners who have fixed sources of atmospheric pollution to submit to the control of the competent authorities, according to the legislation in force;

c) the obligations of business owners to immediately notify the territorial public authority for environmental protection about the occurrence of breakdowns, accidents, incidents, accidental stops/starts.

Offenses related to atmospheric pollution

They constitute crimes and are punished as follows:

a) with imprisonment from 3 months to one year or with a fine for non-elaboration, by the holders the activities that constitute important fixed sources of emissions, the plans for emergency situations, which establish the measures applicable inside the site, as well as the failure to request approval from the competent authorities for the measures established to be applied outside the site;

b) with imprisonment from 1 to 5 years for failure to stop the operation of installations that constitute a source of danger with an impact on the quality of the surrounding air in case of imminent danger, or failure to notify the competent authorities regarding the danger.

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