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From the Editorial Committee

We are giving you the next Vol. 31, No. 1(2026) issue of the scientific journal of the Faculty of Management of the Rzeszów University of Technology entitled “Modern Management Review”.

The primary objective of the journal is to promote publishing of the results of scientific research within economic and social issues in economics, law, finance, management, marketing, logistics, as well as politics, corporate history and social sciences.

Our aim is also to raise the merits and the international position of the journal published by our Faculty. That is why we provided foreign Advisory Board, as well as an international team of Reviewers to increase the value of the scientific publications.

The works placed in this issue include many assumptions and decisions, theoretical solutions as well as research results, analyses, comparisons and reflections of the Authors.

We would like to thank all those who contributed to the issue of the journal and we hope that you will enjoy reading this issue.

With compliments
Editorial Committee

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Rim AMMAM[1]

FROM SHADOWS TO SPOTLIGHT FOR HUMAN RESOURCE DEVELOPMENT IN UNDERSERVED REGIONS: A CASE STUDY OF ALGERIA

The purpose of this study is to evaluate the effectiveness of Algeria's Shadow Areas Development Program in improving human capital in underdeveloped areas, particularly its consistency with the 2023–2030 National Strategy. To achieve this, a qualitative policy analysis was used. The study utilizes a multi-source data triangulation approach, drawing from official Algerian government progress reports (2020–2024), national archival records, and strategic policy documents. These credible sources provide a robust longitudinal basis for evaluating regional development outcomes. The findings reveal that while physical infrastructure has undergone significant expansion, deep-seated structural barriers continue to impede the delivery of high-quality healthcare and educational services. However, a shift towards service-oriented programs will be recommended, with a focus on incentivizing professional placements in these areas to bridge the disparity in development. A limitation in the study will be the use of secondary data from the Algerian government.

Keywords: human resource development, underserved areas, Algeria, policy analysis, sustainable development.

1. INTRODUCTION

Many remote and underserved areas around the globe faced significant structural obstacles, such as poor infrastructure and insufficient access to public services, as elaborated by Bernard et al. (2023) and Baazeem et al. (2024). These circumstances demand a reevaluation of public policies to more effectively distribute resources, promote regional fairness and social unity, and ultimately decrease regional inequalities (Jones, Moisio, 2025). Pylypenko et al. (2024) argue that exclusion in these areas is not just economic, but also social, cultural, and political. These highlight the need for focused, sustainable interventions built on principles of justice and equity.

In response to these challenges, Algeria initiated the Shadow Areas Development Program in the early 2020s, under the direct oversight of the President (Azzoug, 2024).

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This program marks a pivotal paradigm shift from top-down, centralized development frameworks toward a more granular, inclusive methodology tailored to address immediate local exigencies (Serres, 2016).

According to Ouki (2019), an initiative aims to integrate marginalized regions into national development by providing them with equitable access to essential services. These services include electricity, natural gas, clean water, and transportation infrastructure. In addition to infrastructure development, Laaredj-Campbell (2015) and Hichem (2023) argue that the program's true potential lies in promoting human empowerment and strengthening local capacities through the integration of social, cultural, and economic factors into development strategies.

Sharma and Kohli (2024) argue that enhancing human resources is crucial for sustainable progress in these areas. Strategic investment in human capital, especially among marginalized groups, is imperative for disrupting intergenerational cycles of poverty and addressing systemic exclusion. Such investment empowers local communities to engage actively in developmental processes, aligning with the framework proposed by Phillips (2016). Hariram et al. (2023) argue that this necessitates a comprehensive approach customized to the unique demographic, geographic, and social contexts of each region, with a focus on providing quality education, vocational training, healthcare, and sustainable job opportunities to improve living conditions and strengthen social stability.

This study critically assesses the potency of the 'Shadow Areas Development Program' in Algeria in enhancing human capital formation in areas where it is most needed. It is predicated on the assumption that human capital is a fundamental engine for sustainable development, which not only promotes economic growth but also helps to address spatial justice and social integration gaps.

To this end, the study evaluates the implemented strategic initiatives, their substantive contributions to human development metrics, and the structural impediments encountered in attaining the program's ambitious benchmarks.

1.1. The aim of the study

- To analyze the effectiveness of the Shadow Areas Development Program in enhancing human capital indicators (health, education, and employment) in marginalized regions of Algeria.
- To explore the social, economic, and cultural effects of the program on the local communities, with particular emphasis on its role in narrowing spatial disparities and promoting social cohesion.
- To pinpoint the challenges and obstacles encountered in executing the human resource development initiatives of the program and provide suggestions to enhance its impact and sustainability.

1.2. The Importance of the study

This study holds significance as it highlights the importance of human resource development in disrupting the cycle of exclusion and marginalization within disadvantaged communities. The analysis of a model national program offers a critical examination of the effectiveness of integrated development policies in mitigating regional disparities. Additionally, the study enriches the discourse on sustainable development by emphasizing the essential role of investments in human capital as a catalyst for economic growth, social equity, and community cohesion. These findings can help policymakers, development experts, and other key figures create more effective and fair regional development plans for Algeria and similar regions.

1.3. Problem Statement

The Algeria Shadow Areas Development Program has invested heavily in infrastructure; however, a serious lack of human capital development persists among marginalized communities. Insufficient access to education, healthcare, and vocational training presents significant systemic obstacles. This study will evaluate the program's effectiveness in developing human resources, identify the challenges that hinder its long-term success, and provide recommendations to improve future outcomes.

2. METHODOLOGY

a. Methods and Materials

This study uses descriptive and analytical approaches to evaluate a national program's strategic vision for human and social development. This method was selected because it facilitates a comprehensive and critical review of accessible policies and their purported outcomes without bias. The research involved a thorough evaluation of the program's three pillars and their alignment with both national and global development objectives.

2.1. The materials employed in this study were sourced from three key categories

- Official Publications and Documents: Important governmental programs and policy reports that outline the national vision for human development and social policy. These include official documents from the Ministry of Higher Education and Scientific Research (MESRS) and reports related to the United Nations Framework Convention on Climate Change (UNFCCC), providing a thematic overview of the country’s social and environmental commitments.
- Academic Literature: Theoretical articles and research journals that offer theoretical frameworks and contextual insights related to the development program and its operations. These materials were instrumental in analyzing the data and shaping the study's conclusions.
- Statistical Information: National and international statistics from trustworthy sources, including essential indicators in demographics, education, and the economy. The HelloSafe Prosperity Index was specifically utilized to create a framework for assessing national prosperity and well-being, enabling a comparison of the program's effects.

A limitation of this method is its dependence on available documents and information, which may not fully capture the complete scope or actual execution of the program. Nevertheless, by triangulating data from these diverse sources, this study aims to deliver a thorough analysis.

2.2. Model of study

The INSA Model examines how a nation's strategies can dismantle policy silos and promote more effective, sustainable development.

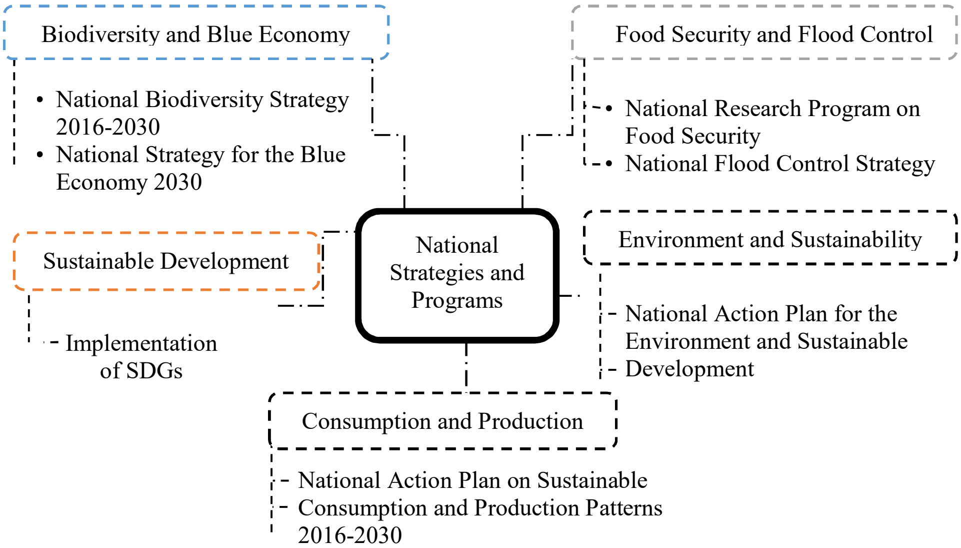


Figure 1. Integrated National Strategy Analysis (INSA)

Source: Developed by the author.

3. LITERATURE REVIEW

3.1. A Strategic Vision for Human and Social Development within the Framework of the President's Program

Mourad and Avery (2019) contend that the President's program for Human Development and an Enhanced Social Policy outlines a comprehensive strategy for achieving sustainable and inclusive progress. Bouherar and Salem (2025) argue that this ambitious initiative is not merely a catalog of actions. Instead, it aims to change lives by confronting present challenges and proactively preparing for those to come. Benbekhti et al. (2024) note that the government's plan of action is based on three interconnected pillars that bring this vision to life, with cross-sector initiatives designed to create cohesive objectives. These pillars are intended to expedite development and ensure that their advantages are fairly distributed throughout society.

3.1.1. The Demographic Shift in Algeria (2016–2022)

The crude birth rate (CBR) or the rate of live births per 1,000 population per year is a key indicator of population that reflects fertility trends and the population dynamics of a country. Between 2016 and 2022, the crude birth rate declined steadily:

Table 1. Birth rate between 2016 and 2022

	2016	2017	2018	2019	2020	2021	2022
Crude birth rate (in ‰)	26.12	25.40	24.39	23.80	22.34	21.14	20.06

Source: unfccc (2024).

Between 2016 and 2022, Algeria's crude birth rate declined steadily, falling from 26.12 per 1,000 to 20.06 per 1,000. This represents a significant 23.2% decrease. This downward trend is a key indicator of the country's demographic transition, aligning with Stage 3 of the Demographic Transition Model (The Demographic Transition Theory, developed in 1929 by American sociologist Warren Thompson, is a framework used to analyze how populations change. Thompson's original model categorized countries into three groups based on their level of economic development).

This shift is likely driven by several factors: improved access to education (particularly for women), better availability of health services, and the increased adoption of family planning. The decline in the birth rate suggests significant social and economic progress, as families often choose to have fewer children in response to rising living standards and evolving societal values.

First Pillar: Building Human Capital

Vaz (2024) explains that human capital development is one of the mainstays of long-term economic and social development, particularly in a global knowledge economy. The data on teaching and research staff provide significant insights into the organizational structure of academic personnel. Furthermore, it serves as a key indicator for assessing a higher education system's capacity to deliver quality education and inspire scientific innovation.

(a) Gender distribution (b) Distribution by academic rank

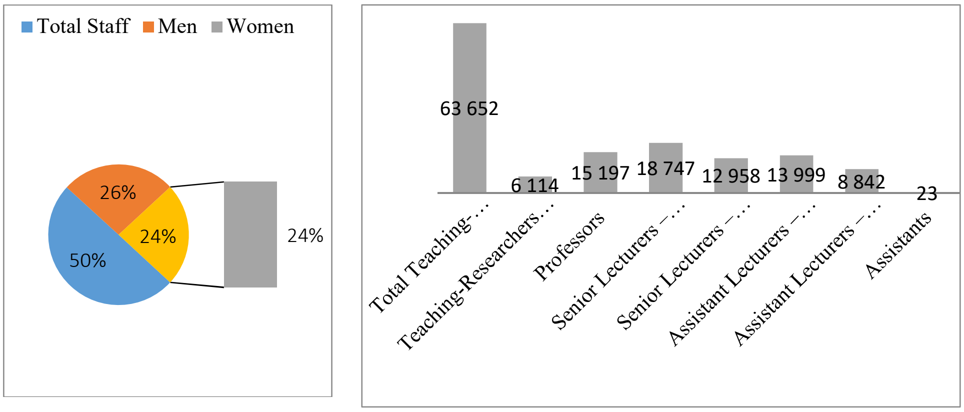


Figure 2. Analysis of the Teaching Staff (2024/2025)

Source: mesrs (2025).

Panel (a) reveal a total of 69,766 higher education personnel, comprising 36,832 men and 33,084 women. This near-gender equilibrium is essential for inclusive development. while panel (b) notably, 63,652 individuals (91%) were categorized as teaching-researchers, a figure that underscores the dual mission of modern universities: academic training and scientific innovation. Within this framework, Hospital-University (H.U.) personnel account for 6,114 individuals, representing 21.80% of the cohort, which reflects a robust integration between academic instruction and the national health system, a synergy fundamental to cultivating specialized medical skills.

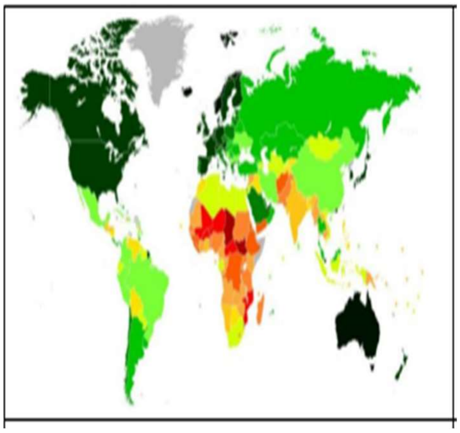
The academic hierarchy was structured through a stratified allocation of ranks. Professors constitute 26.90% of the teaching-research personnel, forming a solid senior cadre critical for institutional leadership and the mentoring of junior faculty. Mid-level personnel, specifically Senior Lecturers in Categories A and B, represent 18.60% and 20.10% respectively, indicating a well-settled body capable of delivering core curricula and contributing to applied research.

Conversely, the emphasis on cultivating early-stage scholars is evident in the Assistant Lecturer ranks, with Category A comprising 13,999 individuals (12.70%) and Category B totaling 8,842. Interestingly, the negligible number of Assistants (23, approximately 0%) suggests a potential policy shift toward reclassifying or phasing out this specific rank.

Collectively, these figures represent a highly stratified system with a decisive research orientation. Such a structure is vital for elevating educational standards and fostering innovation, thereby aligning national academic output with labor market demands. By equipping graduates with flexible, high-level skills, the system directly strengthens a competitive workforce – an imperative in today's dynamic global economy.

Second Pillar: Improving Living Standards

Llena-Nozal et al. (2019) and the World Health Organization (2024) explain that this pillar reflects the state's commitment to collective and individual well-being by expanding access to high-quality education, healthcare, and other essential services. They also note that it promotes cultural and sporting activities to foster a balanced and dynamic society. Additionally, this pillar prioritizes urban planning and environmental sustainability to ensure a high-quality living environment and preserve ecological balance.



Rank	Country	Points
63	Mauritius	41.05 points
64	Seychelles	40.77 points
65	Trinidad and Tobago	40.63 points
66	Algeria	40.36 points
67	Panama	40.36 points
68	Thailand	40.34 points
69	Georgia	40.19 points
70	Maldives	39.65 points

Figure 3. Map of the world's countries by HDI, according to the UN in 2021

Source: unfccc (2024); HelloSafe Prosperity Index (2024).

The data indicate that nations scoring above 60 points exhibit exceptionally high levels of prosperity. These countries typically possess robust, diversified economies characterized by high living standards, minimal poverty rates, and low levels of inequality. Furthermore, they maintain substantial savings and significant investment in public welfare, positioning them as the most affluent globally.

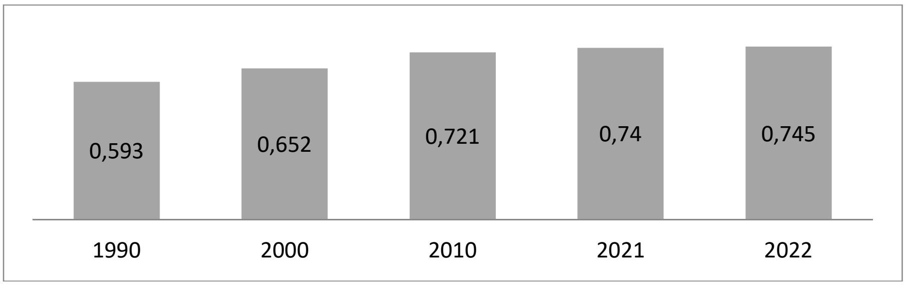


Figure 4. Evolution of HDI
Source: unfccc (2024).

Data indicates that between 1990 and 2022, the Human Development Index (HDI) rose consistently from 0.593 to 0.745, reflecting significant improvements in health, education, and living standards. The most substantial gains occurred between 2000 and 2010; however, subsequent years exhibited a slower yet steady growth. With an HDI of 0.745 in 2022, the country is now positioned within the *"High Human Development"* category. This trajectory underscores the positive impact of resilient development policies in the face of emerging global challenges.

Third Pillar: Advancing Equitable Social Policy

Sepetis (2024) explains that this pillar emphasizes reducing social and regional inequalities through fair resource distribution and robust social protection mechanisms. Hutch et al. (2011) note that it prioritizes vulnerable and disadvantaged groups, offering specialized programs to support their active integration into society. A key focus is the continued development of shadow areas to bridge urban-rural divides and promote inclusive territorial development.

Together, these pillars constitute a holistic framework for a cohesive and balanced society, driving sustainable development across economic, social, and human dimensions. This vision also provides a foundation for future academic research and policy studies, particularly in evaluating implementation mechanisms, performance indicators, and the long-term impact of these policies on Algerian society.

3.2. A Plan for Agricultural Prosperity in the South and Fishing Resources in the North

A. Strategy implemented for the agricultural development of the southern wilayas

The unequal and high contribution of Algeria's southern regions to the nation's agricultural sector, especially in comparison with their relatively low share of total utilized agricultural area (UAA).

The data indicate that the southern provinces (Wilayas) currently constitute 7% of the country's Utilized Agricultural Area (UAA)**.** According to 2022 statistics, these regions significantly bolster the national market, supplying 11% of cereals, 26.4% of vegetables, 32% of potato production, and an overwhelming 98.7% of dates. Consequently, the southern provinces' contribution to the aggregate value of national agricultural output stands at approximately 26%.

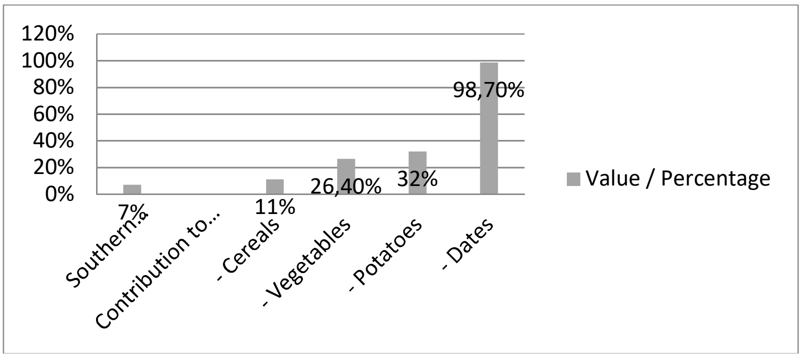


Figure 5. Contribution of Southern Regions to National Agriculture
Source: unfccc (2024).

B. The Fishing and Fisheries Sector

The over 1,620-kilometer coastline of Algeria has 46 fishing harbors and about 89 landing points on 14 coastal provinces. All these specific territorial, geographical, natural, geopolitical, and human aspects give the sector significant potential for growth.

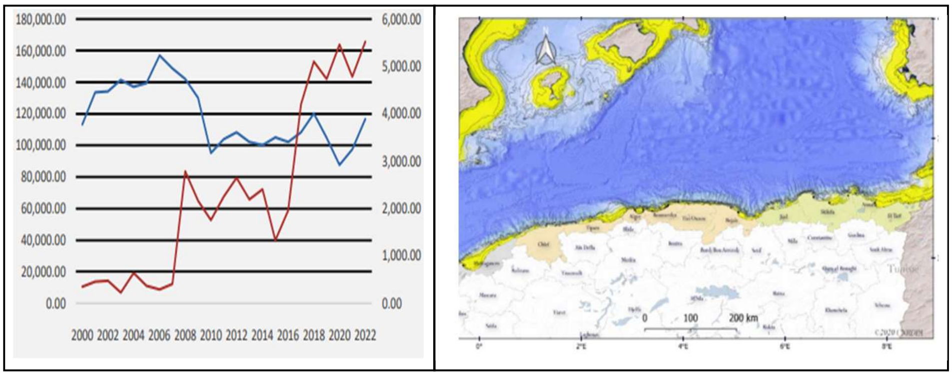


Figure 6. Fishing and Aquaculture Production (2000–2022)
Source: unfccc (2024).

The graph indicates that the SNEB 2030 strategy promotes sustainable sea development through investment, governance, and the incorporation of sea resources into the nation's economy. However, Statistics between 2000 and 2022 reveal a decline in traditional fishing but an increasing trend in aquaculture, which now occupies a prime role in meeting seafood demand. This shift aligns with SNEB goals, highlighting the increasing contribution of aquaculture to economic diversification and food security.

3.3. Enhancement of resilience through risk minimization

Benouar and Benmokhtar (2025) explain that Algeria has made significant progress in risk prevention and management, specifically through the integration of risk assessment into urban and land-use planning policies. The adoption of this strategy has enabled the development and implementation of systematic prevention plans for all major hazards, as stipulated by the provisions of Law No. 04-20**.** A prominent example is *the Flood Prevention Investment Program*, which aims to regulate land use in flood-prone areas, thereby reducing both exposure and vulnerability

Due to its geographical location, Algeria has long been subject to recurring natural disasters. This ongoing exposure necessitated the adoption of more efficient risk management instruments and techniques. The genesis of Algeria's risk prevention policy can be traced back to the early 1980s, following the catastrophic *El Asnam earthquake (1980)* and subsequent floods, which led to the issuance of two executive decrees. Nevertheless, the dramatic flooding of 2001 and the *2003 Boumerdes earthquake* revealed glaring loopholes in the then-dominant legal paradigm and its capacity to manage crises effectively.In response to these challenges, Algeria has undertaken extensive legislative reforms over the last two decades to strengthen its risk governance system. Law (No. 04-20) was enacted to enhance the prevention of major risks and bolster disaster management, followed by Law No. 02-10**,** which forms the basis for the *National Territorial Development Plan (SNAT).* These reforms signal a strategic shift towards preventive planning as a fundamental pillar of sustainable development. Consequently, the prevention of natural disasters has become a national priority, aligning with global trends that view resilience as the foundation for sustained socio-economic stability.

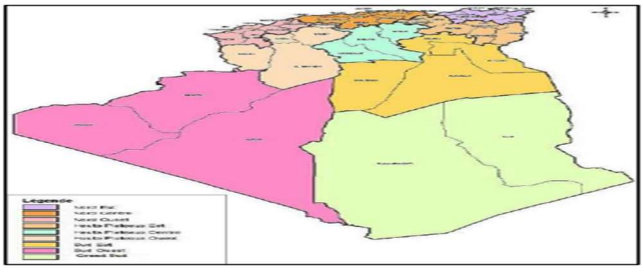


Figure 7. Territorial Programming Spaces

Source: unfccc (2024).

3.4. Algeria's 2023–2030 Strategy: Combating Desertification and Climate Resilience Enhancement

For the 2023–2030 period, Algeria has launched an ambitious strategic project focused on the rehabilitation, expansion, and reinforcement of the “Green Dam” (Barrage Vert). This initiative aligns with the United Nations Convention to Combat Desertification (UNCCD), specifically the target of achieving Land Degradation Neutrality (LDN) by 2030. Furthermore, the project serves as a cornerstone of Algeria's commitments under the Paris Agreement, as outlined in its Nationally Determined Contributions (NDCs). It functions as a dual-purpose strategy for both climate change adaptation and mitigation, primarily through enhanced carbon sequestration and comprehensive ecosystem restoration.

Wildfires are currently identified as a primary threat to Algeria's forest ecosystems, significantly accelerating both deforestation and land degradation. Under Law No. 04-20, which governs the prevention of major risks and disaster management, these fires are formally classified as a high-priority hazard. Consequently, an integrated prevention plan has implemented as a core component of the national strategy. This framework aims to manage and mitigate critical environmental risks through a structured, multi-sectoral approach.

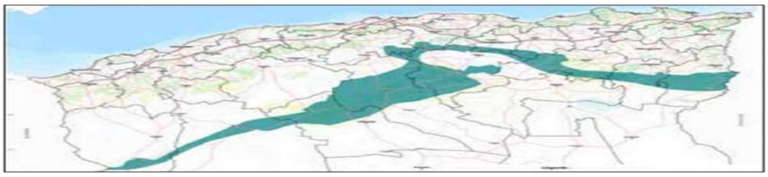


Figure 8. Limits of the “Green Dam”
Source: unfccc (2024).

4. RESULTS AND DISCUSSION

The examination of the nation's strategic vision for human resource development reveals a remarkable transformation, particularly in integrating previously marginalized regions into the national agenda. A significant demographic shift is evident in the ongoing decrease of the Crude Birth Rate (CBR) from 2016 to 2022, commonly linked to improved access to healthcare and education. The higher education sector is committed to fostering a knowledge-based economy, with over 91% of faculty dedicated to teaching and research. Furthermore, the gender distribution of this staff indicates a balanced commitment to development.

The notable and sustained increase in the Human Development Index (HDI) from 1990 to 2022 is a key achievement, positioning the nation in the high human development classification. This progress reflects effective policies that have expanded health, education, and living standards beyond urban centers. An inclusive policy aimed at enhancing the quality of life for all citizens has illustrated by the emphasis on urban planning and sustainability.

Evidence of progress has seen in the reduction of regional disparities. The intensive agriculture practiced in southern provinces, which now accounts for a substantial portion of the national output of key crops, verifies the effectiveness of targeted development strategies. The transition from traditional sectors to aquaculture marks a successful economic diversification initiative that bolsters food security. Additionally, legislative reforms in risk management show a proactive approach to building national resilience, a vital measure for safeguarding vulnerable populations. The collective achievements affirm that the strategic vision is effectively transforming from theory into measurable, positive outcomes, particularly in the advancement of human resource development in underserved regions.

5. CONCLUSIONS

This study shows that the strategic vision for human and social development has effectively prioritized human resource development in disadvantaged areas. This program, through its strategic three-pillar framework, has expedited advancements in demographic, educational, and economic sectors. The result has been enhanced living conditions and a mitigation of regional disparities. The gathered evidence highlights significant improvements in human capital development, quality of life, social cohesion, and national integration, all of which suggest a greater inclusion of these regions into the national fabric. The findings demonstrate that these policies are instrumental in meeting immediate needs while simultaneously fostering long-term national prosperity and stability through the full engagement of all citizens.

6. RECOMMANDATION

According to the study's findings, the plan should maintain its strategic vision while ensuring its enduring success. To enable more comprehensive analysis and focused actions, it is crucial to enhance data transparency and disaggregation by creating an open-source database that includes essential performance indicators.

This initiative will help us understand how projects affect the development of specific underrepresented groups. Furthermore, it is vital to foster public-private partnerships by promoting greater collaboration among governmental bodies, academic institutions, and the private sector. Such collaborations will foster innovation and ensure that educational outcomes remain closely tied to labor market demands across all regions.

In addition to these foundational aspects, the strategic vision has enhanced by focused investments and initiatives. This study shows that increased funding is critical for green technologies and sustainable practices, particularly in rural energy and agriculture, to drive progress in these areas. This concentration will support environmental sustainability and contribute to combating desertification.

At the same time, there is a need for more customized social programs specifically targeting marginalized and vulnerable populations. This approach will ensure that the benefits of societal progress are equitably shared, preventing any group from being left behind.

Finally, to adopt global best practices, it is recommended to actively promote international cooperation through partnerships and knowledge sharing, particularly with a focus on leveraging these insights for regional development.

7. FUTURE RESEARCH DIRECTIONS

Regarding future research directions, it has been suggested that the focus shift from macro-level policy analysis to micro-level empirical evaluations. Specifically, longitudinal research is essential to gauge the long-term socio-economic mobility of families in Shadow Areas; these assessments provide a vital framework for measuring the effectiveness of the 2023–2030 strategic interventions. Furthermore, comparative research examining similar rural development initiatives across other North African contexts would be instrumental in identifying regional best practices and optimizing the allocation of human capital investments.

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Declaration of AI: The author affirms that this work is the product of her efforts. She has not utilized any AI-based tools for generating content, conducting analysis, or forming conclusions. The ultimate content, discoveries, and overall message are entirely her own, and she takes full responsibility for their precision and authenticity.

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The author has read and agreed to the published version of the manuscript.

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DIGITAL BEHAVIOURS HIDDEN UNDER HOUSEHOLDS INDICATORS. AN OVERVIEW POLAND-GERMAN DATA

The article presents a synthetic set of indicators of the availability of new technologies by aspect digital behaviour at the household's indicators level. Online activities describe digital behaviour in households by purposes using the internet. Patterns of household behaviour are variable by age, gender, and nationality. The article cites indicators of access to the digital society, pointing to behaviours that confirm the different level of access and use of the Internet in Polish and German households. The juxtaposition of differences in Internet use between countries highlights the different rates of adaptation in the process of digitization in which the availability of digital tool capital becomes a determinant of the use of digital communications and services in modern society.
Structure: A comparison of household data for Poland and Germany, drawn from Eurostat, the OECD, and the World Bank for the years 2022–2024. Internet access and online activity reflect digital behaviours in households. Differences in household members' behaviours indicate distinct patterns of how households are adapting to the digitization process (Gomes, 2024).

Keywords: digital society, behaviours, households, digital tools, index, access.

1. INTRODUCTION

The main objective of this study is to compare key indicators of households' digital society by process of digitalisation in two European countries with differentiation in situations of inequalities and wealth. To achieve this, comparative data was used. The analysis of indicators illustrates the differences in accessibility to digital tools capital. The value of the use of open data in science, allows us to observe social disparities in international reference to indicators of access to new technologies. Today's communication tools are the symbolic ticket to digital communication from a distance. As European policy plans indicate, basic digital skills are becoming essential for participation in public and professional life (Eurostat 2024). The digital capital here is the tools, allowing for the

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digitization of creativity, and social relationships (Rodríguez-Camacho, Linder, Jütte, Hennig-Thurau, 2024). Variables that differentiate access to digital capital are age, gender, and education. Differences in ownership and use of digital tools among European households represent different behavioural patterns for different social groups.

Capital in modern society is the level of digital accessibility to information or services. Using the definition of digital capital, it is the capital that bridges the gap between online and offline life (Ragnedda, 2018). Moreover, digital capital allows an individual to include or exclude access to information. A person becomes a creator of behaviour and using resources or a consumer of resources in a digital society. Explaining this after Byung Chul--Chan, modern man takes refuge in the images he processes in social networks, which is a contributor to consuming data and property (Han, 2015). At the same time being offline, we are processed, by social record systems; at the same time having access to information online, we process information or are the creators of information. Without access to digital accessibility, we are excluded from many dimensions of private and professional life where access to the Internet and the ability to use technological tools: computer, tablet, phone, cloud systems, condition participation in society (Seifert, Rössel, 2019). As defined by Byung Chul Han a society of fatigue and exposure in different groups achieves digitization capability capital at different levels. Communicating or sharing digital content (Heitin, 2017). through technological tools (using technological tools) requires having a capital of digital tools like a phone with mobile internet (Tinmaz, Fanea-Ivanovici, 2022).

So far, social inequality captured by the Gini index is moving into the zone of digital inequality (Eurostat 2024). Therefore, the Internet accessibility index becomes a measure of digital inequality. Inequality of ownership and use of digital tools in European countries is becoming a determinant of participation in the Web 4.0 society (Siregar, Dalimunthe, Rini, Absah, 2024). Mobile Internet ownership is the capital of today's digitized reality. The theoretical background is a reference to Pierre Bourdieu's theory of the availability of capital and the availability of information according to Jan Van Dijk, the source of which is access to digital media (Verwiebe, Hagemann, 2024).

Having digital tools today is the ticket to being in a digital society. Resource capital is digital tools used in daily life with the right level of digital competence by behaviour. An opportunity for intergenerational transfer of digital tool skills is in digital skills distribution networks. These are done through knowledge transfer also in households, which is defined as – digital saviness of friends, digital upbringing. With the presence of exchange networks on how to do something via the Internet, the chance to participate in a digital society of services and commerce, ordered not directly face-to-face but at a distance, increases. The lack of technological tools in modern society promotes social exclusion (Helsper, 2021). Growing Internet access at the individual level in European households is an indicator that confirms that technical resources are a prerequisite for an accessible digital society (Eurostat 2020).

The World Bank data show affordability of 1GB data varies according to per capita national income index (Aranda 2023). The gross national income per capita (GNI) in 2023 for German was 53. 97 dollars. The same index GNI for Poland in 2023 was 19.73 dollars (OECD 2023). The fact that digital capital is inaccessible is part of the consequence of the digital divide between those who do or do not have access to information and a digital form of contact with the world (Van Dijk 2005).

2. LITERATURE REVIEW

A place of residence that brings together household members of different ages is an area of diverse needs in a digital society. Access to the Internet in the household allows for meeting economic needs, such as paying for utilities and housing. These are routine behaviours in households, but they are made possible by the availability of digital tools. Regardless of the city or the village, access to digital services consistently means social participation or exclusion. The thesis of the urbanisation process with which the availability of broadband in large cities is increasing. The trend of less access to broadband and mobile Internet in rural areas applies across Europe. This is followed by a decline in digital competence in rural households. The trend of mobile internet use via phone is growing in favour of greater availability of phones, apps than tablets and computers. According to the theory of inaccessibility, internet access is becoming an asset in rural areas. Despite difficult access to broadband or fibre, the use of mobile internet access is growing in the European countryside (Eurostat 2022–2024). Intergenerational households are an opportunity to transfer computer, telephone and household equipment skills to household members of different ages (Qian, Hu,2024). Depending on single-person households to multi-person households, daily social needs are realised with the help of new technologies (Abendroth, van der Lippe, Treas, 2024). The areas of work, education, entertainment, communication, and services are areas of life realised in modern households with the help of the Internet and digital tools (Eurostat 2022). Disparities in households' adaptation to the use of new technologies in daily life in Polish and German household members' behaviour point to age- and gender-independent variables that differentiate the rate of adaptation of the digitalisation process between European countries. The division of roles in households is a process consistently associated with the level of satisfaction with the gender division of labour, which affects satisfaction with family life (Lück, Frembs, Bujard, Weih, 2023). The breakdown of household chores in Polish and German households relates to online tasks. Such for non-routine tasks in German households, cover financial tasks (e.g., paying bills, and doing taxes) and small repairs (Nutz, et al., 2023, Hank et. al., 2024). This is confirmed by the results of national surveys FReDA the German Family Demography Panel Study 2024, which has been funded by the German Federal Ministry of Education and Research (BMBF). In the same facts divide the role exists in Poland households. A non-routine task as small repairs belong to man. In matters of online affairs, it is men over 55 who are more likely to use online banking. Women in every age category in Polish households are more likely to shop online (PBI 2023). The hypothesis put forward by (Kwak, 2022) is that the family models being implemented are shifting towards a partnership-based division of roles, which also applies to duties carried out online, such as payments. In reality, two other models co-exist alongside the traditional model, namely the egalitarian-mixed model in two versions (with the increased amount of household responsibilities for either a woman or a man) and a model where the roles are reversed. Increasing often declared that the execution of the partnership-based division takes place both in the professional sphere and in the family domain. It was only in 2020 that the partnership model gained a significant advantage over the other two.

3. METHODOLOGY

The main objective of our study is to compare key indicators of households' digital society by process of digitalisation in two European countries with differentiation in situations of inequalities and wealth. To achieve this, we employed the comparison data. This approach allows us to present dynamic changes in process of digitalisation in households in perspective adaptation society. This approach allows us to present dynamic changes in process of digitalisation in households in perspective adaptation society. Households are depicted here through statistical data for Poland and Germany in separate national analyses, which are compared in a European context using Eurostat, World Bank Data, and national reports. A comparison of data from Eurostat, OECD, and World Bank resources from 2022–2024 on Polish and German households. The comparative analysis of covered the extent to which households have access to the internet and digital tools, as well as an assessment of the behaviour for which household members use digital tools. The main research question focused on exploring differences in the digital behaviours of Polish and German household members. Specific questions concerned what differences in household members' use of digital tools could be observed, and whether access to tools and internet resources distinguishes Polish and German households in terms of digital behaviours. The first aspect concerns access to digital resources. The second aspect concerns differences in the behaviour of household members regarding their use of digital tools in everyday tasks, including those related to the household. One of the hypotheses confirmed by the available secondary data suggests that differences in internet access and tools between Polish and German households do not constitute a significant barrier to the adoption of new technologies in households. Significant differences between the countries relate to internet usage behaviours in households. The hypothesis concerns a risk group and gender digital divide comprising women who, as they age in Poland, are characterised by lower digital activity and a lower level of digital competence compared to the same age groups in German households (Kovac, 2024).Furthermore, the hypothesis regarding the uneven distribution of digitalisation in this analysis confirms that, in developing countries with varying levels of digitalisation, access to digital skills among households varies considerably, which is clearly reflected in everyday household behaviour involving the use of new technologies.

4. RESULTS

The measure of Internet access starts the differences in adaptation to the digital society. Access to the network requires having tools for everyday use in households with new technologies. Accessibility and the use of technical tools are part of the picture of the digital society; a comparison is summarized in Tables 1–2. The greatest increase in households with Internet access from 2022 to 2023 is in Polish households. On the other hand, greater accessibility to digital tools is found in German households Table 3. The trend of increasing importance of mobile internet for individual consumers, is confirmed by the growing availability of mobile technology over the cost and technical limitations of using fixed broadband (Table 2).

The differences between Polish and German households illustrate the differential access to tools (type of Internet network, computer, telephone). These are tools necessary for daily routines that use the Internet. Internet access is defined as the percentage of households who reported that they had access to the Internet. In almost all cases this access is via a personal computer using either a dial-up, ADSL or cable broadband access. This indicator is measured as a percentage of all households.

Table 1. Internet access. Total, % of all households, 2023 and Gini index

Gini index of equivalised disposable income		Internet access household		
	2023		2022	2023
Poland	27,0	Poland	93,33 %	93,30 %
Germany	29,4	German	91,41 %	91,66 %

Source: OECD data. ICT Access and Use by Households and Individuals explorer. https://data-explorer.oecd.org, https://data.oecd.org/ict/internet-access.htm

Table 2. Access type of broadband

2023	Fixed broadband	Mobile broadband
Indicator type	Per 100 inhabitants	Per 100 inhabitants
Poland	25,17	133,55
German	45,40	96,86
Indicator type	Subscriptions	Subscriptions
Poland	9 489 107	50 345 142
German	38 368 429	81 862 000

Source: OECD data explorer broadband and telecom detabases 13.11.2024. https://www.oecd.org/en/topics/broadband-statistics.html

Table 3. Devices used to access the internet 2023

	2023 % of all households			
Country	Mobile device	Mobile phone or smart phone	Laptop or tablet	Desktop computer
Poland	86	83	56	21
Germany	90	83	65	32

Source: Eurostat 2023: Digital economy and society statistics – households and individuals, https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Digital_economy_and_society_statistics_-_households_and_individuals

The trend to increase Internet accessibility in households is present in Polish and German households. Internet access alone does not correlate with the availability of digital tools on which one uses the internet for daily activities. The key difference in the ownership of tangible capital, which is mobile devices, is a significant barrier to the use of the Internet. The data show greater internet availability in Polish households, but in German households, the availability of mobile device tools is at a higher level (Figure 1). The data confirm that digital exclusion women is higher in Poland in financial service by the Internet (Tables 4–6). Data about internet purchases by individuals (last online purchase 12 months) show differences in digital behaviour between Polish and German woman and man by age (Table 8, Figure 1). National comparisons do not show such disparities in behavioural changes as the juxtaposition between countries and gender. In households, the trend of online shopping declines with each subsequent decade after 55 years old. Women over 55 years old in Polish households buy 30% less online than women of the same age in German households (Table 7). For men, cross-country differences in the age group 55 and older indicate a similar magnitude of decline in purchasing with age and a significantly greater exclusion of online shopping by men in Polish households than in the behaviour of men of the same age in German households.

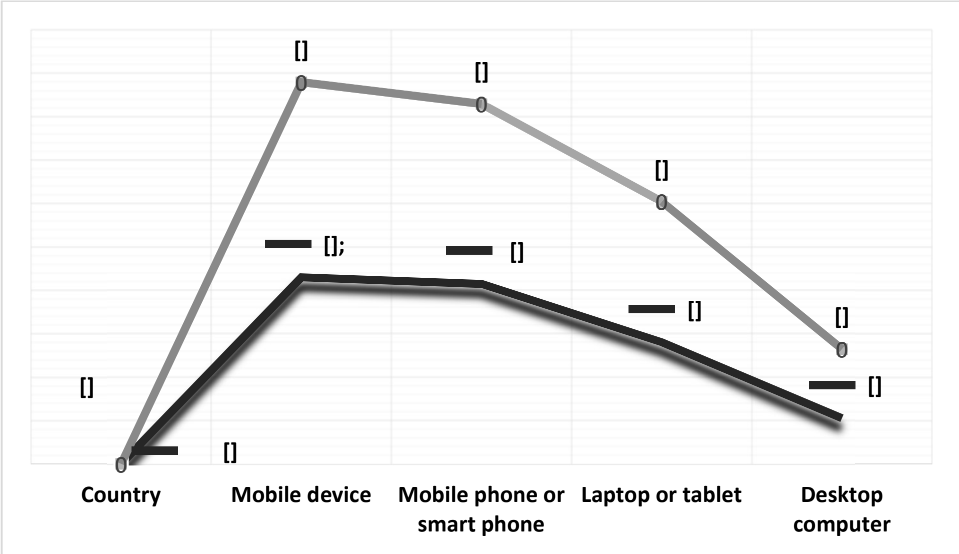

Figure 1. Devices used to access the internet. Compare Poland-German access and usage by households

Source: Eurostat 2023: Digital economy and society statistics – households and individuals 2023. Households – devices to access the internet. https://ec.europa.eu/eurostat/databrowser/explore/all/science?lang=en&subtheme=isoc&display=list&sort=category

To indicate international differences in the use of new technologies, it is reasonable to cite the Digital Economy and Society Index DESI (Eurostat 2024). It presents the adaptation of European societies to the digitization of life among people aged 16 to 74. In the theory of balancing digitization processes in Europe, uneven adaptation to digital skills is a significant barrier defined as digital exclusion (Tomczyk, Mascia, Gierszewski, Walker, 2024).

Comparative data shows basic digital skills competencies achieved with a difference of 8% between Polish and German Internet users aged 16 to 74 (Table 4). In terms of basic digital competencies, it is men in Poland and Germany who are more likely to have digital competencies than women, comparing user data (Table 5). The data presented later in the article, confirms that in households, the habits of men and women in the use of new technologies are different and result from the division of tasks.

The Internet usage data do not confirm the social exclusion of women in the digitisation process after age 55 compared to men of the same age. In the local dimension of households, using the example of individual online shopping, women dominate consumer behaviour compared to men under 54 in Polish and German households (Table 6). Men are more likely than women to use the Internet in the financial area for services such as bank payments, shopping, or sending money (Tables 7-10). The differences are in paying bills. In Polish households, men are more likely to pay bills using a phone with Internet access. In German households, it is more common for women to pay bills by phone. The communicative dimension of new technologies is most often confirmed in the behaviour of video calls and sending and receiving email (Table 11, Figure 2). Data below.

Table 4. DESI indicator. Basic digital skills and above basic digital skills. All individuals 16–74 aged

DESI overall	Basic digital skills	Above basic digital skills	Individuals with no overall digital skills	Has not used the internet in the last 3 months
	2024	2024	2024	
Poland	44,3%	20,05%	4,88%	14,63%
German	52,2%	39,3%	3,58%	8,57%

Source: DESI 2024, Eurostat.
https://ec.europa.eu/eurostat/cache/metadata/en/isoc_sk_dskl_i21_esmsip2.htm

Table 5. DESI indicator per sex. Comparison of Polish-German households

DESI 2023. Individuals who have basic or above basic overall digital skills by sex		
	Female	Male
Poland	42,9%	45,6%
German	49%	55,1%

Source: DESI 2024, Eurostat.
https://ec.europa.eu/eurostat/databrowser/view/ISOC_SK_DSKL_I21/default/tabl

Table 6. Comparison of Poland and Germany. Internet purchases by individuals – last 12 months

2023	**Poland**	**German**
years old	Female	Female
65-74	31,76%	61,29%
55-64	43,56%	71,34%
54-45	71,47%	81,97%
44-35	87,30%	88,03%
34-25	93,20%	89,11%
24-16	79,58%	83,24%
2023	**Poland**	**German**
years old	Male	Male
65-74	33,43%	68,08%
55-64	40,94%	73,37%
54-45	69,34%	81,49%
44-35	80,83%	85,89%
34-25	85,58%	86,89%
24-16	73,86%	79,31%

Source: Eurostat, Internet purchases by individuals 2020 [6.11.2024] Data Browser. DOI: 10.2908/isoc_ec_ib20

Table 7. Used a mobile phone or the internet to pay bills in the past year (% age 15+)

The percentage of respondents who report using a mobile phone or the Internet to pay bills in the past year (% age 15+)		
2021		
Country	Female	Male
Poland	67,3%	73,8%
German	58,2%	56,6%

Source: Open Data Portal World Bank Group [6.11. 2024]. https://genderdata.worldbank.org/en/indicator/fin14a-a

Table 8. Used a mobile phone or the Internet to send money (% age 15+)

2021		
Country	Female all	Male all
Poland	42%	54,2%
Germany	31,3%	30,9%

Source: Open Data Portal World Bank Group [6.11. 2024]. https://genderdata.worldbank.org/en/indicator/fin14a1-d

Table 9. Borrowed any money from a formal financial institution or using a mobile money account (% age 15+)

2021		
Country	Female all	Male all
Poland	25,7	38,6
Germany	58,5	50,7

Source: Source: Open Data Portal World Bank Group [6.11. 2024]. https://genderdata.worldbank.org/en/indicator/fin22a-c-mm-d

Table 10. Digital payments in the past year (% age 15+)

2021		
Country	Female all	Male all
Poland	92,4%	94%
Germany	99,3%	99,7%

Source: Open Data Portal World Bank Group [6.11. 2024]. https://genderdata.worldbank.org/en/indicator/g20-t

Table 11. Daily routines internet use in Polish-German Households

Internet activities	Poland 2023 percentage of individuals	German 2023 percentage of individuals
Internet use sending/receiving email	66,94%	83,26%
Internet use telephoning or video calls	56,7%	63,83%
Internet use: doing an online course	9,28%	8,87%

Source: Eurostat 2023, Individuals Internet Activities. https://doi.org/10.2908/ISOC_CI_AC_I

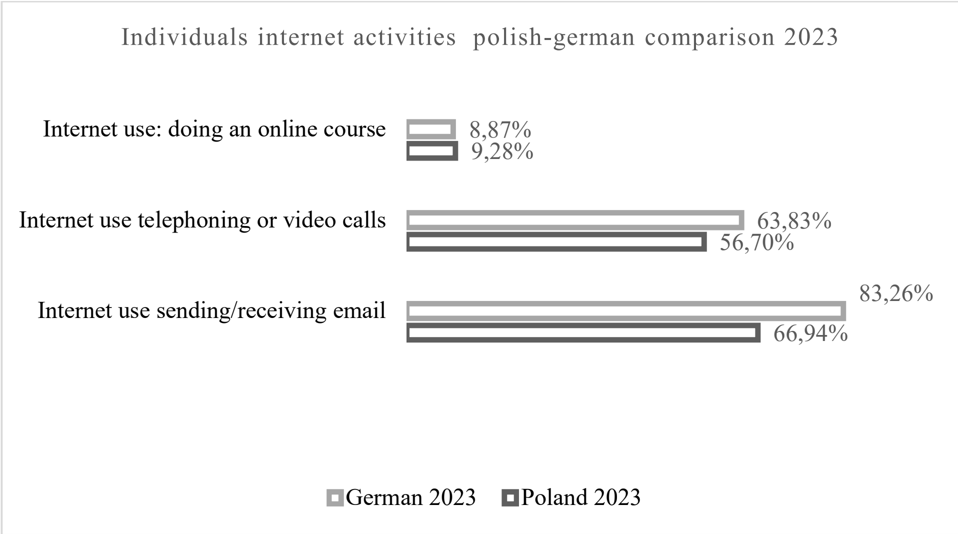

Figure 2. Individuals internet activities 2023

Source: On based data Eurostat 2023, Individuals internet activities. https://doi.org/10.2908/ISOC_CI_AC_I

5. DISCUSSION

The analysis confirmed the existence of significant disparities in the digital development of households of two European Union countries and the still large diversity of the level of digital development at the level of households.

Many theoretical approaches offer possible explanations for the transformations occurring in modern societies; however, I would like to draw attention to one of them. The reflexive modernization means that social change may happen selectively and follow various directions (Lash, 1993). Access to and quality of broadband infrastructure is a prerequisite for taking advantage of the opportunities offered by the Internet to individuals and households. Universal access to broadband Internet in the European Union is considered a factor determining the implementation of the assumptions until 2030 as part of the Digital Compass: the European way for the Digital Decade program. However, the mere fact of the potential availability of information provided by access to the Internet does not guarantee their actual availability, which is determined by the skills and competencies of its recipients. Differences in the availability of digital tools and differences in digital competencies as shown by the differences between Polish and German households, especially concern gaps in the transfer of generational digital knowledge. The poor transfer of digital knowledge from the younger generation to the older generation is conducive to strengthening digital inclusion. As shown by the data, differences in households using the Internet significantly differentiate people over 60 years of age in Polish and German households.

Analyses confirm that with the level of access to mobile digital internet in Polish households, the digital competence index (DESI) is changing. In German households, the level of subscription for fixed or mobile broadband is higher, which translates into a higher level of basic digital competencies. Access to the Internet reduces households in terms of the age of household members. Among the younger age groups from 16 to 35 years of age where digital socialization has a chance for formal education, the use of the Internet in everyday activities such as online shopping, digital payments, communication: e-mails, video conversations increase. This level of differences between Polish and German households oscillates around 5% of the in plus difference in German households. The older the age cohort, the lower the use of intellect in Polish households. Women in particular, become those who are exposed to exclusion from adaptation to new technologies. Men in both Polish and German households after the age of 45 are the ones who use the internet more often. The inclusion gap deepens, especially after the age of 45. The 10% difference in the use of the Internet in German farms increases to 30% of the differences between German and Polish households in which people over 60 livecurrent literature and suggest area for future research. Authors might explain significance of the results and indicate the limitations of the study.

6. CONCLUSIONS

The indicators presented for access to the digital society are becoming a new measure of social inequality saw by behaviour (Katzenbach, Bächle, 2019). Internet access is one of the indicators differentiating adaptation to digitization in terms of households. With higher gross national income per capita for Poland and Germany, the cost of affordability of 1GB data changes (Aranda, 2023). Due to the place of residence, rural and urban, are affected by the same limitations in access to Internet technology - mobile broadband, fiber optic Internet are technological limitations and higher cost of Internet access in urban and rural living spaces. The trend of increasing the capital of tools such as owning a mobile phone with mobile internet it is tendency in households where digitally excluded due to the costs of expanding rural connectivity, affordability issues. In addition, indicators of the availability of tools such as mobile phone, computer along with the Internet is becoming an opportunity to access digital communication. The two countries differ in the level of achieved rate of using a phone or computer for daily activities such as sending emails, chatting over the Internet. Greater availability of tools such as fixed broadband and mobile broadband is available in German households. However, the rate of growth in mobile broadband use is increasing rapidly in Polish households. Consistently with the indicator of greater tool availability, German households achieve a higher DESI (Digital Economy and Society Index). Along with a higher index of gross national income, the cost affordability of 1GB data is lower. In addition to indicators of household use of new technologies, it is necessary to address the variable differentiating the division of household responsibilities. The division of men and women in online activities indicates some trends in the division of tasks. Comparing Polish-German households, working-aged women and men are in the age group most likely to behaviour types: practice routine activities like online shopping. In both Polish and German households, men over the age of 55 are becoming more frequent users of the Internet in terms of financial activities via the Internet. After the age of 64 in Polish-German households, men are the ones who use the Internet more often, both shopping and dealing with financial matters remotely. Women in Polish households dominate the aspect of online shopping in every age group up to age 54. Women withdraw from digital activity after the age of 65. In comparison, women in German households are one-third more likely than Polish Internet users to shop online after age 55. In the working age groups, the presence of men and women in active Internet use is similar in national comparisons.

The innovation of this article indicates capturing the diverse digital behaviours in households in two countries where the level of development and adaptation to the digital society is similar. Despite this, digitization progresses at different speeds among various age groups in the two countries, which is confirmed by digital behaviour practices comparing people of the same age in Poland and Germany.

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https://digital-strategy.ec.europa.eu/en/factpages/state-digital-decade-2024-report
https://openknowledge.worldbank.org/handle/10986/39495
https://ec.europa.eu/eurostat/databrowser/view/isoc_ec_ib20/default/table?lang=en

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DIGITAL LABOR AND LABOR DEVELOPMENTS IN THE POSTMODERN CONTEXT

Postmodernism has undergone significant transformations due to globalization and digital technology, particularly in relation to digital labor. Scholars have proposed various postmodern theories, each offering distinct perspectives and focusing on specific domains; however, we will confine our discussion to those addressing labor and digital labor. This study seeks to analyze, compare, and critique various efforts to depict the nature of labor and digital labor in the postmodern era, aiming to uncover the essence of human self and the significance of human values and reality within digital labor. This will be achieved by examining postmodern theories from a technological standpoint, with particular focus on digimodernism and automodernism. The study determined a significant divergence among postmodern theorists about humanity's role in digital labor, noting that the prevailing authoritarian and regressive narratives of neoliberalism continue to influence both humanity and digital labor in the postmodern context. Among the outcomes of this period are encouraging workforce reduction, skill diminishment, or even the elimination of professions. This is reflected in the worsening cycles of economic and social crises under capitalism, and it continuously and rapidly imposes new forms of alienation on all individuals.

Keywords: automation, digitalization, digital labor, digital transformation, postmodernism.

1. INTRODUCTION

Numerous studies have demonstrated that postmodern society has generated novel perspectives in both form and content, altering current viewpoints. The trend is progressively and radically transitioning from a culture of minimalism to one of quality

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and excellence, from reliance on others to mutual interdependence, from an economy focused on growth to one centered on human development, and surpassing conventional labor by overcoming the constraints of time and space via the global village and cyberspace information systems. These alterations have resulted in novel circumstances that necessitate innovative thinking, specialized knowledge, methodologies, and qualitative competencies to address. The influence of postmodernism on labor, employment, and the labor market is ambiguous, and its characteristics have yet to be delineated. It necessitates research, inquiry, and exact elucidation of viewpoints. Modernists dismiss preconceptions regarding the perception of humanity, especially the notion of humans as machines and the workplace as a factory. They assert that conventional mental constructs must be overcome and repudiated.

Digital labor constitutes the paramount result of the Fourth Industrial Revolution 4.0 owing to its diverse applications. The forthcoming phase is anticipated to exhibit a heightened dependence on digital labor, serving as the catalyst for advancement and expansion in the coming years. This prompts a crucial inquiry: What is meant by the future of labor? How will digital labor influence the supply and demand for human employment, since digital labor is expected to result in job displacement and the creation of new positions? (Moussa, Khamnou, 2023).

A primary outcome of this digimodernism is its pervasive influence on our daily existence. This dominance is progressively rising as digital cultural awareness expands within society, varying according to the interconnected systems that accompany the advancement of creative digital technologies and their investment across all sectors (labor, institutions, employment, etc.). This has enabled the contemplation of leaving or discarding them, viewing them as the essential nerve sustaining the reinvention of "culture" in its present and future forms.

The authors articulated the study's problem with the following question:

"What is the nature of digital labor and its evolution within the framework of postmodernism?"

To address this problem, we formulated and responded to the following subsidiary questions:

- What constitutes the notion of postmodernism? What is the current state of employment and digital labor at this stage?
- What is the influence of the postmodern movement on the genesis of labor and digital labor? Is it deemed appropriate to labor at this stage?
- In what manner does digital labor reinstate symbolic violence and reproduce unconscious servitude?
- In what manner does digital labor in the postmodern era create a novel framework?

Research Importance

The significance of the study is rooted in:

- Examining a pivotal phase of mankind, namely the postmodern era, and the critical transformations that have transpired in the foundational aspects of labor.
- Endeavoring to address enquiries posed by postmodernism, particularly about power, capitalist hegemony, and efforts to deconstruct the social and economic framework.

Research Objectives

The study aims to elucidate various perspectives on labor solutions and digital labor in the postmodern era, examine the factors and contexts that precipitated this transformation, and concentrate on the principal social and economic main narratives associated with digital labor in this era.

Research Methodology

The study employed a descriptive methodology, elucidating the theoretical frameworks of digital labor and situating these concepts within the context of postmodernism. It also delineated its actuality and characteristics by scrutinizing existing literature and research in this domain, alongside an analytical methodology, to assess the most developing consequences for labor and digital labor arising from the digital technological change.

Research Framework

This research is structured around two primary axes to address the major question raised above.

First: Fundamental notions regarding postmodernism and digital labor

Second: Analysis of the nature of digital labor in the postmodern era

2. FUNDAMENTAL NOTIONS REGARDING POSTMODERNISM AND DIGITAL LABOR

The notion of postmodernism

Terry Eagleton defines "postmodernism" as a form of current culture. The term "postmodernization" denotes a certain historical era. It is a philosophical approach that critiques conventional notions of truth, reason, and objectivity, along with the belief in inevitable development, liberty, and the existence of labor options devoid of alternatives.

The application of the term postmodernism to signify "transcending modernism" as an ongoing process of "transcendence" of the past undermines the validity of the modernist focus on the future and its persistent endeavor to re-establish the foundations of thinking and practice. The postmodernist movement, in this context, opposes the modernist movement and questions the validity of its endeavor to supplant the new, the "project", with the discarded old. J. F. Lyotard's phrase "primary foundation" refers to the rejection of modernist thought's underpinnings in favor of new foundations or the modern reapplication of existing ones (Lyotard, 1988).

The Emergence of Digimodernism

Postmodernism has not faced as substantial and systematic criticism as its initial forms had. A burgeoning movement is forming that aims to delineate the advancements following postmodernism, shown as Nicolas Bourriaud's "Alter Modernism", introduced at the Tate Triennial in 2009, and Raoul Eshelman's "Performatism" in 2008.

The primary criticism emerged after the publication of a notable piece titled "The Death of Postmodernism and Beyond", authored by Alan Kirby in Philosophy Now in 2006. The concept evolved into the phrase "Digimodernism": How New Technologies Are Disassembling Postmodernism and Reforming our Culture. He asserts that postmodernism has ceased to exist and has been supplanted by a novel paradigm of power and knowledge, influenced by emerging technology and current social dynamics.

Digital Capitalism

Christian Fuchs promotes the concept of the Fourth Industrial Revolution, which integrates the Internet of Things, big data, social media, cloud computing, artificial intelligence, and automation. These technologies are utilized in the manufacturing, distribution, and consumption of tangible products. He posits that in the fourth generation, commodities are entirely manufactured, supplied, utilized, mended, and recycled autonomously, devoid of human involvement, through the interconnection of diverse technologies via the internet. He asserts that this sector only seeks to establish an ideology for a novel model or an ideology that guarantees economic expansion.

Digital capitalism, in this context, not only governs the economy and knowledge but also reconfigures the public sphere, converting it into an instrument for profit and behavioral manipulation, rather than a venue for unrestricted public discourse.

Our comprehension of digital capitalism should extend beyond its technical manifestations to include the deconstruction of its cognitive and authoritarian frameworks, elucidating their effects on individuals, society, and the state, thereby facilitating the development of intellectual, political, and moral resistances that align with this profound transformation.

This discussion will concentrate on theories pertaining to current digital organizations within the context of the postmodern era:

- Digimodernism

Alan Kirby posited the following on postmodernism in his work, "Digimodernism: How New Technologies Dismantle the Postmodern and Reconfigure Our Culture". Kirby posits that the advent of modern technology culminated in the cessation of the postmodern era and the inception of a new era: Postmodern culture was anchored in many historical, social, and economic advancements, with digital technology serving as the cornerstone of this transformation (Alan Kirby, 2009).

- Automodernism

Automodernism, as defined by Robert Samuel, is an era characterized by "a contradictory combination of social automation and individual autonomy" (Samuel, 2010). It witnesses the emergence of automated models, search engines, and other automated services that encourage the emergence of oneself as a unique individual.

The major ideological ploy of automodernism is to automate the social order of knowledge and material relations and then use this simplicity to create the illusion of individual freedom.

Labor in the Postmodern Era

Traditional labor with its definition differ significantly from its modern counterpart. Labor in this period is characterized by diversity and complexity, as well as flexibility and intertwining with various types of production and exchange, moving away from the stereotypical image of labor as a mere economic activity. Labor is undergoing transformations in its nature and methods as a result of the social, cultural, and technical influences and changes that characterize this era. These changes can be identified as follows:

Changes in the nature of labor

- Flexible, decentralized labor: The prevalence of remote jobs and freelancing is increasing, which provides employees with flexibility in choosing their workplace, in line with the organization's requirements.

- Focus on projects and skills: There is less emphasis on fixed, routine jobs, and greater emphasis is placed on individual and group projects, as well as on developing specialized skills.
- Growing importance of creative labor: Creative labor and soft skills are becoming more valuable in the labor market, as organizations increasingly demand creative and innovative workers.

Changes in the form of labor

- Teamwork and joint projects: There is increasing reliance on teamwork and joint projects that combine different skills and experiences, and collaboration between individuals is becoming more important.
- Shift towards online networking and teamwork: There is increasing reliance on professional networks and online teamwork, allowing employees to access a wider range of job and collaboration opportunities.
- Growing interest in decentralized labor, meaning working from anywhere and at any time in the world, allowing employees to take advantage of available opportunities.

Changes in labor methods

- Dependence on modern technologies: The growing dependence on modern digital technologies, including artificial intelligence, automation, and digital analytics, influences labor methods and improves efficiency.
- Increasing emphasis on continuing education: In the postmodern era, the significance of continuing education and skills enhancement increases due to the labor market's growing competitiveness and perpetual evolution.
- Emphasize sustainable leadership: The significance of sustainable leadership increases in relation to critical managerial and organizational concerns, including social and environmental accountability, alongside ethical considerations, warranting earnest attention.

Consequently, labor in the postmodern era is defined as a dynamic, multidimensional process that transcends conventional economic tasks and includes other activities and stakeholder interactions that aid in societal development and cultural formation.

Currently, we observe that the labor encounters considerable hurdles, which can be delineated as follows:

- Accelerated changes in the labor market: Workers and employees encounter swift problems in the labor market, which is also experiencing novel labor needs, methods, and technology. This necessitates the workforce to adapt and perpetually enhance their capabilities to sustain efficiency and meet labor demands.
- Psychological stress: The workforce experiences heightened psychological stress due to rising workloads, intensified competition in the labor market, and substantial changes in the labor environment.
- Cybersecurity problems: Employees, institutions, and diverse corporate organizations encounter cybersecurity challenges stemming from the utilization of modern digital technology linked to the internet.
- Challenges to conventional notions: Labor in the postmodern era contests established ideas of labor and production, fostering the emergence of innovative methods to execute tasks and functions. One of these ways is digital labor.

Definition of Digital Labor in the Postmodern Era

Digital labor in this phase pertains to the application of modern digital technologies, including the Internet and artificial intelligence, in labor and management, resulting in a significant transformation in the methodologies and locations of organizational activities. This transition signifies a profound change in conventional labor practices, emphasizing modern digital technologies and methodologies to augment efficiency, foster collaboration, and satisfy stakeholder requirements. Key characteristics of digital labor in the postmodern period include:

- Digital Technology as an Essential Instrument: In the postmodern era, modern technology has emerged as the foundation of labor, with firms employing these digital tools across numerous domains, including communication, information transfer, data management and analysis, and marketing.
- Transition from Conventional Methods: Digital labor signifies a departure from conventional practices, such as traditional office environments, towards flexible and decentralized labor arrangements. Digital labor enables the workforce to accomplish activities at any time and anywhere, utilizing digital technologies.
- Influence on Administrative Procedures: Digital labor enables firms to optimize processes, enhance efficiency, and conserve time and resources. Digital labor enables firms to make more rational and informed decisions grounded in available knowledge and data.

Digital Labor in the Postmodern Era

In sociology, "modernism" denotes the significant and fundamental transformations that have occurred in the universe and human existence. The etymology of this term, in this context, is not novel, as it is frequently attributed to the works of Arnold J. Toynbee. This basically corresponds with Daniel Bell's notion of post-industrial society. The word "postmodernism" is frequently contrasted with "modernism", however the link between them remains ambiguous and contentious (Guillen, 2001).

Scott Lash, like many postmodern thinkers, asserts that the culture emerging from technology and digital advancements has come to dominate social existence, and this is a factual and unavoidable phenomenon. Lash asserts that cultural sovereignty cannot be achieved without this digital revolution.

Harvey David asserts that postmodernism is an academic movement indicating that the modern world has transformed into a "crazy world", characterized by rapid and incessant change. A significant development characteristic of globalization is the advent of the Internet, regarded as a quintessential illustration of postmodern culture. The Internet is a manifestation of Western modernism, encapsulating a protracted trajectory of significant technological advancement that has decisively influenced intellectual and industrial communities. The Internet has evolved throughout a historical cultural period marked chiefly by the decline of old paradigms and the endeavor to construct new ones. The new paradigms, the most notable of which is the postmodern model (Dertouzo, 1997).

The discourse on postmodernism has grown over the implications of the proliferation of digital and technological advancements and their applications. Some, spearheaded by Laura Gurak, assert that there are three fundamental assumptions in this context: the first assumption posits that digital transformation, advancement, and the Internet will enhance the labor environment; the second assumption contends that it will eradicate the notion of in-person learning in education, specifically classroom learning; and the final assumption suggests that it will augment equality among individuals and close gaps.

Considering that skills are the principal catalyst of digital labor, alongside the global employment crisis and the necessity for equitable labor for the unemployed, coupled with the increasing disparity in the digital labor market among various demographic groups, the notion of “skills gap” or qualifications mismatch has arisen. This refers to a surplus or shortfall in the qualifications and skills held by individuals relative to those demanded by their respective occupations. The labor market, as delineated by the International Labor Organization (ILO) in 2018 and the International Classification of Occupations (ISCO), is categorized into two primary types: the first pertains to undereducation among university graduates, wherein the skills and education of graduates fall short of job requirements. This transpires in developing countries transitioning from reliance on agricultural production to employment in the manufacturing and services sectors, necessitating that graduates acquire new technical, entrepreneurial, and social skills, the lack of which impedes the shift of production factors from low-value-added to high-value-added activities. The second issue is overeducation among graduates, signifying that they possess more years of education than the occupation necessitates. The surplus is most pronounced in industrialized countries, where the formal economy has failed to match the growth of the higher education system. The best example of overeducation is found in Taiwan, South Korea, and Hong Kong (Sparboom, 2019).

The three assumptions are contentious among scholars. Some assert that digital and technological advancements, along with the repercussions of the Fourth Industrial Revolution, will foster equality among persons. This is due to their belief that it will disrupt the current power equilibrium within industrial societies, affecting the relationship between the affluent and the impoverished, as well as between the prevailing hegemonic and marginalized discourses (the “state-stakeholders”). Moreover, on a worldwide scale, the disparities between the North and the South will expand, establishing the dominance of the power holder (digital technology and modern technology) over the remaining consumers.

Jean-François Lyotard characterized the digital and knowledge transformation as an information commodity, like other economic goods. It has emerged as a critical arena of global rivalry, resulting in direct confrontations among powers and countries waging wars for their control. This is unavoidable. Historically, wars were waged to dominate colonies for the exploitation of their natural and human resources; however, modern conflicts revolve around the control of information. Lyotard cautioned that the information age represents a new phase in the evolution of unconventional global conflict. Information technology serves as our instrument for managing complex phenomena and addressing challenges, while simultaneously introducing a new dimension that amplifies complexity to many aspects of human existence and introduces new challenges. Investors in this industry recognized the economic potential of information, subsequently converting it into commodities, services, and investment assets, thereby treating it as a lucrative material commodity. It is deduced that the overall output of the information industry was projected in 2000 to exceed 1000 billion USD, rendering it the inaugural industry in history to attain the trillion. Moreover, associated professions and occupations contribute over 50% to the gross national product of the workforce in industrialized countries (Hudson, 2001).

Digital labor is a hallmark of the postmodern era, encompassing automation, artificial intelligence, and modern digital technology. A significant issue emerges: is digital labor an alternative or an unavoidable need that countries must embrace? Numerous studies indicate that digital labor is an essential obligation for the state, followed by institutions and individuals, since it enables institutions to attain leadership and sustainability while also facilitating a significant advancement for countries (Afif, Khaloufi, 2022).

Laura Gurak highlighted a significant reality: digital labor would not benefit all stakeholders. The present situation exposes a gap and inequality in the extent to which countries and people get benefits from the transition to digital labor. The issue pertains to individual and international disparities concerning those who possess information and those who do not. This phenomenon is referred to as the “digital gap”, indicating that the opportunities presented by digital labor are not universally accessible. As a result, the labor market is being reconfigured, with new occupations emerging while others become obsolete due to incompatibility with technological advancements.

Data and statistics confirmed the presence of a digital gap between developed and emerging industrial countries. For instance, over 98% of all internet-connected computers are situated in developed countries, which comprise roughly 16% of the global population. Iceland, possessing a populace of merely 250,000, has double the quantity of internet-connected computers compared to the 100 most impoverished countries globally (Hudson, 2001).

Additional studies have identified gaps among population groups within the same country, contingent upon educational attainment, income, and geographic location (urban or rural). The proliferation of modern digital technology has given rise to “social polarization”, in which the elite benefit from these technologies while marginalized groups are excluded due to economic, social, and cultural barriers. This trend, rooted in the capitalist system, may exacerbate inequities among various groups (Al-Arabi, 2006).

The digital gap is essentially an extension of existing socioeconomic gaps, which are manifestations of various systems such as capitalism, socialism, and liberalism. An income distribution gap arises, where individuals with high earnings attain a substantial education and thereby profit from current technologies, while those with lesser means are unable to do so, thereby exacerbating discrepancies between social classes at the state level.

Postmodern Principles of Digital Labor

As we acclimate to digitalization, we must ready ourselves for and adjust to subsequent significant transformations in the realm of labor. The latter cannot be comprehended in isolation from other human issues; it must be understood within an economic, technological, and social framework. Ongoing developments at various levels are substantial, and future endeavors, as digitalization becomes an essential aspect of our daily existence, will manifest in forms markedly distinct from those prevalent today. The principles include:

- The use of artificial intelligence and the transformations it will induce, especially concerning the (economic and social) significance of human labor. Artificial intelligence and digital technologies are not simply an extension of digitalization; they are a novel challenge that will revolutionize all facets of employment.
- The application of cognitive sciences and their resultant disruptions, especially concerning social interactions, interpersonal relationships, skill acquisition methodologies, decision-making processes, and the administration of institutions, including customer relations and human resources management.
- A nascent social order is emerging, focused mostly on enhanced engagement, consumer desire for ethical purchase, and a redefinition of human intimacy. This social structure will alter our interactions and enhance the convergence of professional and personal spheres.

- A novel form of social control, termed tripadvisorization, refers to the widespread evaluation of our identities and actions, alongside the monitoring of our personal or professional trajectories, thereby creating a more intricate digital character. The difficulty resides in obtaining new competencies to oversee one's digital persona. Moreover, an alternative digital identity engenders novel disparities and distinct social behaviors.
- The function of institutions: It is essential to redefine the institution and its modern societal role while ensuring environmental accountability, specifically through corporate social responsibility.

Is Digital Labor Seen as Decent Labor in the Postmodern Era?

Decent labor poses distinct issues owing to the transformative shifts in the nature of labor and employment, alongside the focus on flexibility and decentralization. In this sense, decent labor denotes a labor environment that safeguards workers' rights, offers equitable opportunities, and promotes a balance between work and personal life.

– What is the definition of decent labor?

It entails offering all individuals the opportunity to secure gainful employment that yields equitable remuneration, ensures safety both within and outside the laborplace, affords social support for families, and assures an improved future for personal development and societal integration. The scarcity of adequate employment prospects, diminished consumption, and the increasing acceptance of liberal capitalism contribute to the erosion of the social contract that underpins societal growth, which necessitates universal involvement (Moussa, Saad, 2024).

Dominique Truck asserts that digitization has emerged as a fundamental obstacle in the transformation of the workplace and institutions. Change can be tumultuous, engendering inequities and conflicts, since each transformation yields both advantages and disadvantages. The shift towards a more digital realm is no anomaly. The digital revolution is currently undergoing consolidation and adaptation, with all participants – individuals, institutions, and organizations – engaged in the process.

In the postmodern era, these ideas entail reevaluating conventional notions of labor, emphasizing collaboration, innovation, and perpetual learning.

As previously said, digital labor presents a significant problem in the postmodern era, attributable to:

- Transformations in the nature of labor: The labor market is experiencing swift transitions towards freelance, remote, and intermittent employment, which presents issues in safeguarding and ensuring the rights of workers.
- Decentralization and technology: Modern technology presents novel chances for employment; nonetheless, it necessitates alternative systems to safeguard laborers and guarantee equitable conditions in virtual settings.
- Ethical challenges: The postmodern period examines the ethics surrounding the utilization of artificial intelligence and automation in the workplace, as well as the safeguarding of laborers' rights within this framework.
- Concentrate on individualism: the emphasis on individualism in the postmodern era presents obstacles in establishing robust workplace communities, complicating the formation of alliances, coordination among employees, and the creation of unions and advocacy groups.

Proposed Resolutions

Decent labor in the postmodern era pertains to the principle of guaranteeing favorable working conditions and economic advancement in accordance with technical progress. The focus is on examining the effects of digitalization on work relations and production organization for marginalized groups. In contrast to the conventional setting, it is increasingly recognized for offering a baseline level of security for the workforce. The implementation of modern digital technology in the workplace must include concepts of labor design that address consumer needs while providing a flexible and adaptive system. Converting conventional workplaces into digital environments is crucial for success in the postmodern era, emphasizing employee engagement and adaptive management. Those methodologies include the following:

- Policy adaptation: Governments and pertinent organizations, including the ILO, must revise policies and regulations to address the requirements of workers in evolving labor environments, elevate work standards, ensure the protection of workers' rights, and facilitate market adjustments to technology advancements.
- Offering social protection: social security, health insurance, and fundamental education.
- Offering training and educational opportunities: These are designed to enhance workers' skills and competencies to enable their adaptation to changes in the workplace. This is crucial for mitigating the skills gap (Berg et al., 2018).
- Promoting awareness of the significance of fundamental rights for decent labor in the postmodern era.
- Organizations bear the obligation to uphold ethical practices and emphasize the welfare of their staff.
- Fostering communication with all parties and establishing robust partnerships to guarantee decent labor.

In the postmodern era, decent labor necessitates that all stakeholders perceive labor as a collective obligation and collaborate to establish a safe, engaging, and sustainable workplace.

3. ANALYSIS OF THE NATURE OF DIGITAL LABOR IN THE POSTMODERN ERA

The influence of postmodernism on the genesis of labor and digital labor

This research focuses on elucidating the “economic and social” origins of labor and digital labor, due to their substantial and interrelated connection.

Fredrick Jameson highlights the intricate connection between postmodernism and the modern phase of multinational capitalism, as the emerging postmodernism articulates the multifaceted reality of the sophisticated economic and social structure of capitalism. The present temporal conditionality of postmodernism aligns with emerging patterns of excessive consumption and the swift, precise utilization of time, referred to as the “atomization of time”. Jameson concludes that postmodernism is not merely a “fashion” of modern capitalism but is, in fact, its fundamental culture.

The extensive dissemination of commodities will exacerbate social inequality and inequities, as commodities and services can undermine social and economic barriers and erode the lasting connections between individuals and workers. Consequently, consumption and lifestyle choices encompass the principles of distinction and differentiation for people and groups. The “elite” at the apex of the social and economic hierarchy invests in modern digital assets and reinforces its social borders. Therefore, it is essential to comprehend modern digital technologies, their cultural, economic, and social significance, and the appropriate methods for their utilization.

In his “Future Shock”, Alvin Toffler forecasts that future technology would profoundly influence value-based transformations and redefine our values and conceptions, including human relationships and the human-machine interface.

Postmodern scholars have diverged on the topic of knowledge, technology, and their interrelation with values. The significance of “knowledge” has transitioned from a paramount human value to a mere “commodity”, encapsulated in pre-packaged artificial intelligence programs, digital technologies, and automation, accessible to those who can afford them.

Consequently, constant improvement, education, knowledge enhancement, and the pursuit of lifelong experiences, integrated within the social and cultural framework to cultivate humanity's economic resources, are essential to the knowledge society.

Significant changes in modern human society have been characterized by controversial terms such as “postglobalization”, “postmodernism”, and “postknowledge”. These titles fundamentally articulate the significant advancements instigated by the Fourth Industrial Revolution, aiming to emancipate humanity from the core principles embedded in the liberal capitalist paradigm, which is inherently predicated on domination, exploitation, and alienation.

In his work entitled “On the Road to the Twenty-First Century – The Maze”, Georges Balandier delineates the manifestations and characteristics of postmodern society, particularly in its industrial, organizational, and institutional dimensions. He portrays this society as increasingly dehumanized and estranged, culminating in a dissolution of values devoid of any normative or even arbitrary foundation. It is a society that formulates its values based on the conditions that are susceptible to constant change (Balandier, 2001: 211).

Digital Labor between Symbolic Violence and the Production of Unconscious Servitude:

Pierre Bourdieu, in his 1970 work “La Reproduction”, introduced the notion of symbolic violence, presently recognized as systemic oppression. This violence is intrinsic to economic and social systems (such as colleges, commercial organizations, institutions, and the media) and is enacted in a covert and insidious manner. It concerns the manner in which power, in its most expansive definition (including political, social and economic structures, lobbying entities, etc.), can be exerted without physical coercion. Control is not tangible but rather symbolic, being within our senses and consciousness. Control, in this context, regulates our innermost selves and exists within us. This is a sophisticated notion derived from Etienne de la Boetie's theory of voluntary servitude. Bourdieu asserts that genuine research aims to uncover the concealed dimensions of things, rather than ceasing its inquiry at superficial appearances, which are misleading and illusory.

Bourdieu contends that through reproduction, mechanisms of social control sustain the status quo and predominantly function on social control rooted in disparities in social and economic status, which he categorizes as economic capital (financial resources), cultural capital (knowledge, skills, credentials), social capital (networks of relationships), and symbolic capital (economic and social status, influence, power). Control institutions replicate existing capital, so sustaining and reinforcing disparities. He articulates that the discourse, decisions, and stances of these institutions and organizations are merely a reflection of the dominant class's discourse.

Digital labor and the consequences of the Fourth Industrial Revolution serve not only as a mechanism for perpetuating social and economic inequality but also possess the capacity to exacerbate the inequality gap, functioning as an instrument of control for the elite and authorities.

Michel Foucault argues that authority is not a central entity confined to a specific institution or person, but rather a network distributed throughout all social relations. Authority is not only repressive but also productive, as it shapes and reproduces individuals within particular social patterns. He states that "authority is not something to be possessed, but a relationship". According to Foucault, knowledge serves as a tool for the production of authority and is conditioned by it. Here, knowledge – such as "digital technologies" – is not neutral or independent but emerges in authoritarian contexts that influence what is considered true or false. Therefore, Foucault suggests that the relationship between authority and knowledge is a complementary dialectic: authority produces knowledge, and knowledge reinforces authority. This dynamic helps strengthen ideological hegemony in society, where modern institutional and organizational practices are presented as serving the public interest, while in reality, they primarily serve the minority.

The notion of alienation, as articulated by Karl Marx, pertains to the estrangement of consciousness and its profound effect on liberty. He also asserts that our awareness is influenced by our material world, encompassing our social and economic conditions, which in turn forms our identity. We are conditioned to think in a certain manner, thus influencing our perception of freedom. He perceives it as a constraint on our liberty, asserting that freedom, in his view, is the individual's capacity to shape their intellectual fate and transcend the inevitability that has shaped us (Christ, 2015).

Within the framework of Marx's theory, alienation in labor and economics signifies the estrangement of the individual from their human essence due to participation in the capitalist system. This alienation manifests in various dimensions, including estrangement from the product, the work itself, others, and the self. Alienation represents a capitalist phenomenon that undermines digital freedom, as the worker relinquishes control over his work and its outcomes, resulting in estrangement from both self and society. This engenders sense of irritation and apathy, which can adversely affect the worker's psychological and social well-being.

Digital Labor in the Postmodern Era: Instituting a New Order

This part will examine the convergence of the Fourth Industrial Revolution's outcomes – artificial intelligence, modern technology, and digital labor – with metamodernism and the present context of events. We stand on the cusp of a completely new order. This new paradigm is marked by the stratification of artificial intelligence tools and modern digital technologies, which not only mirror economic disparities but also manifest as novel intellectual and creative hierarchies. Simultaneously, these modern tools and technologies provide insights into a future marked by significant fragmentation, as previously elucidated with Frederic Jameson, and by paradoxical connection. To comprehend this new order, we must examine the ramifications of artificial intelligence and modern digital technologies on the forthcoming world order.

Frederic Jameson observed that the outputs of AI and modern digital technologies in the Fourth Industrial Revolution have resulted in confusion and alienation, indicating that the postmodern crisis has escalated, as these technologies increasingly blur the distinctions between simulated reality, humanity and machinery, as well as knowledge and authority.

The categorization of modern digital technologies, knowledge as a commodity:

The postmodern crisis intensifies within the framework of these digital technologies. Modern digital tools, particularly artificial intelligence, which currently prevails in the digital realm, are categorized into classes: complimentary models with restricted production capabilities; semi-paid versions offering satisfactory services; and premium systems available solely to individuals with substantial financial resources or elevated institutional status (the elite), as previously noted. This stratification illustrates the social and economic disparities condemned by postmodern critiques, while simultaneously constraining a novel hierarchy of knowledge and creativity. Evgeny Morozov (2013) asserts that the provision of digital tools within a neoliberal framework has resulted in a society characterized by unequal access to technology and the power it bestows. He elaborates on his point, asserting that they foster “feudal technology”, through which authorities cement their power, referencing the capitalist order.

This class stratification not only perpetuates existing inequities but also engenders a novel intellectual stratification, as those who can afford access to these emerging technologies ascend to the status of a new knowledge elite.

The ramifications of this class stratification are most evident and significant in the book “Capitalism and Schizophrenia” by G. Deleuze and F. Guattari. Capitalism is characterized as an order that perpetually reclassifies and generates new hierarchies and divisions. The new digital technologies, characterized by their multi-layered accessibility, function similarly by redistributing the domain of knowledge production. They establish a system wherein knowledge, creativity, and functional innovation are vertically stratified rather than diffused horizontally, resulting in power being concentrated at the apex of the order.

Michel Foucault argues that knowledge is not simply a neutral product; it has authoritarian dimensions because it can be used to exert authority and control over individuals. Similarly, authority shapes how knowledge is produced and selected, creating dynamics that influence its creation and distribution within societies.

Postmodernist discourses emphasize the perils associated with emerging digital technologies and artificial intelligence. Byung-chul Han is arguably one of the foremost pioneers of this narrative, as articulated in his book “The Transparency Society” (2015). The digital era promotes a culture of excessive visibility and connection, resulting in the dissolution of barriers between the public and private spheres, as well as between humans and machines. Within the framework of the Fourth Industrial Revolution's outcomes, this hyper-connectivity jeopardizes the differentiation between source and instrument, creator and algorithm.

The New Order

If postmodernism signifies the conclusion of metanarratives, then modern digital technologies and artificial intelligence signify the advent of a new order characterized by algorithmically created, fragmented, and stratified narratives. We are now positioned at the precipice of this new order. The stratification of AI tools and technologies, the monetization of knowledge, the obfuscation of lived reality, and digitally generated simulations are establishing a world order that is simultaneously fragmented and interconnected. The modern world order is defined by what Luciano Floridi refers to as the information sphere, a digital workspace where information perpetually circulates, and the distinctions between online and offline, as well as between humans and machines, are indistinct. In this information landscape, artificial intelligence and other digital technologies significantly influence our information consumption and perception of reality. According to L. Floridi in his book "The Fourth Revolution" (2014), the emergence of artificial intelligence signifies a transformation in human cognition, compelling us to reevaluate the implications of existing in the era of modern digital technology.

Towards a Disjointed Global Order

The fragmentation exacerbated by modern digital technology signifies the apex of the postmodern crisis and the advent of a disjointed global order. In this new paradigm, knowledge will be hierarchically organized, reality will be filtered through algorithms, and creativity will be both commercialized and democratized, indicating that these emerging technologies will be accessible to the public and consumers with the financial means and scientific proficiency to utilize them.

As we approach this new order, we shall confront the ethical and intellectual issues it presents: Will digital technology and artificial intelligence intensify and exacerbate inequality, resulting in the emergence of a new class of intelligentia? Will they create new avenues for creativity and communication in a progressively fragmented world? The responses to these inquiries will shape not only the future of modern digital technology and artificial intelligence but also the trajectory of human society in the twenty-first century.

According to Lyotard, we may be experiencing the conclusion of a knowledge era; yet, as modern digital technologies and artificial intelligence transform the concepts of innovation, learning, and humanity, we must be proactive in crafting future narratives.

Digital Labor, the Prevalence of Capitalism, and Authority

The industrial transformation era instigated profound changes in societal living patterns and organizational structures, adhering to a capitalist ideology that champions economic initiative and market autonomy, consistent with the principles of Adam Smith and Ricardo. Since the Industrial Revolution, automated tools have played a crucial role in economic production chains; however, their influence on the socio-economic status of the working classes has facilitated the development of critical perspectives on capitalist production methods and the dynamics of technological solutions. Marxist theoretical analyses align with this intellectual perspective, emphasizing key ideas such as class exploitation and alienation to elucidate the mechanisms of the capitalist economy and the underpinnings of bourgeois supremacy.

The dynamism of the capitalist order has prompted numerous studies on the political and ideological aspects of technological solutions, which aim to diminish the socio-economic roles of humans in light of the ascendancy of machines as a novel approach to addressing economic and social issues. The significance of a critical perspective on this subject is apparent in the forewarnings from several researchers regarding the adverse consequences that may arise from the predominance of the technical factor over the human one. In this context, Martin Heidegger described "technical domination", which surpasses the conventional perspective that confines technology to its material aspects. He examined its dialectical relationship with human existence and identified how technical means can alter the aims of this relationship to its benefit, particularly as humans begin to relinquish control and yield to its authority. Consequently, technical dynamism progressively asserted its influence over social reality alongside the evolution of the capitalist economy, which derives its operational principles from an ideological framework that advocates for the technological factor as the most effective means of attaining material well-being for individuals and enabling societies to advance towards progress and prosperity. Jacques Ellul's examination of the technological phenomena underscores the interrelation of its internal components, a configuration that complicates the disassembly process and the identification of its detrimental and beneficial aspects. In this sense, he refers to the unity of the technological phenomena as a cohesive entity whose elements are challenging for humans to manage and mitigate its adverse impacts. The technology product serves as a double-edged sword, offering advantages to humanity while concurrently inflicting detriment. This necessitates the implementation of ethical regulations to oversee the utilization of technical methods.

This issue has become critical alongside the rapid growth of digital technology, exemplified in our modern era by artificial intelligence systems that possess remarkable ability to perform jobs exceeding human intelligence. The roles of emerging technologies are propelling human civilizations into an advanced digital revolution, as seen by the diverse functions executed by robots that replicate human behavior. This transition underscores the degree to which human intellect has been eclipsed by investments in advanced technical solutions, empowering robots to foster social dynamism and facilitate comprehensive economic growth. The outcomes have predominantly advantaged the leading technology corporations that prevail globally.

The potential for prosperity in the digital industry and artificial intelligence aligns with the prevalence of instrumental rationality as a strategic approach employed by major technology corporations to uphold the efficacy and efficiency of technological solutions, aiming to establish a robust foundation for an industrial revolution distinct from that experienced in Europe during the eighteenth and nineteenth centuries. They also underscore the significance of capitalism in the efficacy of the digital transformation process.

Despite the swift proliferation of new technologies, the perils linked to their diverse applications compel us to exercise considerable caution about their socioeconomic roles, as they embody an ideological perspective focused on the regulation of individuals and society. The apprehension regarding the adverse consequences of artificial intelligence is substantiated by the inherent perils it presents.

This cynical perspective on technical advancement is not novel; it has persisted throughout all phases of technological evolution, a subject that captivated the founders of the Frankfurt School, especially Herbert Marcuse. In his 1964 work entitled “One-Dimensional Man”, Marcuse critiques capitalist modernism and instrumental rationality, which is excessively focused on outcomes to the detriment of values, and is intended to govern all societal applications of technical products.

In this context, Marcuse underscores the function of the instrumental mind in dominating human will and promoting subservience to machines, which are fundamentally tools created and utilized under a capitalist order designed to maximize profits for capitalists and restructure social reality in alignment with technological imperatives. Thus, evaluating the ramifications of this solution and the potential of emerging communication technologies necessitates an examination of the risks associated with modernism, grounded in its historical and social context, epitomized by industrial society. The objective is to manage what Ulrich Beck refers to as “the risks of global society”, arising from globalization's dynamics, which have diversified risks and broadened their scope. The proliferation of modern technology has resulted in the infringement of personal rights, influenced by their utilization under both democratic and authoritarian governmental regimes.

Hence, the political application of modern technologies has resulted in the rise of digital authoritarianism, which seeks to “stateify” society through advanced mechanisms that enable political institutions to scrutinize every aspect of individuals' private lives. The escalation of digital authoritarian practices is expected to heighten skepticism regarding the reliability of emerging technologies, which, rather than liberating citizens from state surveillance and empowering them to assert their personal rights, have transformed into instruments of fear, oppression, and distrust within societal members.

Regulating the utilization of modern technologies fosters a collective and critical consciousness that enhances the resilience of societies and individuals against various manifestations of digital authoritarianism and technological alienation.

Thus, digital nihilism has arisen as a novel manifestation of humanity's existential quandary. The Fourth Industrial Revolution and modern technology have engendered a realm where the distinctions between the actual and the virtual, as well as between reality and illusion, are increasingly indistinct. The proliferation of knowledge and its overconsumption have not only undermined traditional narratives but have also engendered a pattern of cognitive fragmentation and existential void, wherein everything appears accessible, yet nothing possesses genuine worth. Amidst this digital turmoil, nihilism transforms into an experiential reality rather than remaining an exclusive intellectual concept, as exemplified by Nietzsche and Heidegger.

Raoul Eshelman (2008) argues that anyone observing the global scene over the past decade would find it difficult to identify developments that are inconsistent with postmodern theory. These developments include all fields [...]. While Gilles Lipovetsky, in his latest book, *Odyssey et Surpuissance* 2026, goes beyond typical sociological analyses, he describes a moment akin to the “Big Bang” that has reshaped human civilization. According to him, we are experiencing an existential transformation that undermines the foundations of science, technology, the environment, and even individual identity. The characteristics of this new stage, which he calls the “civilization of superpower”, mark a phase in which all human limits are pushed to the extreme, making the unknown the future's main focus in areas like artificial intelligence, modern digital technologies, and the manipulation of life’s essence.

4. CONCLUSION

The preceding analysis confirms postmodernist assertions that individuals' capacity to leverage modern technologies will differ. The disparity in educational attainment and knowledge acquisition among demographic groups within the same country will increase, influenced by income and geographic location (rural versus urban). This is contingent upon the capacity of certain groups to get high-quality education that enables their participation in modern classrooms, while others are denied this option. This will exacerbate the condition of social polarization – the digital gap is associated with the dichotomy between the elite who wield power and wealth, and the underprivileged who are disenfranchised from societal governance. This position is intrinsic to capitalist society and not a consequence of the digital revolution; nonetheless, the power conferred by current technologies facilitates this supremacy within the economic and social framework.

Digital labor has emerged as a crucial factor that profoundly influences the future of labor by fostering digital competencies and encouraging innovation inside the workplace. Key conclusions include:

- Digital labor promotes productivity and elevates the quality of professional life.
- Cultivating digital skills and fostering innovation drive economic growth and sustainable development.
- Investment in digital technologies can facilitate the emergence of new prospects.
- Postmodern researchers exhibit considerable discord concerning the effects of labor, digital labor in the postmodern era, and its influence on conventional social and economic frameworks. This reexamination of notions underscores the significance of values, interpersonal relationships, and the problem of alienation within this new paradigm.
- It is essential to reassess the notion of "the status of labor in future society", considering emerging competencies and the necessity for enhanced individual autonomy. It is imperative to reevaluate the economic and social implications, both advantageous and detrimental. Consequently, it represents a form of "anti-Taylorization" of jobs and professions, while concurrently engaging in certain tasks that robots will Taylorize.

Therefore, postmodernism repudiates all predominant beliefs or orders, including capitalism and communism. In the social domain, postmodernism also repudiates the universalization of any theory or system pertaining to the future. Modernism perceives an improved future through science, reason, and technology, whereas postmodernism views a deteriorating situation and an increasingly perilous future unless fundamental changes are enacted in the postmodern era.

Ultimately, digital labor in the postmodern era is defined by adaptability, decentralization, and creativity. It provides employees the opportunity to enhance their talents and apply them in various initiatives. Nevertheless, it presents other obstacles, including psychological stress and cybersecurity, necessitating that employees continually adapt and sustain a work-life equilibrium.

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LEVERAGING PODCASTS AS A PROMOTIONAL TOOL FOR ENHANCING MEMBERSHIP ENGAGEMENT AND GROWTH IN FITNESS CLUBS IN QUEENSTOWN

This study evaluated the effectiveness of podcasts as a strategic marketing tool for fitness clubs, focusing on their integration into marketing strategies, role in member engagement and retention, and audience perceptions. A quantitative approach was employed using a cross-sectional descriptive survey design. The study targeted fitness enthusiasts and potential fitness club members in Queenstown, utilising a non-probability purposive sampling technique to ensure participants were familiar with podcasts and interested in fitness-related content. A total of 112 respondents participated, resulting in a 100% response rate. The findings revealed high podcast awareness: 84% of respondents were familiar with podcasts, and 43% listened during workouts, indicating strong engagement potential. In addition, 90% preferred expert-led content, with 50% strongly agreeing and 40% agreeing that podcasts influenced their membership decisions. These results highlight the persuasive role of podcasts in shaping consumer behaviour and loyalty. The study concludes that podcasts are a cost-effective and impactful promotional tool and recommends structured, expert-driven podcast strategies supported by consistent scheduling, cross-platform promotion, and SEO to enhance reach and engagement.

Keywords: customer retention, digital marketing, fitness clubs, membership engagement, podcasts, Technology Acceptance Model.

1. INTRODUCTION

The fitness industry has undergone a substantial transformation in recent years, largely driven by rapid advances in digital technologies and shifting consumer expectations. Traditional marketing strategies, which once effectively attracted and retained members,

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have become increasingly inadequate in a fiercely competitive and digitally oriented marketplace (Dwivedi et al., 2021). Fitness clubs, particularly those located in smaller urban centres such as Queenstown, are facing escalating challenges in maintaining membership growth and engagement. Conventional promotional methods are proving insufficient to connect with modern audiences who increasingly demand personalised, interactive, and value-driven experiences (Kapoor & Dwivedi, 2020). In this context, digital media platforms have emerged as powerful instruments for bridging the engagement gap, providing innovative channels for communication and brand positioning. Among these, podcasting has gained considerable global traction as a versatile medium that delivers informative, motivational, and entertaining content directly to consumers in an accessible and cost-effective manner (Berry, 2023). Podcasts enable fitness clubs to cultivate deeper relationships with their members by sharing expert insights, success stories, and wellness advice, thereby fostering a sense of community and loyalty (Martin, 2024). Despite the advantages of utilizing podcasts, their integration into fitness marketing strategies remains largely unexamined in the South African context, and particularly in Queenstown, where localised research is limited (Lehtonen, 2024). This knowledge gap underscores the need to investigate how podcasts can be leveraged to enhance membership engagement and foster sustainable growth in fitness facilities. By addressing this need, the current study aims to contribute to the discourse on digital marketing innovation in the fitness sector, providing practical insights for club owners striving to remain competitive in an increasingly dynamic environment.

The need for this study is further amplified by its alignment with global health priorities, notably Sustainable Development Goal 3 (SDG 3), which advocates for good health and well-being for all (United Nations, 2023). Fitness clubs play a crucial role in promoting physical activity and healthy lifestyles, however, their effectiveness relies heavily upon their ability to attract and retain members. Emerging evidence suggests that podcasts, when strategically integrated, can serve as a potent promotional tool that not only informs but also inspires individuals to adopt and sustain active lifestyles (Farid, 2024). Nevertheless, empirical research investigating the effectiveness of podcasts in influencing consumer behaviour within fitness contexts remains scarce, especially in regions like Queenstown, where socio-economic and cultural factors may significantly shape audience preferences and engagement patterns (Neipytalska, 2025). Accordingly, this study seeks to evaluate the potential of podcasts as a marketing instrument for fitness clubs, focusing on three core objectives: firstly, to identify and assess the most effective methods for integrating podcasts into the marketing strategies of fitness clubs, secondly, to analyse the impact of podcast content on member engagement and retention; and thirdly, to explore the perceptions and attitudes of current and prospective members towards fitness clubs based on their podcast offerings. These objectives are guided by three fundamental research questions:

- **RQ1** How can podcasts be effectively incorporated into the marketing strategies of fitness clubs in Queenstown?
- **RQ2** How do current, and potential members perceive fitness clubs through their podcast content?

To address these questions, the study aims to generate actionable insights that enable fitness clubs to fully leverage podcasting's promotional potential. Ultimately, this research aims to bridge the gap between theory and practice, equipping fitness club owners with evidence-based strategies to enhance member engagement, strengthen brand loyalty, and achieve sustainable growth in an era characterised by digital innovation.

2. LITERATURE REVIEW

Conceptual Framework

This study employs three interrelated theories: the Uses and Gratifications Theory (UGT), the Technology Acceptance Model (TAM), and Relationship Marketing Theory, to explore how podcasts can serve as an effective promotional tool for enhancing membership engagement and growth within fitness clubs in Queenstown. UGT, rooted in communication science, posits that individuals actively choose media to fulfill specific needs such as information, entertainment, and social interaction (Blumler, Katz, 1974). Unlike traditional models that conceptualise audiences as passive consumers, UGT views them as active seekers of gratifications that align with their personal objectives (Whiting & Williams, 2013). In the fitness context, podcasts can effectively cater to a range of needs: utilitarian needs such as workout advice and nutritional guidance, hedonic needs like motivational narratives, and social needs that foster a sense of community. Previous research indicates that UGT is applicable to various interactive technologies and digital media, where motivations such as information-seeking, enjoyment, and social connectedness drive user adoption (Camilleri, Falzon, 2021; Boudkouss, Djelassi, 2021). By leveraging UGT, fitness clubs can ensure their podcasts deliver rich, relevant content that resonates with their members' cognitive and emotional needs, ultimately driving greater engagement and loyalty.

Complementing UGT, the Technology Acceptance Model (TAM) sheds light on technology adoption through the lenses of perceived usefulness and ease of use (Davis, 1989). This model posits that individuals are more likely to adopt technologies that they perceive as beneficial and user-friendly. In digital environments, perceptions of usefulness significantly predict behavioural intentions, while ease of use affects perceived usefulness (Camilleri, Falzon, 2021). For podcasts to thrive as a fitness resource, members must view them as practical tools for achieving fitness goals, and they must be easily accessible on familiar platforms. Research conducted during the COVID-19 pandemic revealed that perceived usefulness and ease of use were pivotal factors influencing continued usage of streaming services, along with intrinsic motivations such as entertainment and relaxation (Camilleri, Falzon, 2021). Moreover, insights from studies on interactive kiosks emphasise that user control and convenience are key components of TAM, which are essential gratifications sought by users (Boudkouss, Djelassi, 2021). By incorporating TAM into the analysis, the study underscores the importance for fitness clubs to ensure their podcasts are accessible and user-friendly, aligning with their members' fitness aspirations. In addition, Relationship Marketing Theory enhances this framework by emphasising the role of trust, commitment, and effective communication in fostering customer loyalty (Weinberg, Pehlivan, 2011). Through podcasts, fitness clubs can humanise their brand by engaging trainers, sharing success stories, and addressing member concerns, thus establishing emotional connections and enhancing perceived value. This approach resonates with findings that highlight the efficacy of interactive technologies in building engagement through personalised experiences (Camilleri, Falzon, 2021; Boudkouss, Djelassi, 2021).

Synthesising these theories, the study conceptualises podcasts as a hybrid medium that addresses intrinsic and extrinsic motivations (UGT), satisfies functional and usability expectations (TAM), and nurtures relational ties (Relationship Marketing). This theoretical integration emphasises the strategic necessity for fitness clubs to create podcast initiatives that are not only informative and engaging but also accessible to a wide range of technologies. Additionally, it emphasizes the ethical responsibility to provide accurate, culturally relevant content that promotes member well-being. Ultimately, leveraging these theoretical frameworks offers evidence-based strategies for positioning podcasts as a significant driver of member engagement, retention, and growth within Queenstown's fitness industry. Figure 1 visually represents the key elements mentioned earlier, helping clarify and deepen the reader's understanding of the discussed concepts.

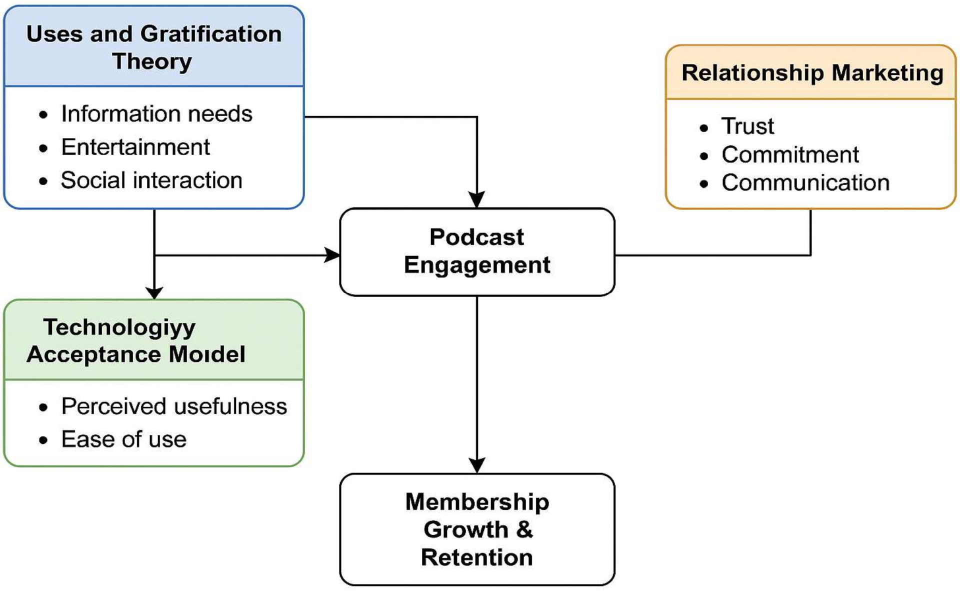

Figure 1. Conceptual Framework

Source: Authors' elaboration.

Podcasts and their benefits

A podcast is an on-demand media format that primarily delivers spoken audio content in an episodic structure, accessible via the internet for streaming or download, allowing listeners to engage with the material anytime, anywhere. This format is distinguished by its flexibility, enabling audiences to shape their own engagement with the content, unlike conventional broadcasting. While originally centered on audio, podcasts have evolved to incorporate video elements without compromising their auditory foundation, offering a variety of formats, including interviews, storytelling, and panel discussions. Unlike traditional radio, podcasts prioritise personalisation, mobility, and niche targeting, empowering creators from diverse backgrounds to craft content without the constraints of rigid structures. This intimate and immersive medium promotes active listening and community interaction, setting itself apart through its adaptability and the ability to integrate multimedia features while maintaining its essence as a portable, listener-driven experience (Bălănuță, 2021; Rime et al., 2022). For a fitness facility to develop a successful podcast, it is crucial to establish a clear content strategy and a consistent theme that resonates with members' needs and aligns with the club's brand. As noted by Martin (2024), creating podcasts that connect with the audience is vital. Gym owners must understand their audience, who they are, and what they seek. By gaining insight into their target demographics, fitness club owners can tailor content to effectively address their audiences' needs, pain points, and interests. Researchers, including Saye (2025) and Singh and Leinster (2021), agree that understanding audience demographics, fitness objectives, challenges, and preferred content is crucial for engaging the intended audience.

Podcasts offer considerable advantages for both marketers and consumers, fostering a symbiotic ecosystem. For marketers, podcasts offer access to highly engaged, niche audiences who have actively chosen to consume the content, making them particularly suited for targeted advertising. Unlike traditional media, podcast listeners tend to be highly loyal and attentive, which enhances the effectiveness of advertising. Host-read advertisements, in particular, capitalise on trust and authenticity, resulting in greater brand recall, purchase intent, and positive brand associations. This personalised approach allows brands to integrate seamlessly into the narrative, fostering emotional connections and long-term loyalty. Furthermore, podcasts present a cost-effective advertising medium compared to national broadcast media, offering flexibility through dynamic ad insertion and programmatic buying for precise targeting. The emergence of branded podcasts further enables companies to narrate compelling stories, fortify brand identity, and engage audiences beyond mere transactional interactions. For consumers, podcasts provide convenience, personalisation, and value, fitting seamlessly into multitasking lifestyles and allowing listeners to engage with content while commuting, exercising, or attending to household chores (Vilceanu et al., 2021; Schofield, 2023). They offer entertainment, education, and companionship, fostering a sense of community and intimacy through conversational formats. Consumers respond positively to authentic storytelling and advertisements that feel organically integrated rather than intrusive, often perceiving them as informative rather than disruptive (Schofield, 2023). Moreover, podcasts introduce listeners to new products and services that align with their interests; in fact, the majority of listeners have reported increased brand awareness from podcast advertisements (McCarthy et al., 2021).

Podcasting as a Promotional Tool

Podcasting has also emerged as a potent promotional tool in digital marketing, with various theoretical frameworks offering insights into its effectiveness. The Uses and Gratifications Theory posits that audiences engage with media to fulfill specific needs, such as entertainment and information (Blumler, Katz, 1974). Podcasts serve this purpose well by curating content that aligns with listeners' preferences, thus enabling brands to incorporate marketing messages unobtrusively. This seamless integration is further supported by the Theory of Planned Behaviour, which suggests that listeners' attitudes towards advertisements and social norms significantly influence their behavioural intentions. Research by Timur and Bernal (2024) highlights how reduced technical barriers can enhance engagement by making it easier to redeem promotional codes. This finding suggests a shift in understanding consumer behaviour, particularly in low-effort contexts, where traditional marketing assumptions may not be universally applicable. By effectively leveraging these theoretical insights, brands can cultivate stronger connections with their audience and amplify the overall role of podcast advertising.

The integration of podcasts into content marketing strategies allows brands to communicate value-driven narratives more effectively. Valimäki's (2018) analysis of the YesFinland Podcast reveals that embedding promotional messages in engaging content can significantly elevate brand visibility. In contrast to traditional advertisements that interrupt consumer experiences, podcasts facilitate the natural inclusion of marketing, leading to lower audience resistance and increased receptivity. Schultz (2023) further emphasises that alignment between a podcast's core content and promotional messages is crucial for cultivating positive brand attitudes. Moreover, host-read advertisements tend to generate higher credibility and engagement than pre-recorded ads, as demonstrated by Moe (2023) and Brinson et al. (2023). This humanization of messaging enables brands to tap into listeners' trust in hosts, establishing emotional connections that traditional ad formats often struggle to achieve. However, while promotional codes can provide immediate metrics of campaign success, their long-term influence on brand loyalty remains underexplored, indicating a gap that warrants further scholarly attention.

Despite its advantages, podcast advertising faces significant challenges that must be addressed to maximize its effectiveness. Market saturation poses challenges to audience discoverability, necessitating advanced strategies for audience segmentation and platform-based promotion (Ifedayo, 2023). Ethical considerations also arise, particularly regarding transparency in sponsored content, especially in host-read ads, where conflicts of interest may occur (Brinson & Lemon, 2023). Additionally, the sustainability of the podcasting economic model is inconsistent, as monetization often favours established creators, leaving emerging talents at a disadvantage (Valimäki, 2018). To navigate these challenges, brands should prioritize trust through authentic storytelling and high-quality content. Incorporating social proof elements, such as testimonials, can effectively leverage subjective norms, which influence consumer behaviour (Timur, Bernal, 2024). Furthermore, optimizing metadata and employing search engine optimization (SEO) strategies are essential for enhancing podcast discoverability in an increasingly competitive landscape. By focusing on these aspects, brands can enhance the effectiveness of their podcast marketing and foster lasting relationships with their audience.

3. METHODOLOGY

The research utilised a cross-sectional descriptive survey design, widely acknowledged for its effectiveness in collecting data at a single point in time. This methodological approach was particularly suitable for the study, as it facilitated the collection of participants' perceptions, attitudes, and behaviours concerning podcasts as a promotional tool, eliminating the need for longitudinal tracking. Employing a cross-sectional framework is especially advantageous in resource-limited contexts, as it provides a snapshot of current engagement levels and promotional practices within fitness clubs. Moreover, the survey's descriptive features enabled the identification of patterns and trends in the data, allowing the researcher to derive meaningful conclusions about the role of podcasts in marketing strategies. The study adopted a quantitative research approach, which is well-suited to generating objective, measurable data suitable for statistical analysis. The decision to utilise quantitative methods was driven by their capacity for systematic analysis and replication, thereby enhancing the reliability and validity of the findings. By utilising structured questionnaires, the study effectively quantified variables such as awareness of podcasts, listening habits, and perceived effectiveness on membership decisions. This approach aligns with best practices in marketing research, wherein numerical data is indispensable for evaluating consumer behaviour and the effectiveness of promotional activities.

The target population for this study comprised fitness enthusiasts and potential members of fitness clubs in Queenstown. This demographic was selected as they represent the primary audience for fitness-related podcasts and are most likely to be influenced by such promotional instruments. The population's diversity encompassed individuals from various age groups, genders, and educational backgrounds, which was crucial for capturing a wide range of perspectives. Understanding this population's attitudes towards podcasts was essential for evaluating their potential as a marketing tool in the fitness industry. The study employed a non-probability purposive sampling technique, which was considered appropriate given the necessity for participants to possess specific characteristics, notably familiarity with podcasts and a genuine interest in fitness-related content. This approach, while limiting generalisability, is highly effective for exploratory research where depth of insight takes precedence over statistical representation. Initially, a sample size of 112 respondents was selected strategically to yield focused insights into podcast engagement within the Queenstown fitness community. This sample size was deemed sufficient for the exploratory nature of the research, permitting an in-depth analysis of participant responses. Notably, the study achieved a 100% response rate, thereby enhancing the credibility of the findings. The primary data collection instrument was a structured questionnaire, meticulously designed to collect quantitative data on key variables related to podcast usage and engagement. The questionnaire comprised a combination of dichotomous questions, multiple-choice items, and Likert-scale statements, enabling the researcher to gather comprehensive information on awareness, listening habits, motivational effects, and content preferences.

Data collection was conducted through the direct administration of questionnaires, both in person and via digital communication platforms. This hybrid approach ensured greater accessibility and convenience for participants, thereby improving response rates. Respondents were given sufficient time to complete the questionnaires, and clarifications were provided when necessary to ensure accuracy. The researcher's interactive engagement with participants fostered trust and encouraged candid responses, thereby enhancing data reliability. The collected data were analysed in Microsoft Excel, enabling the computation of descriptive statistics, such as frequencies and percentages. The results were visually presented in pie charts and bar graphs, providing clear, interpretable summaries of key trends. Furthermore, cross-tabulation techniques were employed to explore relationships between demographic variables such as age and gender, and attitudes towards podcasts. This analytical approach enabled the researcher to identify consumer behaviour patterns and extract actionable insights for marketing strategies in fitness clubs. Several measures were implemented to uphold the validity and reliability of the study. Content validity was attained by constructing the questionnaire based on established marketing theories and ensuring alignment between the questions and the research objectives. The structured format of the questionnaire ensured consistent responses, facilitating analysis and comparison across participants.

4. RESULTS

The purpose of the results section is to present the empirical findings derived from the study in a clear and objective manner. It reports data collected through surveys, including demographic profiles, podcast awareness, listening habits, and perceived role in membership decisions. The section utilizes descriptive statistics, charts, and tables to illustrate trends and patterns, including content preferences and engagement levels. Its content focuses on answering the research questions by summarising key insights without interpretation, providing a factual basis for discussion and recommendations.

Figure 2 presents an analysis of podcast respondents, with individuals aged 26–35 comprising the significant majority at 78.2%. This age group comprises 45 males and 34 females. Respondents aged 18–25 accounted for 21.8%, predominantly males at 22. Those aged 36 and above represented a negligible percentage. This data suggests that fitness clubs in Queenstown should strategically target the younger demographic of 18–25 to cultivate familiarity and engagement, ensuring these potential members are well-acquainted with the club's offerings as they transition into the more lucrative 26–35 age range. By fostering early connections with younger audiences, clubs can enhance retention and loyalty, ultimately bridging the gap as these individuals mature into the older age category that currently demonstrates lower participation rates.

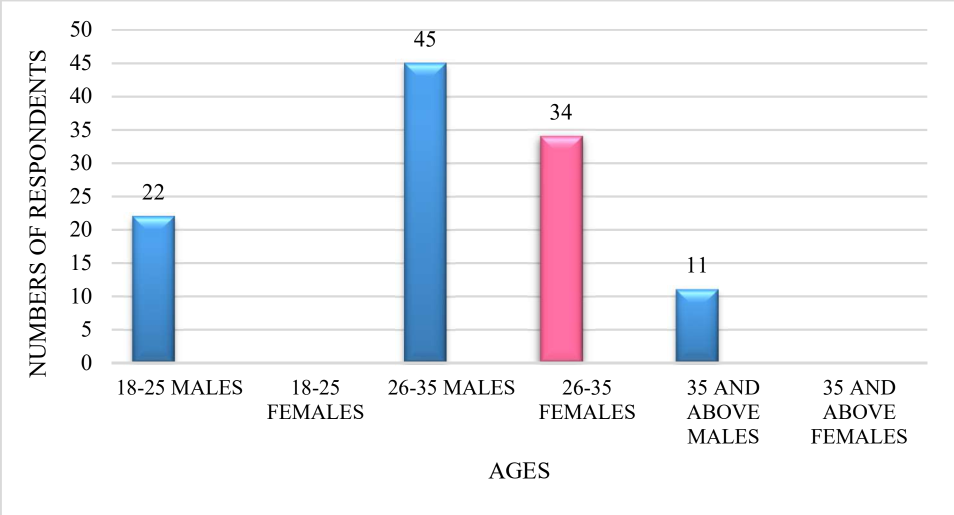

Figure 2. Age Range of the Respondents

Source: Authors' elaboration.

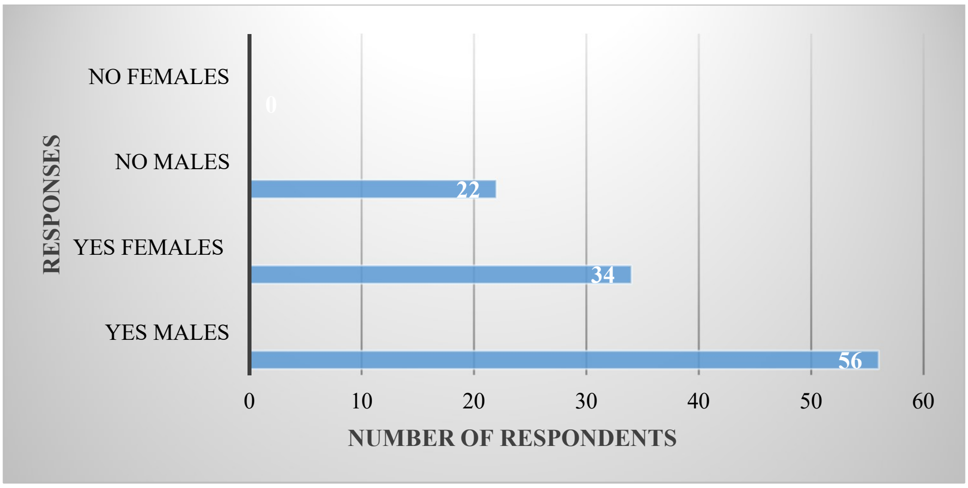

Figure 3. Awareness of podcasts

Source: Authors' elaboration.

The analysis of podcast awareness in fitness marketing reveals significant insights into consumer engagement, driven by digital transformation and evolving expectations. Among participants, 50% of male respondents recognised podcasts as an effective promotional tool for fitness clubs, compared with only 28% of female respondents. Additionally, only 22% reported being unaware of podcasts altogether. These findings suggest that implementing podcast marketing strategies could significantly enhance engagement and retention rates among fitness club members. Consequently, it highlights the need for clubs to adapt their marketing strategies by incorporating digital platforms and modern communication tools to foster stronger connections with their audience.

The data illustrated in Figure 4 reveal significant insights into consumer behaviour during physical exercise. Statistical analysis indicates that a significant percentage of respondents listen to podcasts as a preferred activity while working out, suggesting a potential intersection between fitness and audio content consumption. This trend underscores the importance of targeting fitness enthusiasts with curated podcast ads or sponsorships to enhance brand visibility and consumer engagement in a rapidly expanding market. Additionally, understanding specific genres or topics that resonate with this demographic could refine marketing strategies, ultimately drive higher conversion rates, and foster brand loyalty among active listeners.

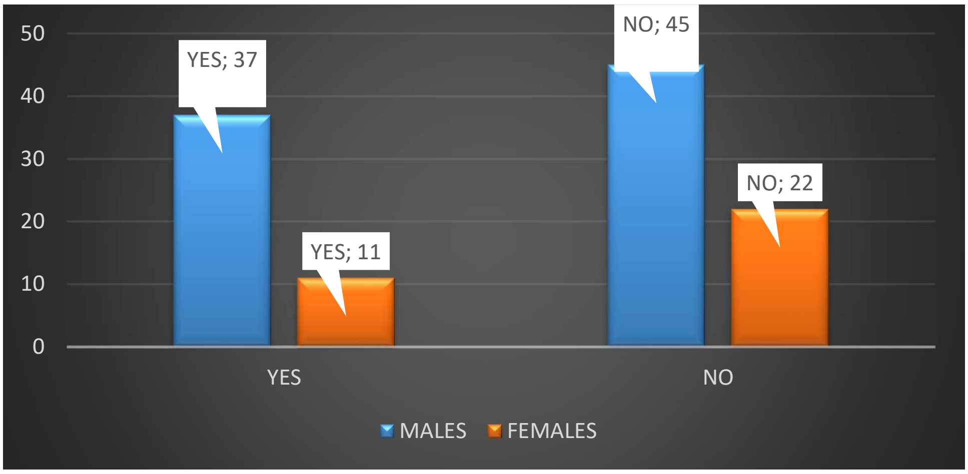

Figure 4. Podcast listening habits during workouts

Source: Authors' elaboration.

The figure above illustrates the significant role of podcasts in members' decision-making, showing a positive correlation between podcast engagement and membership choices. Statistical analysis reveals that as listeners increase their podcast consumption, their likelihood of joining or remaining loyal to a brand increases. This trend highlights the importance of incorporating podcasts into marketing strategies, as leveraging this medium can effectively drive member acquisition and retention, ultimately fostering a stronger community and enhancing brand loyalty.

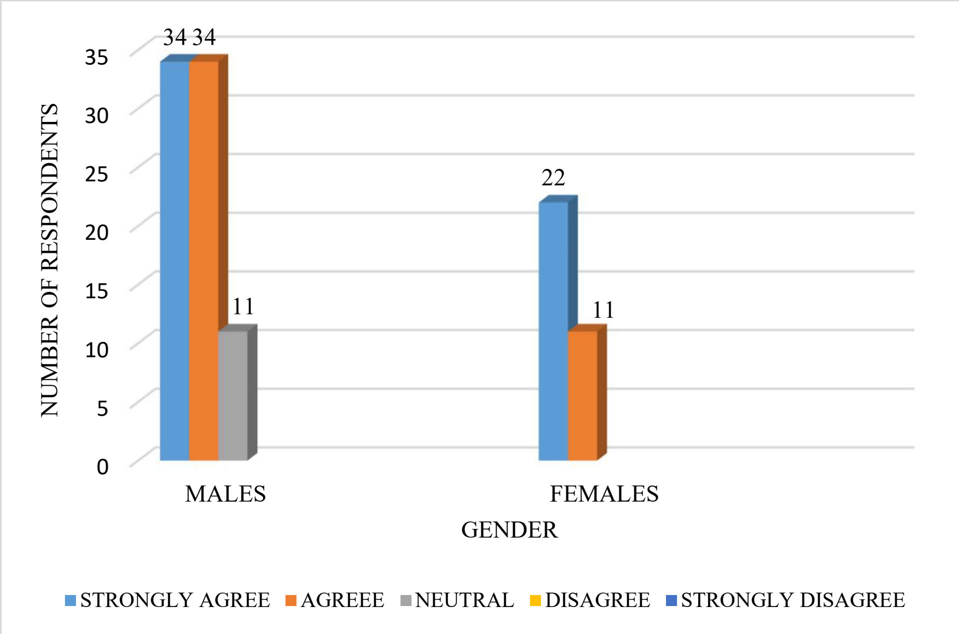

Figure 5. Influence on membership
Source: Authors' elaboration.

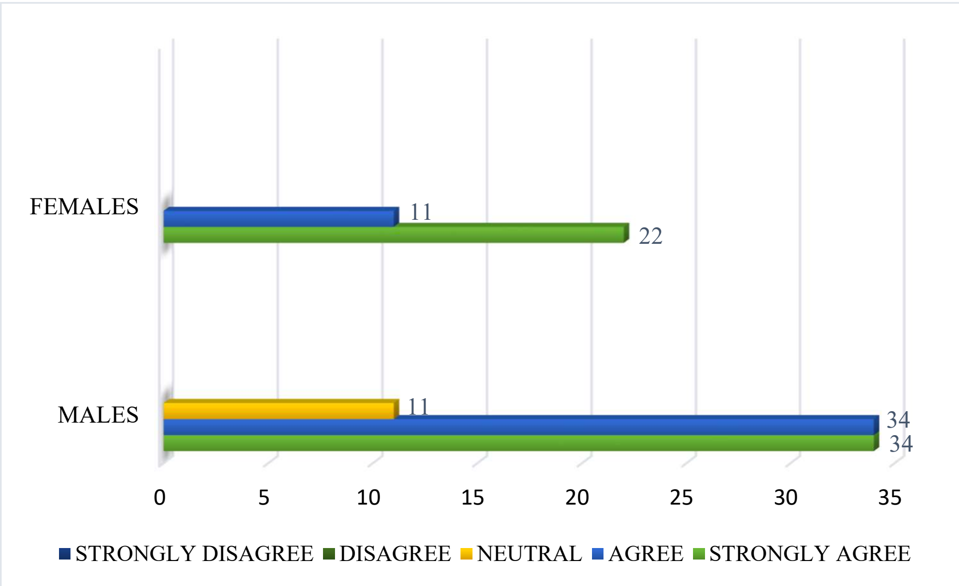

Figure 6. Content preference
Source: Authors' elaboration.

Figure 6 illustrates a strong preference among participants for podcast content featuring a health expert, with 50% expressing strong agreement and an additional 40% agreeing, for a total of 90% who favour this approach. Within the agreeing group, 30% of males and 10% of females identify as neutral, while the strong agreement is notably higher among males at 30% compared to 20% for females. This data suggests significant market potential for club owners who consistently include a range of health experts in each episode, as targeting this content strategy could attract a larger audience and enhance listener engagement.

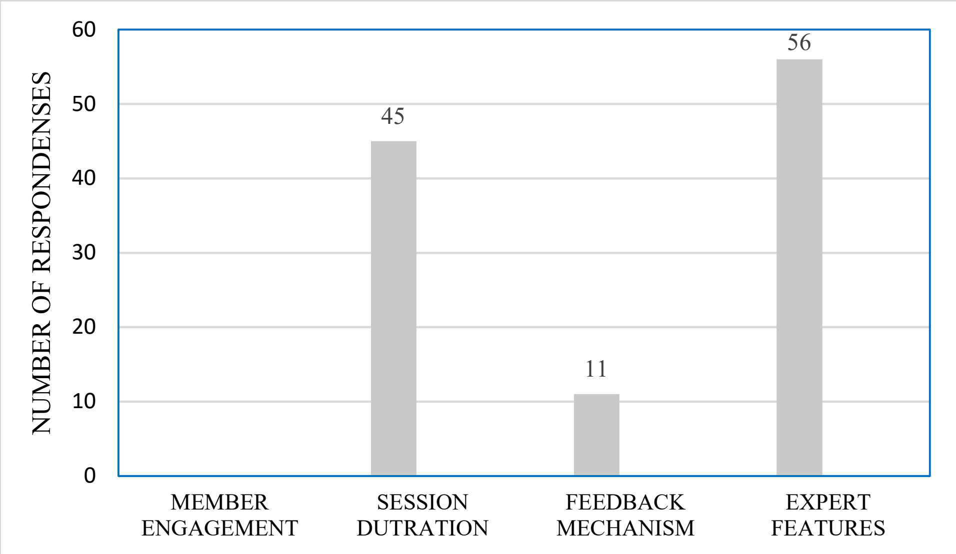

Figure 7. Areas of improvement in interaction with members

Source: Authors' elaboration.

Figure 7 suggests that to enhance member engagement, fitness club owners in Queenstown can significantly benefit from incorporating health experts into their live sessions, as indicated by survey data showing that 50% of the local population considers this strategy more effective at attracting new members. Furthermore, the structure of these sessions is critical, with 40% of the allotted time dedicated to a questionnaire and the remaining 10% set aside for feedback. This feedback mechanism highlights key areas for improvement, suggesting that clubs should strategically refine their offerings to align with member preferences, thereby optimising their marketing strategies and increasing member retention and attraction.

5. DISCUSSION

The findings of this study provide valuable insights into the effectiveness of podcasts as a promotional tool for fitness clubs in Queenstown. The demographic analysis reveals that a significant majority of respondents, specifically 78.2%, belong to the 26–35 age group, while 21.8% are aged 18–25, with minimal representation from individuals aged 36 and above. This demographic trend suggests that younger adults are the primary audience for fitness-related podcasts, indicating that marketing strategies should be tailored to target this group to cultivate long-term engagement. High levels of awareness were evident: 84% of respondents were familiar with podcasts, with only a small percentage unfamiliar with them. Listening habits further illustrate the relevance of podcasts within fitness contexts, notably, 43% of participants reported listening to podcasts during workouts, underscoring their potential as motivational and engaging tools. These insights suggest that podcasts can be seamlessly integrated into fitness routines, offering clubs an opportunity to enhance member experiences and foster loyalty.

The role of podcasts on membership decisions was particularly significant, with 50% of respondents strongly agreeing and another 40% agreeing that podcasts influence their choice to join or renew fitness club memberships. This finding highlights the persuasive power of podcasts in shaping consumer behaviour and driving retention. Furthermore, respondents' content preferences indicate a strong inclination towards expert-led podcasts, with 90% expressing a preference for content featuring health experts. This underscores the importance of credibility and authority in attracting and retaining listeners. Additionally, respondents identified key features such as expert interviews and interactive elements like Q&A sessions and feedback mechanisms as essential for enhancing engagement. Participants also noted areas for improvement, particularly regarding session duration and structured feedback, which they deemed crucial for optimising interaction. Overall, these results confirm that podcasts serve as a cost-effective and impactful promotional tool, capable of influencing membership decisions and strengthening brand loyalty. Fitness clubs in Queenstown should focus on expert-led content, interactive features, and regular podcast delivery to maximize the strategic potential of podcast marketing.

A comparative analysis of results across various studies affirms that podcasts are indeed versatile and impactful promotional tools, although their application differs by context. The Queenstown study highlights high awareness levels (84%) and a significant influence on membership decisions, with 90% of respondents favouring expert-led content and meaningful interaction. These findings resonate with research in higher education, where 97.1% of students viewed podcasts as innovative branding tools, with 90% reporting motivational benefits that foster a sense of belonging and institutional loyalty through authentic narratives (Leandro et al., 2025). B2B studies from Sweden further illustrate the strategic role of podcasts in relationship-building and branding, emphasising their cost-efficiency and effectiveness in niche targeting rather than mass reach (Lögdberg & Wahlqvist, 2020). Additionally, U.S. literature corroborates these insights, noting a 42% increase in podcast consumption during the COVID-19 pandemic and strong conversion metrics: 63% of listeners reported purchasing products promoted by hosts, while 71% visited sponsor websites. This illustrates the compelling nature of trust and endorsements delivered by hosts (Yaymond et al., 2022). While all sources agree on the emotional resonance and flexibility of podcasts, particularly among younger, tech-savvy audiences, they also highlight operational challenges such as measuring success and sustaining continuity. Strategic recommendations across these studies converge on prioritizing expert voices, ensuring consistent production, and integrating podcasts within a broader digital ecosystem that encompasses cross-platform promotion and search engine optimization (SEO). Nonetheless, a divergence in tone is evident, whereas U.S. practices often emphasise direct calls to action for conversions, B2B and educational contexts favour value-driven, non-intrusive content to maintain credibility. Collectively, these findings reaffirm the study's conclusions while refining them with sector-specific insights, confirming that podcasts function as low-cost and high-engagement tools that humanise brands, build trust, and cultivate loyalty, provided they balance authenticity with strategic intent and adopt metrics focused on engagement quality rather than mere audience size (Leandro et al., 2025; Lögdberg & Wahlqvist, 2020; Yaymond et al., 2022).

6. CONCLUSIONS

To effectively incorporate podcasts into fitness club marketing strategies, clubs should adopt a structured, multi-pronged approach that prioritises accessibility, relevance, and integration with existing digital platforms. First, podcasts must be embedded within broader content marketing plans to ensure alignment with brand identity and promotional objectives. This can be achieved by hosting episodes on popular streaming platforms such as Spotify and Apple Podcasts, while simultaneously promoting them through social media, email newsletters, and in-club digital displays. Second, clubs should develop a clear content calendar featuring diverse formats, including expert interviews, member success stories, and Q&A sessions, to maintain consistency and engagement. The study's findings confirm that 84% of respondents were aware of podcasts and 43% listened to them during workouts, suggesting strong potential for integration into fitness routines. Additionally, leveraging SEO strategies and cross-platform promotion will enhance discoverability in a saturated market. Finally, clubs should incorporate interactive elements such as feedback mechanisms and live sessions to foster two-way communication, as 56 respondents highlighted expert features and engagement as critical areas for improvement. These recommendations directly outline actionable steps for embedding podcasts into marketing strategies that resonate with target demographics and optimize engagement.

To maximise the role of podcast content on member engagement and retention, fitness clubs should prioritise credibility, personalisation, and motivational value in their programming. The study revealed that 90% of participants preferred content featuring health experts, underscoring the importance of authoritative voices in building trust and loyalty. Incorporating certified trainers, nutritionists, and wellness coaches as regular guests will not only enhance perceived value but also position the club as a thought leader in health and fitness. Furthermore, podcasts should deliver actionable insights, such as workout tips and lifestyle advice, while maintaining an empathetic and conversational tone to strengthen emotional connections. Data indicating that 50% of respondents strongly agreed and 40% agreed that podcasts influence membership decisions demonstrates their persuasive power in shaping consumer behaviour. To sustain retention, clubs should create episodic series that address seasonal fitness goals and member challenges, thereby fostering continuity and anticipation. Integrating promotional codes or exclusive offers within episodes can further incentivise loyalty without compromising authenticity. These strategies demonstrate how curated, expert-driven content can significantly enhance engagement and encourage long-term membership renewal.

Understanding and shaping member perceptions through podcast content requires a deliberate focus on authenticity, inclusivity, and community-building. Survey results indicate that respondents value interactive features and structured feedback, suggesting that podcasts should serve as participatory platforms rather than one-way communication channels. Fitness clubs can achieve this by inviting members to share testimonials, success stories, and fitness journeys, thereby humanising the brand and reinforcing relational ties. Additionally, addressing diverse topics such as mental health, nutrition, and sustainable fitness practices will broaden the brand's appeal and reflect cultural sensitivity, thereby enhancing its credibility among various demographics. The study's demographic analysis, which identified the 26–35 age group as the dominant audience (78.2%), highlights the need for content tailored to young professionals seeking convenience and motivation. By aligning podcast narratives with member aspirations and lifestyle trends, clubs can cultivate positive perceptions that translate into advocacy and word-of-mouth promotion. These recommendations illustrate how podcasts can shape favourable attitudes toward fitness clubs, strengthen brand identity, and foster a sense of belonging within the community.

7. DIRECTIONS FOR FUTURE RESEARCH

Future research should focus on longitudinal studies to evaluate the long-term effectiveness of podcasts on membership retention and loyalty, as this study employed a cross-sectional design that only captured a snapshot of consumer behaviour. Additionally, employing qualitative methods, such as in-depth interviews or focus groups, could yield deeper insights into the emotional and psychological motivations that drive podcast engagement, thereby enhancing the quantitative findings.

Conducting comparative studies across different geographic regions and socio-economic contexts would also help to determine the role of cultural factors on podcast adoption and effectiveness in fitness marketing. Furthermore, researchers should examine how various podcast formats and delivery methods, such as video integration, interactive live sessions, and multilingual content, can enhance engagement among diverse audiences. In addition, investigating advanced analytics and key performance indicators (KPIs) beyond awareness and preference, such as conversion rates and lifetime customer value, would provide a more comprehensive assessment of podcast investment returns. Finally, future studies could investigate how podcasts can be integrated with emerging technologies, such as AI-driven personalization and virtual fitness platforms, to explore their potential in creating immersive, value-driven experiences for fitness consumers.

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FINANCIAL AND INSTITUTIONAL SUPPORT FOR COMPETITION POLICY IN UKRAINE

The purpose of this article is to analyse the key trends in Ukraine's foreign trade reorientation and institutional support of competition under the influence of war and European integration processes. The study focuses on trade reorientation indicators and institutional measures of competition policy rather than direct measurement of market competition. The study examines the dynamics of export flows and the scale of reorientation towards the EU market, analyses the activities of the Antimonopoly Committee of Ukraine as the key regulator, and evaluates changes in logistics routes. The methodological basis includes system and comparative analysis, statistical and structural methods, documentary analysis of legal acts and reports of international organisations, as well as methods of synthesis and generalisation. The results show that the war has caused radical changes in foreign trade: the share of exports to the EU has exceeded 60%, but instability in the liberalisation regime creates risks of losing positions. The work of the Antimonopoly Committee has confirmed the importance of independent control, yet the unfinished reform of state aid remains a problem. Logistics have been rebuilt thanks to the "solidarity corridors", but they require large-scale investment. In the long run, European integration is identified as the main driver of competitiveness and sustainable economic growth in Ukraine.

Keywords: Ukraine's European integration course, reorientation of export flows, Antimonopoly Committee of Ukraine, EU "solidarity corridors", sustainable economic growth.

1. INTRODUCTION

In the context of full-scale war, Ukraine faces unprecedented challenges in the field of trade and competition policy. The destruction of production and logistics infrastructure, the reduction of export opportunities, the blocking of traditional trade routes and the increased risks for business have led to significant transformations of both domestic and foreign

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markets. These factors not only destabilise economic processes but also create new conditions for competition between domestic and foreign companies.

At the same time, Ukraine's strategic course towards European integration strengthens the requirements for compliance with European standards of competition and trade. Adaptation to the EU acquis in the areas of antitrust regulation, state aid to business, consumer protection and fair competition is a necessary precondition for integration into the single European market. The combination of war challenges and the need to harmonise rules with the EU determines the dual nature of transformations: on the one hand, there is a need to find new sales markets, diversify export flows and develop digital trade; on the other hand, risks are increasing, since Ukrainian business, gaining access to a wider European market, faces a high level of competition. This, in turn, requires modernisation of production, strengthening of innovation and the introduction of sustainable development standards.

2. LITERATURE REVIEW

In modern research on competition and trade in Ukraine, there is a clear trend towards analysing the challenges of war and the processes of European integration. The European integration vector is discussed in the works of V. Zalizniuk and H. Artamonova (2023), who emphasise the strategic importance of joining the EU internal market and the prospects for Ukrainian enterprises. The *White Book of Reforms 2025* (2025) pays special attention to trade liberalisation, legal adaptation, and sector-specific risks in the context of European integration. Z. Darvas, M. Dabrowski, H. Grabbe, L. Léry, M. Moffat, A. Sapir, and G. Zachmann (2024) focus on the long-term consequences of Ukraine's EU accession, including changes in competition policy, trade structure, and socio-economic effects.

The analysis of foreign trade flows is presented by L. Norik and O. Skliar (2024), who examined the transformation of Ukraine's export-import activity in 2017-2024 and identified the main trends in the reorientation of exports to EU markets. Data from international organisations and agencies (e.g. OECD, IEA, Energy Community, World Bank, WTO) highlight the instability of grain exports due to port blockades, fluctuations in logistics routes, and the need for deregulation of minimum export prices.

Issues of competition policy and the activities of the Antimonopoly Committee of Ukraine are studied in the works of I. Svechkar, P. Verbolyuk, A. Panchak, and O. Gadomska (2023), as well as in publications of Wolters Kluwer Legal Blogs and the European Business Association (2024). These authors stress the growing role of the Antimonopoly Committee in digital markets, merger control, and the adaptation of national competition law to the EU acquis.

The recovery of Ukraine's economy in a broader context is analysed by T. Becker, Yu. Gorodnichenko, and B. Weder di Mauro (2023), who summarise key policy proposals and reconstruction models, including the role of international aid, market liberalisation, and the strengthening of institutional capacity.

The green and circular economy as a basis for the modernisation of trade and competitiveness of Ukrainian enterprises is discussed in the works of V. Artemov, V. Savchenko, L. Kononenko, and V. Kravchenko (2023), A. Hlushchenko (2024), N. Horbal and S. Slipachyk (2023), as well as H. Zavadskykh, L. Ivashova, A. Shlapak, and O. Kryvoruchko (2025). These studies highlight the importance of ecological innovations, resource efficiency, and the introduction of circular economy models into Ukraine's production and trade practices, in line with EU requirements.

The energy dimension of foreign trade and competition is reflected in reports of the Energy Community (2024) and the International Energy Agency (2023), which analyse regulatory approaches to electricity price policy and the prospects of gas imports. These studies are particularly relevant in the context of ensuring energy security as a fundamental condition for sustainable trade development.

Thus, the scientific literature and analytical reports of 2023–2025 consistently indicate the dual nature of the challenges: on the one hand, the war has caused the destruction of infrastructure, logistical barriers, and regulatory instability; on the other hand, European integration opens new markets, stimulates modernisation, and increases the requirements for transparency in competition policy. These works form the theoretical and practical basis for further research into the problems and prospects of competition and trade in Ukraine under the conditions of war and integration into the European Union.

3. METHODOLOGY

The purpose of this article is to analyse the key trends in Ukraine's foreign trade reorientation and institutional support of competition under the influence of war and European integration processes. The study focuses on trade reorientation indicators and institutional measures of competition policy rather than direct measurement of market competition.

To achieve this purpose, the following objectives were set:

- to study the dynamics of the geographical structure of Ukraine's exports and to define the scale of reorientation towards the EU market;
- to analyse the activities of the Antimonopoly Committee of Ukraine as the key regulator in the field of competition;
- to assess changes in export logistics routes and their impact on costs and capacity;
- to propose solutions to the problems of competition and trade in Ukraine under the conditions of war and European integration.

The object of the research is competitive relations and foreign trade processes of Ukraine, which are shaped by the challenges of war and integration commitments to the European Union.

The methodological basis of the study includes system and comparative analysis applied to assess the transformation of trade flows and competition policy in wartime. Statistical methods were used to process export–import indicators and the activities of the Antimonopoly Committee, while the structural approach was applied to analyse changes in transport logistics. Documentary analysis covered EU legal acts, national legislation, reports of international organisations and publications of expert centres. Methods of synthesis and generalisation were applied to define possible solutions to the problems of competition and trade in Ukraine in the context of war and European integration.

4. DISCUSSION OF RESULTS

4.1. Research results

The study of export statistics shows that in 2020–2025 there were significant changes in its geographical structure. During the war and the intensification of European integration processes, Ukraine's foreign trade has been strongly reoriented towards the EU market. While in 2020-2022 the share of the European Union remained relatively stable (at the level of 38–40%), by 2024–2025 it exceeded 60% (Table 1). This dynamic is explained by two key factors: firstly, the temporary trade liberalisation regime granted by the European Union; secondly, the blocking of traditional sea routes, which created the need to diversify export routes and to make more active use of land “solidarity corridors” through EU countries.

The analysis of Table 1 shows that the main “donors” of the growth of exports to the EU were the markets of Asia and the CIS countries, which experienced a significant decline. Between 2020 and 2025, the share of Asia decreased from 33% to 20%, while the CIS fell from 15% to 6%. This demonstrates a stable trend towards Ukraine’s integration into the European economic area and, at the same time, underlines the vulnerability of traditional trade directions, which have lost their strategic importance. In the long run, such reorientation may serve as a basis for deeper economic cooperation with the EU, but it requires additional efforts in logistics, product certification and strengthening competitiveness in new markets.

Table 1. Dynamics of the geographical structure of Ukraine’s exports, %

Year	European Union	Asia	Commonwealth of Independent States (CIS)	Other countries
2020	38	33	15	14
2022	40	30	12	18
2024	58	22	7	13
2025*	61	20	6	13

*Note: Data for 2025 are forecast-based, according to the Ministry of Economy of Ukraine (2024) and the European Commission (2024).

Source: Developed by the authors based on data from the Ministry of Economy of Ukraine and the European Commission.

The activities of the Antimonopoly Committee of Ukraine (AMCU) in 2022-2025 were aimed at maintaining market discipline, investigating abuses of dominant position and concerted practices, as well as adapting competition policy to the requirements of European law. Despite martial law and significant challenges for business, the AMCU retained its capacity to perform key functions, which became an important factor in ensuring transparency of market relations and preventing abuses (Table 2).

Table 2. Main performance indicators of the Antimonopoly Committee of Ukraine

Indicator	2021	2022	2023	2024	2025*
Number of investigations into abuse of dominance	104	89	96	101	98
Concerted practices/mergers considered by AMCU	512	423	460	478	485
Fines imposed (UAH million)	5,341	3,876	4,209	4,865	4,920

*Note: Data for 2025 are preliminary and based on forecasts of the Antimonopoly Committee of Ukraine (2024) and the European Commission (2024).

Source: Developed by the authors based on data from the Antimonopoly Committee of Ukraine and the European Commission.

The analysis of Table 2 shows that, despite the difficult conditions of wartime, the AMCU continued its active work in preventing abuses of market power. These indicators reflect the institutional support and enforcement of competition policy by the AMCU rather than the direct level of competition in the market. The number of investigations into abuses remained stable, while the dynamics of concerted practices and mergers demonstrate the continued demand of businesses for legal forms of economic cooperation. The volume of fines imposed indicates a consistent practice of bringing violators to account, which provides additional revenues to the state budget and creates a preventive effect. Overall, the AMCU's activities in 2022–2025 confirm its role as a key institutional element in strengthening the institutional framework and enforcement of competition policy, which is gradually moving closer to European standards.

The enforcement activities of the Antimonopoly Committee of Ukraine can be interpreted as an institutional mechanism influencing the competitive environment. Investigations of abuse of dominance and concerted practices contribute to reducing anti-competitive behaviour, while merger control prevents excessive market concentration. The imposition of fines creates a deterrent effect, encouraging firms to comply with competition rules. Therefore, although these indicators primarily reflect the intensity of enforcement rather than direct market outcomes, they indicate the potential of competition policy to improve market conditions over time.

Despite the blockade of Black Sea ports, alternative routes through EU countries have become a key factor in maintaining Ukraine's export potential. Thanks to the use of rail and road transport within the so-called "solidarity corridors", it was possible to significantly compensate for the losses of sea logistics. However, the capacity of land infrastructure remains limited, which leads to high costs and longer delivery times (Table 3).

Table 3. Comparison of transport volumes, million tonnes

Route	2021 (pre-war)	2023	2024	2025*
Sea	150	65	72	70
Rail	40	78	85	90
Road	35	56	61	64

*Note: Data for 2025 are forecast-based according to the World Bank [26] and the Ministry of Infrastructure of Ukraine.

Source: Developed by the authors based on data from the World Bank and the Ministry of Infrastructure of Ukraine.

The analysis of Table 3 shows that sea transport suffered the greatest losses, with volumes falling by more than half compared to the pre-war level. At the same time, rail and road routes demonstrated steady growth: in particular, rail transport more than doubled in 2023 and continued to increase in 2024–2025. This confirms that land logistics has become the main alternative to sea routes. However, the effectiveness of this direction directly depends on the modernisation of border infrastructure, reduction of queues and the integration of Ukraine's and the EU's transport systems.

At the same time, the study revealed a number of unresolved problems that significantly affect the strengthening the institutional framework and enforcement of competition policy and trade. These include the instability of the trade regime after the end of temporary liberalisation, the lack of full control over state aid by the Antimonopoly Committee of

Ukraine, the limited capacity of border infrastructure and the high cost of transportation. Another important challenge is the need to strengthen the transparency of decisions and the institutional capacity of regulatory bodies.

4.2. Ways to solve the problems and proposals

In the context of war and European integration, the national economy faces a number of challenges that require comprehensive solutions. Among them, the most important are the instability of the trade regime with the EU, the unfinished reform of state aid, logistical constraints, low innovation activity of enterprises and institutional risks. To address these problems, a set of proposals has been developed and systematised in Table 4.

The solutions presented in Table 4 can be grouped into several blocks. The first block concerns the stabilisation of the trade regime with the European Union, which includes the long-term extension of Autonomous Trade Measures or the conclusion of a special framework agreement until Ukraine's accession to the EU. An important element of this direction is also the development of sectoral roadmaps for exporters, particularly in agriculture, metallurgy and manufacturing, which will help to minimise risks from possible safeguard measures by the EU.

The second block is the harmonisation of competition policy with European law. This requires completing the reform of state aid, restoring the powers of the Antimonopoly Committee of Ukraine, strengthening its independence and introducing modern digital tools for market monitoring, including concentration analysis based on Big Data. Equally important is expanding the AMCU's international cooperation with the European Commission and the Organisation for Economic Co-operation and Development (OECD), which would support joint investigations and the exchange of best practices.

The proposals presented in Table 4 were developed on the basis of the identified problems in the previous sections of the study. Their formulation is grounded in a combination of analytical methods, including comparative analysis of EU policies, review of reports by international organisations (European Commission, OECD, World Bank), and the assessment of national regulatory practices. The selection of recommendations was based on their relevance to the identified challenges, feasibility under wartime conditions, and consistency with the requirements of European integration. Each proposed measure is directly linked to a specific problem affecting the strengthening the institutional framework and enforcement of competition policy in Ukraine.

The third block focuses on the development of logistics and infrastructure. It involves investments in rail and road connections at the EU border, modernisation of checkpoints and harmonisation of technical track standards. One priority should be the creation of public-private partnerships for the development of multimodal terminals and warehouses, as well as the expansion of transport risk insurance programmes with the involvement of international financial institutions, in particular the EBRD and the World Bank.

Another important block is business support and innovation. This includes tax and credit incentives for enterprises that adopt EU standards, innovative technologies and ecological practices. A promising direction is the development of export clusters in key sectors – agriculture, food industry, IT and light industry – and the active implementation of digital trade and e-commerce to expand access to European markets.

The final block relates to institutional transparency and anti-corruption reforms. This includes creating open electronic registers of state aid and procurement, increasing transparency requirements for regulatory decisions and engaging public oversight. It also proposes adapting the experience of the OECD and the EU to develop a code of integrity for state and corporate structures.

Table 4. Ways to Solve the Problems of Competition policy in Ukraine under War and European Integration

Problem	Proposed solution	Expected result
Instability of the trade regime with the EU	Extension of Autonomous Trade Measures (ATM), conclusion of sectoral roadmaps	Predictability of export conditions, reduced risks for the agricultural and industrial sectors
Unfinished reform of state aid	Amendments to legislation, restoration of AMCU powers	Full compliance with the EU acquis, transparency in granting state support
Logistical constraints and high transport costs	Investments in infrastructure, development of multimodal terminals, transport risk insurance	Reduction of transport costs, growth of export volumes
Low innovation activity of business	Tax and credit incentives, creation of export clusters, support for digital trade	Increased competitiveness of enterprises, entry into new markets
Institutional risks and lack of transparency	Open electronic registers of state aid and procurement, code of integrity, public control	Increased trust of investors and partners, reduced corruption risks

Source: Developed by the authors of this article.

Thus, addressing the identified problems is possible only through the combination of three interrelated vectors: the European integration vector, which ensures rule harmonisation and long-term trade liberalisation; the infrastructure and logistics vector, which requires large-scale investment and risk insurance; and the institutional and innovation vector, focused on transparency, digitalisation and business support. The synergy of these directions can provide the basis for the sustainable development of the competitive environment and Ukraine's integration into the EU internal market.

4.3. Discussion

The results obtained are consistent with the views of modern researchers and international organisations, who emphasise that the war has significantly transformed the conditions of competition and trade in Ukraine. According to the European Commission (2024), the key challenge remains the adaptation of Ukrainian legislation in the field of competition and state aid to the EU acquis, which is a basic precondition for integration into the Union's internal market.

Researchers of the Institute for Economic Research and Policy Consulting (IER, 2024) and EU analytical centres highlight that the temporary trade liberalisation introduced by the EU gave a strong impetus to Ukrainian exports. At the same time, scholars debate its long-term consequences: if restrictions are reinstated, this may create risks of losing market positions.

The issue of state aid is actively discussed in the works of O. Horodovenko and the OECD (2023). The authors stress that, under wartime conditions, business support is necessary to preserve production capacity, but excessive and non-transparent subsidies may violate the principles of fair competition. This creates a dilemma between anti-crisis support for domestic producers and compliance with European rules.

Logistics and infrastructure also occupy an important place in the discussions. According to the World Bank (2024), the “solidarity corridors” through EU countries have almost doubled land transport volumes compared to pre-war years. However, the capacity of transport hubs remains insufficient, and the cost of transportation is critically high.

Another direction of debate concerns innovative development. I. Kuznetsova and the World Bank (2024) argue that digitalisation and the introduction of “green” logistics may become decisive factors of competitiveness in the EU market. At the same time, the OECD (2023) considers that the first priority should be the restoration of basic infrastructure and the reduction of institutional risks.

Thus, the scientific literature shows a consensus on the importance of the European integration vector as a driver of competition and trade development. However, discussions continue regarding the balance between crisis support for business and compliance with European standards, as well as between investment in innovations and the urgent need to rebuild transport infrastructure.

5. CONCLUSION

The war has significantly changed the conditions of competition and trade in Ukraine, causing the reorientation of export flows towards EU markets, the intensification of diversification processes and, at the same time, creating serious logistical and institutional barriers for business.

Temporary trade liberalisation with the EU has provided Ukrainian producers with simplified access to the Union’s internal market, which increased the share of exports to the EU to more than 60%. However, the instability of this regime creates risks of losing positions once it ends.

The activities of the Antimonopoly Committee of Ukraine during the war confirmed the importance of an independent regulator. At the same time, the unfinished reform of state aid and the need to restore full control in line with the EU acquis remain key challenges.

Ukraine’s logistics system has undergone radical transformation: the reduction in sea transport has been compensated by the growth of rail and road routes through “solidarity corridors” with the EU. However, high transport costs and limited infrastructure capacity require large-scale investment.

The balance between anti-crisis support for business and compliance with European competition rules remains debatable. Excessive or non-transparent forms of state aid may distort the market, while their complete absence in times of crisis threatens the loss of production capacity.

The findings confirm that institutional support of competition plays a crucial role in maintaining market stability under wartime conditions.

The further strengthening the institutional framework and enforcement of competition policy in Ukraine should be based on the combination of three key directions: harmonisation of legislation and institutions with EU standards; modernisation of transport and customs infrastructure; and stimulation of innovation, digitalisation and sustainable practices.

In the long term, Ukraine's European integration course is the main driver of forming a competitive environment capable of ensuring sustainable economic growth, increasing investment attractiveness and achieving full integration into the European economic area.

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SUSTAINABLE INNOVATION AND BUSINESS GROWTH OF SELECTED DEPOSIT MONEY BANKS IN NIGERIA

This study examines how sustainable innovation affects the business growth of the Nigerian Deposit Money Banks (DMBs). Based on Institutional Theory and Stakeholder Theory, the study examines the roles of Sustainable Innovation Adoption (SIA), Digital Banking (DBA), and Green Financial Products (GFP) in business growth in an environment of adaptive regulatory demands and stakeholder pressures. A quantitative research design was adopted, and data were collected through a structured survey administered to 223 bank staff working in Lagos. Further analysis was performed through Partial Least Squares Structural Equation Modelling (PLS-SEM). The results show that the effect of SIA, DBA, and GFP on business growth is statistically significant, with an R^2 value of 0.406. Consequently, SIA showed the strongest effect ($\beta = 0.3831$), followed by DBA ($\beta = 0.3120$) and GFP ($\beta = 0.2474$); all the paths were significant at the 0.001 level. The study suggests that DMBs should go beyond symbolic compliance and institutionalise ESG governance at the board level, and use digital infrastructure to guide customers successfully towards green financial products. The study empirically substantiates the idea of a Twin Transition in an emerging market, which shows that sustainability is a strategic source of growth and not a regulatory obligation.

Keywords: Sustainable innovation, Deposit Money Banks, business growth, Digital Banking, Green Financial Products.

1. INTRODUCTION

Sustainable innovation has, in the present global economy, evolved beyond being a voluntary corporate social responsibility (CSR) program into a strategic necessity of institutional sustainability. By incorporating ecological goals with the main operational designs, organisations enable a double win: they optimise their financial performance and

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preserve the biospheric ecosystem (Ellen MacArthur Foundation, 2019). In the Nigerian financial environment, Deposit Money Banks (DMBs) are at the centre of economic intermediation, even though they are becoming increasingly forced to operate in a complex nexus of climate risk, stakeholder scrutiny, and global competitiveness (Kandasamy et al., 2022).

This transition was formalised by the Central Bank of Nigeria (CBN) in the 2019 Guidelines on Sustainable Banking, and its goal was to incentivise green credit and make the practice more transparent. However, there is still a significant gap in implementation. Although the hypothetical advantages of digital transformation and the diversification of green products are suggested to enhance the efficiency of operations (Iwedi, 2024), the path to the businesse growth in Nigeria is often disrupted by the so-called Institutional Voids, especially the uneven enforcement of regulations, macroeconomic instability, and the lack of infrastructural facilities (power and telecommunication) systematically (Kala, 2023; Adebayo, Eze, 2023; Shodiya et al., 2024).

Although there is no disagreement about the isolated positive effects of green products and digital transformation in extant literature (e.g., Ibrahim et al., 2019; Wang, Zhang, 2025; Nguyen et al., 2025), there is empirical gaps on the synergistic interplay between Sustainable Innovation Adoption (SIA), Digital Banking Adoption (DBA), and Green Financial Products (GFP). In particular, in the context of emerging African economies, the literature has not offered a comprehensive evaluation of how the interaction of these drivers can overcome the institutional void and foster long-term business resilience. This study addresses the gap by empirically investigating the Twin Transition of digital and sustainable innovation as a unified engine of business growth in the Nigerian banking sector, specifically, by analysing the interdependence of these variables in a single structural model.

The research is grounded in the Institutional and Stakeholder Theories to address these gaps by assessing the individual and combined effects of the aforementioned dimensions of innovation on the DMB performance. The study provides a strong empirical framework by transcending a unilateral emphasis on "going green" and examining the overlap of technology, regulation, and product innovation. Not only does this approach explain what drives competitive advantage in a new market, but it also provides practical strategies that the banks can employ to align their operational models with the emerging regulatory requirements and the expectations of their stakeholders.

Against this backdrop, and informed by the theoretical intersections of Institutional and Stakeholder theories, the following hypotheses are formulated to assess the individual and collective impacts of these innovation drivers on business growth.

$H0_1$: Sustainable innovations adoption have no significant effect on the business growth of the selected Deposit Money Banks (DMBs) in Mainland Lagos.

$H0_2$: Digital banking adoption has no significant effect on the business growth of the selected Deposit Money Banks (DMBs) in Mainland Lagos.

$H0_3$: Green financial products have no significant effect on the business growth of the selected deposit money banks (DMBs) in Mainland Lagos.

$H0_4$: The combined effect of these variables (Sustainable innovations adoption, Digital banking adoption, Green financial products) has no significant effect on the business growth of the selected Deposit Money Banks (DMBs) in Mainland Lagos.

2. LITERATURE REVIEW

2.1. Conceptual Review

The conceptual paradigm of this study lies at the intersection of environmental stewardship and financial intermediation. Sustainable innovation is seen as a socio-technical transformation, beyond a technical reform, that allows financial institutions to adopt a Triple Bottom Line, balancing profit, ecological and social wellbeing (Rennings, 2000; Elkington, 1997). In the Nigerian banking sector, this paradigm shift is reflected in the form of a transition from traditional risk-aversion to proactive ESG integration (Akinpelu, Adebayo, 2022).

2.1.1. Sustainable Innovation Adoption (SIA)

Sustainable Innovation Adoption (SIA) is operationalised as the deliberate integration of Environmental, Social and Governance (ESG) principles into the basic structure of banking activities. SIA is not merely a reiteration of the support roles of corporate social responsibility (CSR), but a significant change in credit-risk management and capital distribution (Adams, Bebbington, 2024; Saygili et al., 2022). In the Nigerian context, SIA is largely driven by the coercive isomorphism that is affected by the Sustainable Banking Principles that require Deposit Money Banks (DMBs) to mitigate the environmental impact of their lending operations (CBN, 2019; Scott, 2001). Theorists believe that SIA results in a legitimacy buffer, which protects banks against reputational shocks and makes them consistent with global financial trends, including the Equator Principles (Nwankwo, Adeniyi, 2019; Uddin, Rahman, 2023).

2.1.2. Digital Banking Adoption (DBA)

The Digital Banking Adoption (DBA) is viewed as the green engine of modern financial services. It refers to the process of dematerialising banking services using mobile-based services, USSD codes, and internet bank interfaces that do not necessitate paper-based transactions and physical branch growth (Iwedi, 2024; Malyshev, 2023). Regarding sustainability, DBA has a twofold purpose: both ecological prevention due to decreased carbon emissions and resource wastage, and social inclusion by closing the so-called financial gap between unbanked citizens of emerging economies (Akinola et al., 2023; Ojo et al., 2021). In addition, DBA is a process innovation, which enhances operational efficiency, allowing banks to expand operations without a proportional rise in energy use or physical overhead (Kaur et al., 2022; Adewale et al., 2024; Shodiya et al., 2024).

2.1.3. Green Financial Products (GFP)

Green Financial Products (GFP) are the tangible output of a bank's sustainability strategy. They also include specialised financial tools, such as green loans, climate bonds, and eco-investment funds, specifically created to bring together the private capital of climate-resilient investments (Access Bank, 2020; Daryaei et al., 2022). In contrast to traditional banking products, GFPs are under Green Covenants where the activities of borrowers are strictly audited for environmental friendliness (Adebayo & Eze, 2023). GFP adoption is also informed by growing demand in the emerging markets, including Nigeria, where ethical stakeholders, especially Millennials and Gen Z investors, are basing their investment decisions on ESG performance (Nielsen Global Report, 2015; World Economic Forum, 2020). Accordingly, GFPs can be described as a market-differentiation tool, which makes long-term business development achievable by focusing on a niche segment of customers who are concerned about sustainability.

2.1.4. The Multi-Dimensional Construct of Business Growth

The modern banking research no longer perceives business growth as a single-dimensional expansion of physical size or human resources; instead, it is defined as a multidimensional concept based on the ability of an institution to create and maintain value in financial, operational, and relational aspects (Seclen et al., 2016; Jain, 2024). In the case of Nigerian Deposit Money Banks (DMBs), growth is the quantifiable product of a strategic alignment between internal sustainable innovations and external market needs (Malyshev, 2023). The optimisation of financial performance is central to this construct, and in this case, growth is evaluated not only by the availability of profit but also by the improvement of Return on Assets (ROA) and Return on Equity (ROE) made possible by sustainable practices (Saygili et al., 2022). Sustainable innovation reduces risk in the following financial measures by creating ESG-compliant lending portfolios that are empirically related to reduced default rates and increased long-term stability (Adebayo, Eze, 2023; Hannon et al., 2021).

In addition to immediate profitability, such multidimensional growth is characterised by operational efficiency, specifically, the ability of the bank to attain lean growth through scaling of service provision without a commensurate increase in resource consumption. As the Cost-to-Income ratio is used to measure this operational dimension, it is triggered by the adoption of digital banking (DBA), which replaces the physical networks with automated, paperless systems with a reduced marginal cost (Adewole et al., 2024; Exactbuyer, 2024). Moreover, in the saturated competitive world of Mainland Lagos, the development of the business is becoming more dependent on the relationship capital and Customer Lifetime Value (CLV). This relationship development is based on the fact that the bank has successfully developed enduring trust and affection commitment using the green financial products (GFP) and ethical transparency (Ndugbe et al., 2022). This sustainability-based loyalty, in contrast to the traditional transactional satisfaction, creates the effect of stakeholder advocacy, whereby customers become proactive promoters of the bank as a green institution, ensuring organic market growth and institutional sustainability (Fornell, 2020; Nielsen Global Report, 2015).

2.2. Theoretical Framework

2.2.1. Institutional Theory

The Institutional Theory was developed based on the seminal works of Meyer and Rowan (1977) and then improved by DiMaggio and Powell (1983) and states that organisations do not exist as production units, but rather exist socially and adapt their internal structures to meet external demands and regulatory requirements. The theory recognises three forms of isomorphism, which are coercive, mimetic and normative types of isomorphism, whereby organisations are forced to accept the standardised practices in order to attain institutional legitimacy (Scott, 2001). In the current study, Sustainable Innovation Adoption (SIA) is theoretically underpinned by Institutional Theory. CSR standards applied by Nigerian DMBs are mainly self-imposed (coercive isomorphism) and are the products of the 2019 Sustainable Banking Principles by the Central Bank of Nigeria (CBN). These guidelines are adhered to by banks not only because it is necessary to ensure that the operations are efficient, but also to obtain a license to operate within the regulated financial ecosystem. Besides, mimetic isomorphism helps explain why banks that are in the very turbulent Nigerian market tend to imitate sustainable practices of the successful global counterparts as a coping mechanism to counter uncertainty (Nga, Tam, 2024). Although the critics argue that the theory ignores agency and profit-oriented innovation (Haveman, 1993), in developing economies like Nigeria, institutional legitimacy is often a precondition to financial stability and long-run development.

2.2.2. Stakeholder Theory

The Stakeholder Theory was first proposed by Freeman (1984), shifting the corporate agenda that was narrowly centred on shareholder wealth to the interests of all parties who can affect and be affected by the goals of the firm. According to the theory, organisational success depends on the ability to handle complicated interrelationships and meet the conflicting needs of customers, employees, investors, and the general community. This school of thought forms the basis of digital banking adoption (DBA) and green financial products (GFP). As the Stakeholder Theory implies, the emergence of green financial tools is one of the strategic measures to address the increasing green awareness of modern consumers (Nga, Tam, 2024; Shodiya et al., 2025). Digital, paperless services and green loans ensure that DMBs meet the social and environmental demands of their stakeholders, which leads to consumer loyalty, which is a critical foundation of business development (Ndugbe et al., 2022). Despite critics pointing out that the theory can create conflicting priorities, like the tension between immediate returns on investment and long-term sustainability investment (Harrison et al., 2015), there is still a suggestion that addressing these non-financial demands is crucial to developing the trust and brand equity needed to remain dominant in the digital age.

2.3. Empirical Review

The empirical context of sustainable innovation has shifted to emphasise separate corporate behaviour to a more extensive analysis of synchronised strategic changes. In modern literature, the view is that sustainability is no longer a peripheral aspect in the business of financial institutions but a fundamental determinant of institutional and market differentiation (Giovanna et al., 2022; Kneipp et al., 2019).

2.3.1. Sustainable Innovation Adoption (SIA) and Business Growth

Existing literature has consistently revealed a positive relationship between sustainable innovation and organisational performance, but the particularities of this relationship differ by geographic and industrial conditions (Giovanna et al., 2022; Kneipp et al., 2019; Raza et al., 2024; Shodiya et al., 2025). International studies show that substantive greening programs are linked to both environmental and financial well-being in the long term, but more importantly, only strategic or rather symbolic adoption can have counterintuitive short-term outcomes (Liu et al., 2024; Saygili et al., 2022). However, there is a huge knowledge gap that still exists in the Nigerian environment. Previous studies conducted in the area have identified sustainable banking as a driver of economic growth, but have restricted their distribution of interest to specific operational systems, including ATM and POS utilisation, thus failing to consider the overall strategic shift to the adoption of Sustainable Innovation based on the ESG (Obiekwe et al., 2020). Furthermore, the institutional barriers, such as regulatory uncertainty, high transaction costs, and financial limitations, imply that the SIA-growth correlation in the emerging markets should be investigated at the local level (Escobar et al., 2023; Raman et al., 2025). The current research aims to address this gap by testing hypothesis $H0_1$.

2.3.2. Digital Banking Adoption and Business Growth

The digital transformation and its interaction with bank growth have been marked by the focus on operational influence and client interaction. The authors have demonstrated that electronic banking platforms, especially card-based services and mobile offerings, significantly increase profitability and retention of customers in the Nigerian market (Aduaka, Awolusi, 2020; Awoniyi, 2022). Nevertheless, this financial optimism is checked by the fact that increased adoption rates do not always imply increased satisfaction, systemic instability and feature shortcomings can often trigger customer resistance (Lateef, Anawude, 2024). Digitalisation, in turn, is based on the assumption of trust in technology, introduced by confidentiality, integrity, and authentication, and perceived ease of use (Awoniyi, 2022; Ifeonu, Ward, 2015). A key limitation of these studies is the inability to consider the green usefulness of digitalisation, i.e., how paperless banking reduces carbon footprints. This empirical gap is filled in the current research by testing hypothesis $H0_2$.

2.3.3. Green Financial Product (GFP) and Business Growth

It has been empirically shown that Green Financial Products (GFPs) can be crucial in building relational capital and achieving deep-rooted customer loyalty (Khushbu, Agarwal, 2024; Nimitha, Goveas, 2024). Green financing and solar panels are part of the innovations that have been identified in Nigeria to increase stakeholder satisfaction and institutional commitment (Njoku et al., 2022). However, these research results are often limited in scope due to the small sample size and the lack of contextualisation (Agarwal, Yajurvedi, 2022; Raman et al., 2025). In addition, the literature has not investigated how digital platforms can be strategically utilised to market these green products in the unstable macro-economic environment in Lagos. This study aims to fill this gap by testing hypothesis $H0_3$.

2.3.4. Synergistic and Combined Effects on the Business Growth

The most crucial frontier in modern studies is the quest to have a holistic view of sustainability drivers. Green finance adoption cannot be successfully achieved due to one factor; it is a product of the management commitment, digital preparedness, regulatory alignment, and socio-cultural influences (Nga et al., 2024; Ratha et al., 2024; Sossou et al., 2024). Although a combination of these factors defines the viability and solvency of commercial banks in other emerging markets, there is a clear Nigerian vacuum where the joint predictive power of SIA, DBA, and GFP has not been measured. The current research attempts to fill this gap by testing hypothesis $H0_4$, thus providing a combined model that assesses the overall effects of these variables on the market competitiveness and growth of Deposit Money Banks (DMBs).

2.4. Conceptual Model

The conceptual model is organised in a way as to provide the path-analytic and hierarchical framework of analysis used to assess institutional growth in the Nigerian financial sector. The model structural logic begins with the exogenous path (independent variables), which implies that Sustainable Innovation is a multidimensional construct which consists of three different items: Sustainable Innovation Adoption (SIA), Digital Banking Adoption (DBA) and Green Financial Products (GFP). Hypothesised direct effects of these individual innovation levers on the dependent variable are denoted by the specific paths marked as H01, H02, and H03, allowing a granular analysis of which drivers, strategic, technological, or product-based, have the greatest predictive power on bank performance.

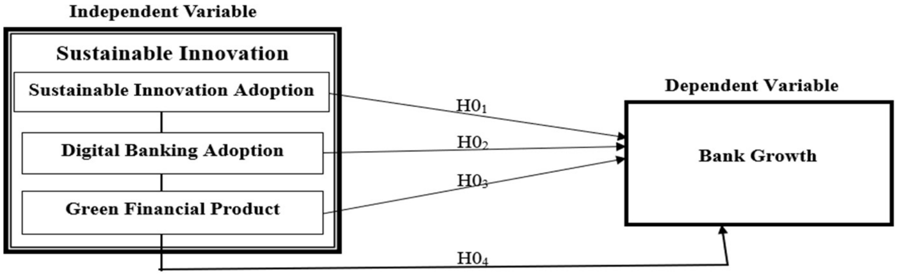

Figure 1. Sustainable Innovation and Business Growth Model

Source: Author's Conceptualisation, 2024.

In addition to this, the endogenous outcome (dependent variable) is presented, whereby Business Growth is not considered as a single financial measure but rather a multi-dimensional construct. The model balances financial profitability measures (ROA and ROE) with operational efficiency and relational capital to ensure that the contribution of sustainability is measured throughout the entire organisational value chain. The synergistic direction embodied by H04 is the culmination of this holistic view, which has its roots in the broad Sustainable Innovation construct. This line represents a combined action of the three sub-dimensions that operate together as a whole and thus captures the essence of the argument in the study that a holistic approach generates a competitive edge that is statistically higher than its components. This interpretive model addresses the Nigerian Vacuum through examining the cumulative predictive value of an integrated sustainability strategy on the market competitiveness of the Deposit Money Banks.

3. METHODOLOGY

3.1. Research Design

A causal-comparative and descriptive survey research design was adopted in the study to measure the predictive role of sustainable innovations on the business growth of the selected Deposit Money Banks (DMBs) in Mainland Lagos, Nigeria. This design enables the description of the respondents' characteristics systematically and, at the same time, to test the hypothesised structural relationship between the latent variables of Sustainable Innovation Adoption (SIA), Digital Banking Adoption (DBA), and Green Financial Products (GFP). Through applying a quantitative framework, the study ensures that the results on institutional resilience and market differentiation are not only measurable but also statistically robust.

3.2. Population, Sample Size, and Sampling Technique

The target population comprises the management and employees of four strategically selected branches of banks in Lagos Mainland: Guaranty Trust Bank (Ikeja), Access Bank (Surulere), First Bank (Agege), and Zenith Bank (Yaba). These locations are the commercial hub of the area and offer a population of 529 workers, actively engaged in modern, sustainable banking.

Table 1. Management and Employees of Selected Banks

S/N	Banks, Branches and Locations	Management Staff	Employees	Management Staff and Employees Total Staff
1	Guaranty Trust Banks, Ikeja	18	134	152
2	Access Banks Surulere	11	115	126
3	First Banks Agege	10	109	119
4	Zenith Banks Yaba	14	118	132
	Total	**53**	**476**	**529**

Source: Human Resources Department of each bank of October 2024.

In order to obtain a representative sample of this population, the study employed the Cochran (1977) formula for a finite population

$$n_0 = \frac{z^2 pq}{e^2} \tag{1}$$

Where:

Z = 1.96 (The critical value for a 95% confidence level).
p = 0.5 (The estimated proportion of the population).
q = 1-p (The probability of failure, or 0.5).
e = 0.05 (The desired margin of error).

$$n_0 = \frac{(1.96)^2 x\ 0.5\ x\ 0.5}{(0.05)^2} = 384$$

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}} \tag{2}$$

$$n = \frac{384}{1 + \frac{384 - 1}{529}} = 222.75$$

Following the calculation using this formula, the required sample size was obtained as 223 respondents. This was followed by employing a stratified random sampling method to ensure that every banking institution was fairly represented in the final sample. The method enables the grouping of the population into various strata depending on bank location, which eliminates bias in research results based on a specific bank.

Table 2. Sample Size Distribution Across the Selected Banks

S/N	Selected Banks	Management Staff	Employees	Management Staff and Employees	Sample Size Determination
1	Guaranty Trust Banks Agege	18	124	142	$\frac{142}{488} x\ 216 = 62.8$
2	Access Bank	11	105	116	$\frac{116}{488} x\ 216 = 51.3$
3	First Bank	10	98	108	$\frac{108}{488} x\ 216 = 47.8$
4	Zenith Bank	14	108	122	$\frac{122}{488} x\ 216 = 54$
	Total	53	435	488	216

Source: Researcher Survey, 2024.

3.3. Research Instrument

The study employed a structured questionnaire as the primary data collection instrument, which was divided into two parts. The first section, Section A, comprises questions on the demographic background of the respondents. The major variables of the study (sustainable innovation and business growth) were covered in section B. The questionnaire was adapted from previously validated instruments found in the literature and appeared on a five-point Likert scale, from Strongly Disagree to Strongly Agree. The items in this section were used to operationalise independent, dependent and moderating variables. All rated on a five-point Likert scale.

3.4. Pilot Study

Before the administration of the questionnaire, a pilot study was carried out. For this, twenty (20) questionnaires were distributed to twenty (20) people from this population who were not included in the final sample. This initial study has the objective to evaluate how many of the questions understood by participants understood, how participants engaged with the survey and how they responded to the mechanism for answering.

3.5. Validity and Reliability of the Research Instrument

The researcher's supervisor examined the questionnaire to ensure it included all relevant variables, thus confirming its content validity. To assess the instrument's reliability, Cronbach's alpha was used to evaluate its internal consistency. This test helps to determine the level of consistency across various items, ensuring that all parts of the questionnaire measure the same underlying construct.

3.6. Method of Data Analysis

The study employed Structural Equation Modelling (SEM) to explore relationships among variables such as sustainable innovation adoption, digital banking adoption, green financial products and business growth. After data cleaning and descriptive analysis, Confirmatory Factor Analysis (CFA) validated the measurement model. Model fit was assessed using Chi-square, CFI, and RMSEA indices. Path coefficients revealed direct and indirect effects among constructs, while moderation was tested using interaction terms.

4. RESULTS AND DISCUSSION

4.1. Partial Least Squares Structural Equation Modelling Results

4.1.1. Reflective Measurement Model Assessment

The reflective measurement model was assessed to ascertain the reliability and validity of the latent constructs, which are Sustainable Innovation Adoption (SIA), Digital Banking Adoption (DBA), Green Financial Products (GFP), and Business Growth (BG). Factor loadings were analysed in accordance with the strict criteria set by Hair et al. (2019) to make sure that every survey item adequately measured its construct. The factor loadings obtained were all in the range of 0.729 to 0.941, significantly higher than the 0.70 cutoff, as shown in Table 3. In order to ensure parsimony in the model and improve construct validity, some low-loading items, including SIA4, SIA6, GFP1, and BG4, were dropped in the final analysis. This shows that the remaining indicators strongly represent their latent dimensions and can be subsequently subjected to structural analysis.

Table 3. Reflective Measurement Model

CONSTRUCTS	SIA	DBA	GFP	BG
SIA1	0.862			
SIA2	0.829			
SIA3	0.932			
SIA5	0.820			
DBA1		0.940		
DBA2		0.941		
DBA3		0.795		
DBA4		0.856		
DBA5		0.902		
GFP3			0.902	
GFP7			0.736	
GFP8			0.869	
BG1				0.827
BG2				0.769
BG3				0.744
BG5				0.729

Note: SIA = Sustainable Innovation Adoption; DBA = Digital banking adoption; GFP = Green financial products; BG = Business Growth. **Note:** Items SIA4 (0.033), SIA6 (0.412), GFP1 (-0.032), GFP2 (0.231), GFP4 (0.042), GFP5 (-0.211), GFP6 (0.407), and BG4 (0.538) were removed from the analysis due to low factor loadings (i.e., loadings below the threshold of 0.60).

4.1.2. Internal Consistency, Reliability and Convergent Validity

Cronbach's Alpha, Dijkstra-Henseler rho (rho A) and Composite Reliability (CR) were also used to evaluate the psychometric properties of the model. The outcomes, as summarised in Table 4, show remarkably high internal consistency of all constructs. Reliability test results were especially strong with Cronbach's Alpha scores between 0.8515 and 0.9498, far exceeding the standard 0.70 level. Digital Banking Adoption recorded the best reliability of 0.9498, then Sustainable Innovation Adoption followed with a reliability of 0.9204. Convergent validity was established because the Total Variance

Extracted (AVE) of all the constructs exceeded the 0.50 standard recommended by Fornell and Larcker (1981). AVE scores were 0.5900 (Business Growth) and 0.7898 (Digital Banking Adoption) and show that the latent constructs explain a significant majority of their respective measures.

Table 4. Internal Consistency, Reliability, and Convergent Validity (AVE)

	Cronbach's Alpha	**rho_A**	**Composite Reliability**	**Average Variance Extracted (AVE)**
SIA	0.9204	0.9226	0.9202	0.7428
DBA	0.9498	0.9522	0.9493	0.7898
GFP	0.8744	0.8839	0.876	0.7034
BG	0.8515	0.8538	0.8517	0.5900

Source: Researcher Computation (ADANCO), 2025.

4.1.3. Discriminant Validity and Model Fit

The model showed high discriminant validity, which indicated that every construct is empirically unique and independent from the others. This was confirmed using the Heterotrait-Monotrait (HTMT) ratio; all the scores were less than the conservative 0.85 value, with a maximum correlation of 0.5088 between Sustainable Innovation Adoption and Business Growth. This distinctiveness was further supported by the Fornell-Larcker criterion, because the square root of AVE of each construct was more than any of its maximum correlations with other latent variables. In addition to construct validity, the model fit was evaluated using the Standardised Root Mean Square Residual (SRMR), which registered 0.04795. Because this value is comfortably less than the 0.08 limit, it is a good indication that the estimated model fits the observed empirical data and thus, gives a substantiated basis to the further structural analysis.

Table 5. Goodness of Fit Indices

Fit Index	**Saturated Model**	**95% HI**	**99% HI**
SRMR	0.04795	0.05831	0.07694
Duls	0.31268	0.46248	0.80519
dG	0.25360	1.06829	2.12844

Source: Extracted From ADANCO Version 2.4.

Table 6. Heterotrait-Monotrait Ratio (HTMT)

CONSTRUCT	**SIA**	**DBA**	**GFP**	**BG**
SIA	—			
DBA	0.3638	—		
GFP	0.0502	0.0332	—	
BG	0.5088	0.4598	0.2686	—

Source: Researcher Computation (ADANCO), 2025.

Table 7. Fornell-Larcker Criterion

CONSTRUCT	SIA	DBA	GFP	BG
SIA	0.7428			
DBA	0.1321	0.7898		
GFP	0.0024	0.0009	0.7034	
BG	0.2587	0.2103	0.0759	0.5900

Source: Researcher Computation (ADANCO), 2025.

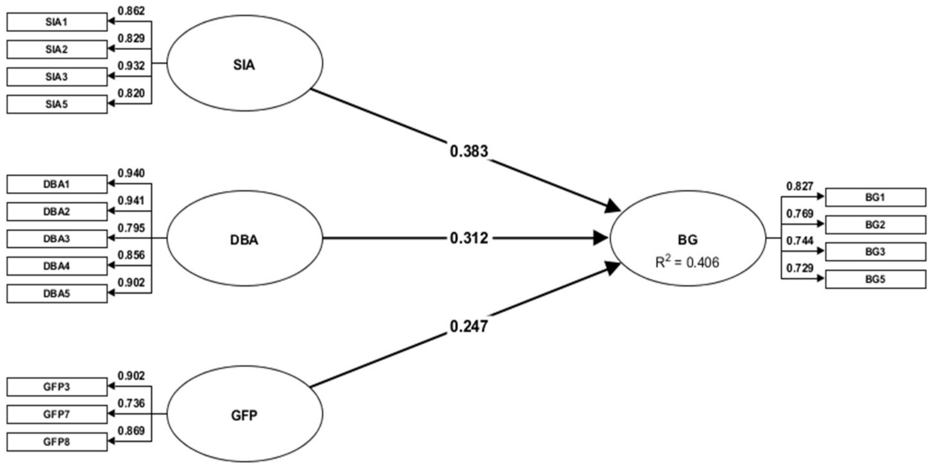

Figure 2. Bootstrapping Structural Model

Source: Extracted from ADANCO VERSION 2.4.

4.2. Structural Model Assessment and Hypothesis Testing

The analysis of the structural model provides the necessary empirical basis to accept or reject the research hypotheses through the path coefficients, T-statistics and significance levels. The bootstrapping results from ADANCO 2.4 indicate that all of the hypothesised direct paths are statistically significant at $p < 0.001$. As shown in Table 8, Sustainable Innovation Adoption (SIA) has the strongest effect on Business Growth (BG), with a path coefficient of 0.3831 ($t = 5.83$), which supports the rejection of $H0_1$. Similarly, Digital Banking Adoption (DBA) has a strong influence on growth, with a coefficient of 0.3120 ($t = 5.02$), which also justifies the rejection of $H0_2$. Green Financial Products (GFP) also exhibit a statistically significant positive effect ($\beta = 0.2474$, $t = 3.35$), rejecting the H03. The overall predictive effect of the model is substantial, denoted by an R^2 of 0.406; this implies that the combination of SIA, DBA, and GFP explain 40.6% of the business growth of Deposit Money Banks (DMBs) in Mainland Lagos. With the path estimates being significant and the model fitting satisfactorily (SRMR = 0.04795), the fourth null hypothesis ($H0_4$) is rejected, confirming that the interaction of these variables is a catalyst that drives institutional growth.

Table 8. Path Coefficient Estimates

Constructs	Coefficient	T-Statistics	P-Values
SIA → BG	0.3831	5.83	0.000
DBA → BG	0.3120	5.02	0.00
GFP → BG	0.2474	3.35	0.001
R^2			0.406

Source: Researcher Computation (ADANCO VERSION 2.4), 2025.

4.3. Discussion of Findings

The empirical findings represent a rigorous confirmation of the proposed structural model, and the observed path coefficients are consistent with the global scholarly literature in the area of institutional legitimacy and stakeholder engagement. The significant positive correlation between Sustainable Innovation Adoption and Business Growth ($\beta = .3831$, $p = .001$), which supports the nexus of innovation and performance found in international research. Indicatively, Hojnik and Ruzzier (2016) in the *Journal of Cleaner Production* posit that eco-innovation is one of the main sources of competitive advantage in new markets. Using the Institutional Theory, this shows that the Lagos-based Deposit Money Banks (DMBs) are reacting to the coercive and normative pressures outlined by DiMaggio and Powell (1983). Through internalisation of sustainability changes, banks outgrow the stage of ceremonial compliance and achieve institutional legitimacy in the global financial environment, which is increasingly subject to scrutiny.

Digital Banking Adoption also show a statistically significant driver of growth ($\beta = 0.3120$, $p = 0.001$), which confirms the findings of international research by Gomber et al. (2018), emphasising how institutional profitability is being reshaped by the transformation of financial technology, as also confirned from Shodiya et al. (2024), who reported that service innovation and new technology significantly influence the satisfaction and general growth of financial institutions in Nigeria. In the context of the Stakeholder Theory, this digital maturity is a proactive reaction to the Social License to Operate. The survival of a firm is based on its ability to satisfy the changing expectations of its stakeholders as determined by Freeman (2010). Empirically, Lateef and Ananwude (2024) note that, by addressing the infrastructural challenges that impede operations in Nigerian banks, stakeholders can trust the banks to meet the convenience and transparency requirements of the modern, technologically integrated banking population, leading to long-term business growth.

The Green Financial Products result ($\beta = 0.2474$, $p = 0.001$) shows a significant effect that confirms the global trend discovered by Flammer (2021) about the effectiveness of green corporate effort to signal quality to stakeholders. Even though this path had the lowest coefficient, the significance proves that the Nigerian market is beginning to emulate the ethical finance trends that have been seen to be practised in the developed economies. The positive relationship between these variables can be seen in the $R^2 = 0.406$, which gives empirical support to the idea of strategic alignment of sustainability initiatives. This synergistic effect implies that the combinations of these variables form a multi-dimensional defence mechanism. Such a comprehensive perspective is critical towards the realisation of resilience, as observed by Sossou and Moyegue (2024), that integration of such drivers allows the banks to become both an economic actor and an environmental custodian, thus filling the Nigerian Vacuum through practices that are consistent with the global principle of accountability.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The empirical study examined the effects of sustainable innovation on the business growth of Deposit Money Banks (DMBs) in Mainland Lagos, Nigeria. Based on the Institutional and Stakeholder theories, the research evaluated the key roles of sustainable innovation adoption, digital banking adoption, and green financial products offerings. The findings of PLS-SEM indicate that all three determinants have statistically significant impacts on institutional prosperity. The adoption of sustainable innovation became the most powerful driver, followed by digital banking and green financial products. These results show that technological integration and environmentally friendly services result in high-performance outcomes and increased customer loyalty in banks that prioritise these factors. The paper, therefore, concludes that to remain competitive, Nigerian banks should move beyond formal regulatory compliance and integrate sustainability into their strategy to remain competitive.

5.2. Recommendations

According to the empirical evidence, the following strategic actions are recommended for industry practitioners and policymakers:

1. Institutionalise Sustainable Innovation: Banks are advised to form Sustainability Committees at the board level that focus on integrating ESG measures into the main operations. The progress should be assessed based on the Nigerian Sustainable Banking Principles (NSBP) to ensure long-term institutional legitimacy.
2. Optimise Digital Infrastructure: In addition to cybersecurity, banks should also use digital platforms to automate paperless transactions. The practitioners should aim for a reduction in branch overheads by 20% annually by moving the high-volume retail services to mobile-first interfaces.
3. Targeted Green Marketing: DMBs ought to launch a product line, such as Green Savings or Solar Finance, with an interest-rate incentive. The use of data analytics to identify environmentally conscious groups will improve customer retention.
4. Implement a “Twin Transition” Strategy: Management should combine digital upgrade with environmental results. An example is the adoption of digital-only processing of loans, which will lead to a decrease in the carbon footprint, as well as an increase in the speed of operation.
5. Stakeholder-Driven Collaboration: Banks ought to work jointly with the Central Bank of Nigeria (CBN) to lobby in favour of Green Tax Credits. Clear sustainability reporting will also reduce the cost of capital as it will attract international ESG-based investment.

5.3. Contribution to Knowledge

The research contributes to the theoretical knowledge of sustainable innovation by offering empirical data on the Nigerian banking industry, which has previously been described as a research gap. Using an integrated Institutional and Stakeholder Theory approach, the study explains the convergence of external forces and stakeholder concerns, which leads to substantive, and not symbolic, sustainability actions. Methodologically, the research confirms the usefulness of PLS-SEM for sustainability evaluation of emerging markets, presenting a sound, repeatable model in further comparative studies. The results provide a theoretical framework for the financial performance of African continent institutions by illustrating a statistically significant transition between digital and sustainable drivers.

5.4. Limitations and Suggestions for Future Studies

The study has limitations which are worth exploring in future despite its contribution. Geographically, targeting Mainland Lagos limits the extrapolation of the results to microfinance or non-bank financial institutions in other states. Additionally, the cross-sectional data do not allow monitoring of long-term temporal trends. Future studies should have a longitudinal design to monitor the development of these initiatives over the next five to ten years. It would also be beneficial to develop the structural model to introduce a moderator, e.g., the organisational culture, digital literacy, or leadership style. Lastly, as the measurement model was improved by eliminating low-loading items (e.g. SIA4, GFP1, BG4), future research should develop more robust scales of these constructs in order to increase internal consistency across different industrial fields such as manufacturing and healthcare.

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