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JOURNAL HISTORY

The *Annals of Spiru Haret University. Economic Series* was established in the year 2000 through the initiative of two distinguished professors from Spiru Haret University: **Professor Ph.D. Gheorghe Zaman**, a corresponding member of the Romanian Academy, and **Professor Ph.D. Constantin Mecu**, one of the university's founders and a vice-rector.

Between 2004 and 2010, the journal was led by **Professor Ph.D. Constantin Mecu**, serving as editor-in-chief, with **Associate Professor Ph.D. Aurelian A. Bondrea**, also a vice-rector, serving as deputy editor.

In 2011, **Associate Professor Ph.D. Aurelian A. Bondrea**, then rector of the university, assumed the role of editor-in-chief and has continued to oversee the journal's development to date.

Initially published annually from its inception in 2000 until 2009, the journal transitioned to a new format in 2010. It adopted a quarterly publication schedule, exclusively in English, with editorial and peer-review processes meeting rigorous international standards.

In 2007, the *Annals of Spiru Haret University. Economic Series* received a B+ rating from the National Council of Research in Higher Education in Romania, recognizing it as a publication of significant scientific value. Since 2009, the journal has been indexed in prominent databases such as REPEC, SSRN, and Google Scholar.

Beginning in 2016, the journal embarked on a rebranding process aimed at enhancing its international visibility and expanding its indexing strategy in global databases.

Over the years, the journal has served as a platform for disseminating the research output of the academic staff of Spiru Haret University, which includes professors, associate professors, lecturers, and teaching assistants affiliated with six economics faculties, specialized departments, and the Central Scientific Research Institute. The journal also features contributions from academics, researchers, and doctoral students from universities and research institutions worldwide.

The journal's subject matter reflects its commitment to modernizing the teaching of economic sciences in higher education. Topics include, but are not limited to, marketing, management, finance, banking, accounting, auditing, international economic relations, trade, business, tourism, administrative data processing, political economy, commercial law, cybernetics, environmental economics, statistics, ethics in economics, insurance, advocacy and lobbying, economic philosophy, and econometrics.

The articles published in the journal address both theoretical and practical issues, focusing on the development and consolidation of the Romanian market economy, advancements in scientific and technical progress, and strategies for promoting these developments within the Romanian economy. Furthermore, the journal explores themes related to the evolving global economy, including globalization, economic integration, and Romania's participation in these processes. It also includes analyses of economic phenomena and trends from diverse regions worldwide.

The editorial team and scientific advisors comprise esteemed Romanian scholars, including members of the Academy, university professors, and experts from various economic and social fields. The journal's scientific committee includes reviewers affiliated with notable Romanian institutions such as the Academy of Economic Studies from Bucharest, West University of Timișoara, the National Scientific Research Institute for Labour and Social Protection, the Romanian Court of Auditors, the Body of Expert and Licensed Accountants of Romania (CECCAR), and the Institute of National Economy.

In addition, the journal benefits from the expertise of international academics and researchers from countries such as Australia, Azerbaijan, Algérie, Bosnia and Herzegovina, Bulgaria, France, Germany, Greece, Iceland, India, Indonesia, Italy, Lithuania, Northern Ireland, Norway, Poland, North Macedonia, Serbia, Russia, Slovenia, South-Africa, the Netherlands, Turkey, Ukraine, and the United Kingdom.

To meet the needs of its audience, the journal is distributed to libraries across Bucharest and Romania and is shared with universities and economic faculties internationally.

COVERAGE

The *Annals of Spiru Haret University. Economic Series* encompasses a broad spectrum of topics within the field of Economic Sciences. These include, but are not limited to, marketing, management, finance, banking, accounting, auditing, international economic relations, trade, business, tourism, administrative data processing, political economy, geopolitics, commercial law, cybernetics, environmental economics, statistics, ethics in economics, insurance, advocacy and lobbying, economic philosophy, and econometrics.

Each issue of the journal focuses on a specific theme, which serves as a subfield within the journal's overarching areas of coverage, offering an in-depth exploration of targeted topics.

FREQUENCY

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***The Annals of Spiru Haret University. Economic Series* is a dual-format academic journal, available both online and in print, dedicated to publishing high-quality research in the field of economics. The journal embraces an *Open Access* policy, ensuring that its content is freely accessible to a global audience, thereby fostering the broader dissemination and exchange of knowledge.**

Contributions to the journal are expected to present original research, employing either theoretical or empirical methodologies. Accepted submissions may take the form of research

articles, case studies, or essays. The journal welcomes submissions from professors, researchers, and doctoral candidates worldwide, striving to serve as a dynamic forum for scholarly discussion and a hub of diverse knowledge that benefits both educators and students.

To support the development of emerging scholars, the journal features a dedicated section for young researchers, particularly Ph.D. students, encouraging them to contribute their insights and perspectives to the academic discourse.

By adhering to these principles, the journal reaffirms its commitment to promoting high-caliber research and supporting the global exchange of economic knowledge.

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FOREWORD

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It is with great pleasure that we present Issue 3/2025 of the *Annals of Spiru Haret University. Economic Series*. This edition brings together a diverse collection of peer-reviewed contributions that examine recent developments across global and regional economies, human capital, management strategies, artificial intelligence and technological transformations, as well as key areas such as education, health, economy, and finance.

The period from July to September 2025 has been marked by an intricate interplay of geopolitical tensions, trade disruptions, and monetary policy adjustments, all of which continue to shape the trajectory of both developed and emerging economies.

According to the International Monetary Fund (International Monetary Fund. 2025, *World Economic Outlook, April 2025: A critical juncture amid policy shifts.*), global growth is projected at 3.0% for 2025, slightly above earlier forecasts. This revision reflects stronger-than-expected economic activity in the first half of the year, primarily driven by increased industrial production in Asia, accelerated fiscal spending in Europe, and partial recovery in the energy sector following price stabilization. However, downside risks remain significant according to IMF: global trade growth has slowed to 1.7% (International Monetary Fund. 2025. *World Economic Outlook Update, July 2025.*), largely due to new tariff measures in North America and persistent logistical bottlenecks in shipping channels.

Advanced economies exhibited contrasting patterns over the summer months. The United States saw its growth moderate to 1.4% as of Q3 2025, reflecting the dampening effects of restrictive trade policies and elevated input costs in manufacturing, according to Organisation for Economic Co-operation and Development.2025 - *OECD Economic Outlook, Interim Report September 2025*. Inflation remained sticky at 2.7% (OECD, 2025), fuelled by higher energy prices following intermittent disruptions in the Strait of Hormuz and ongoing supply chain constraints. Conversely, the Eurozone achieved a modest rebound, with growth of 1.0%, supported by increased public investment under the Next

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Generation EU program. Yet internal demand remained fragile, and consumer confidence indices pointed to ongoing caution among households (OECD, 2025).

Emerging economies presented a more heterogeneous picture. China maintained a moderate growth trajectory of 4.5%, underpinned by expansive fiscal measures and targeted incentives to boost private investment, despite frictions in international trade (IMF, 2025). Sub-Saharan Africa registered an average growth of 3.7%, reflecting stronger agricultural outputs and improved commodity prices; however, inflationary pressures and high debt levels constrained fiscal space (World Bank, 2025 - *Global Economic Prospects – June 2025*). Latin America, in contrast, faced sluggish expansion, with growth averaging 2.1% due to weak investment flows and persistent structural bottlenecks.

Regionally, Romania demonstrated notable resilience amidst global uncertainties. GDP grew by 2.4% year-on-year in Q2 2025, the strongest increase since Q3 2023 (Romania Insider, 2025. *Romania confirms 2.4% y/y GDP growth in Q2*.). Quarter-on-quarter growth, adjusted for seasonal and calendar effects, reached 1.2%, supported by industrial production and domestic consumption. Inflationary pressures were moderate, with a 0.45% rise in June compared to May and a year-to-date rate of 3.1% (Romania Insider, 2025. *Inflation in Romania reaches 5.7% in June, up from 5.45%*.). The unemployment rate edged slightly upward to 5.8% in May, following a brief low of 5.7% in April (Trading Economics, 2025. *Romania unemployment rate*.), while the trade deficit narrowed to EUR 2.37 billion in June, reflecting stronger exports and lower imports relative to the previous year (Trading Economics, 2025. Romania trade gap narrows in June).

The interconnections between inflation, trade, and growth were particularly evident during this period. For example, countries experiencing stronger currency appreciation, such as Poland and the Czech Republic, managed to partially offset imported inflation but saw slower export growth, highlighting the delicate balance policymakers must maintain between competitiveness and price stability (OECD, 2025). Similarly, high energy costs in the Eurozone contributed not only to elevated inflation but also to slower industrial output, demonstrating the transmission of external shocks across sectors and borders.

Overall, the interval from June to September 2025 underscores a global economic landscape marked by uneven recovery, persistent inflationary pressures, and pronounced regional disparities. Developed economies face the dual challenge of stimulating growth while containing inflation, whereas emerging and developing economies must navigate structural vulnerabilities alongside external shocks. In this context, transparent governance, sound fiscal policies, and adaptive trade and monetary strategies remain essential for sustainable development.

The articles presented in this issue provide rigorous analyses of these multifaceted dynamics, offering insights into policy implications, managerial strategies, and the evolving interdependencies of the global economy. Their contributions are particularly relevant for scholars, policymakers, and practitioners seeking to understand the mechanisms that underpin economic resilience and vulnerability in an increasingly interconnected world.

This issue opens with a series of articles focusing on **management, strategy, and leadership**, offering both theoretical insights and practical approaches to contemporary organizational challenges.

Michael Sean KOORAPETSE and Wilfred Isioma UKPERE, in their article *"Alternative Dispute Resolution Framework in an Emerging Economy: An Exploration of Challenges and the Way Forward,"* examine the role and effectiveness of alternative dispute resolution mechanisms in emerging economies. The authors highlight legal, procedural, and cultural challenges that may affect implementation and propose practical strategies to enhance mediation and arbitration processes, thereby supporting stability and predictability in business environments.

Elitsa PETROVA and Ivan MALAMOV, in *"Empirical Study of the Understanding of Basic Management Phenomena, based on the Example of Military Formations in the Republic of Bulgaria,"* investigate fundamental management principles through the context of military organizations. Their study explores how leadership and coordination strategies can be applied in hierarchical and structured environments and offers insights into the factors influencing managerial decision-making and the potential transfer of these practices to other organizational sectors.

Marcellinus Chukwuka IHIONU, in *"Management Challenges in Private Medical Diagnostic Centres,"* analyses the difficulties faced by managers in private healthcare centres, including resource allocation, quality assurance, personnel management, and client relations. The author proposes adaptive strategies to enhance operational efficiency and improve service delivery.

Christopher Chiedozie IKEOGU, Refus Helon CHAMA, Vivian Ngozi IKEOGU, and Wilfred Isioma UKPERE, in *"Impact of Road Transportation Management Strategies on Customer Satisfaction: Evidence from Public Road Transport in an Emerging Economy,"* explore how management strategies influence customer satisfaction in public transportation. Using empirical evidence, they demonstrate that effective planning, operational control, and communication with users directly affect service quality perception and customer loyalty.

Larisa TRIFONOVA, in *"Internationalization of Higher Education in the Context of the Modern Educational Environment,"* examines the strategies higher education institutions adopt to achieve internationalization, including attracting international students and faculty, developing partnerships, and promoting mobility programs. The article emphasizes the importance of aligning managerial approaches with global trends and socio-economic dynamics to ensure institutional competitiveness and relevance.

The issue continues with a set of articles dedicated to **artificial intelligence and technology**, exploring their transformative impact on organizational decision-making, human resource management, ethics, and supply chain optimization.

Elena GURGU, Sabyasachi RATH, Amarnath PADHI, Milena ILIC, Valentin KULETO, Stefano AMODIO, Melina ALLEGRO, Vladimir RADIVOJEVIC, Victor-Nicholas GURGU, Luminița Viorica PISTOL, Silvia-Rucsandra RASCU-PISTOL, Raluca Ileana ZORZOLIU, Marina DRAGAN, Radu PODGOREANU, Dragos FRASINEANU, Geanina Ionela DRAGAN-SIMBOTIN, and Luciana Raluca BUFALINO, in their article *"Strategic Intelligence: Leveraging Generative AI for Decision-Making and Innovation in Modern Organizations,"* examine how generative artificial intelligence can enhance strategic decision-making and foster innovation in contemporary organizations. The study highlights the integration of AI tools in managerial processes, the improvement of operational efficiency, and the creation of innovative solutions across sectors.

Ganiyu Oluwaseyi QUADRI, Emmanuel Abiodun AIKULOLA, and Wilfred I. UKPERE, in *"Role of Artificial Intelligence in Strategic Human Resource Management: A Comparative Analysis of Selected Banks,"* investigate the impact of AI on human resource practices within the banking sector. The authors provide a comparative analysis, demonstrating how AI can optimize recruitment, talent management, performance evaluation, and workforce planning in a strategic context.

Nevenka Popović ŠEVIĆ, Aleksandar ŠEVIĆ, Milica SLIJEPČEVIĆ, and Tatjana Mamula NIKOLIĆ, in *"Ethical Considerations, Attitudes and Behaviour Towards Artificial Intelligence: The Comparison Between Users and Non-Users,"* explore the ethical challenges and behavioural patterns associated with AI adoption. The study contrasts the perspectives of users and non-users, emphasizing the need for transparent AI governance, responsible implementation, and informed decision-making in organizations leveraging AI technologies.

Kelechi Enyinna UGWU, Babatunde Eriwa OYELADE, Lazarus OKOROJI, and Wilfred Isioma UKPERE, in *"Leveraging Blockchain Technology for Optimized Supply Chain Management,"* analyse how blockchain solutions can enhance supply chain transparency, traceability, and efficiency. The authors discuss practical implementations and strategic benefits, highlighting the potential of blockchain to reduce operational risks and improve coordination across complex supply networks.

The issue further presents a series of articles dedicated to **human resources and talent management**, focusing on employee engagement, compensation, retention, and workplace behaviour.

Victor Ajibayo ADEYEYE, Modupe Silifat KASUMU, Cecilia Aina OGUNWOLE, and Victoria Francess IHEANACHO, in their article *"Influence of Talent Management Practices on Employee Engagement,"* examine how effective talent management strategies impact employee motivation and commitment. The authors analyse practices such as career development, recognition programs, and performance management, demonstrating their role in fostering higher engagement and organizational loyalty.

Calvin MABASO and Zanele MABASO, in *"Impact of Pay Satisfaction on Talent Retention: A Qualitative Study,"* investigate the relationship between employee satisfaction with remuneration and the retention of top talent. Through qualitative insights, the study highlights the importance of fair compensation, transparent reward systems, and recognition in maintaining a motivated and stable workforce.

Kafiu Sunkanmi ODUSANYA, in *"Relationship of Compensation Management with Job Satisfaction,"* explores how structured compensation systems influence overall job satisfaction. The article emphasizes the strategic role of compensation policies in improving employee morale, reducing turnover, and enhancing organizational performance.

Wilfred Isioma UKPERE, Jeremy MITONGA-MONGA, and Nyasha MAPIRA, in *"Factors Triggering Employee Theft in the Workplace: Narratives of Employees,"* analyse the causes of workplace theft from the employees' perspective. The study identifies organizational, social, and psychological factors contributing to such behaviours and provides recommendations for management to mitigate risks and promote ethical workplace practices.

The issue also includes a series of articles focusing on **education and student development**, addressing entrepreneurial skills, motivation, and strategies for enhancing student potential and well-being.

Hameed Omotola OJODU, Victor Ajibayo ADEYEYE, and Fredrick Omotayo AWOMUSE, in their article *"Entrepreneurship Education and Unemployment Reduction Among Graduates,"* explore the role of entrepreneurial education in equipping graduates with the skills necessary to create employment opportunities. The authors examine how entrepreneurship programs can mitigate graduate unemployment, foster innovation, and contribute to broader economic development.

Nozipho Nompumelelo MZINYANE, Kgomotso MTSHATSHENI, and Carol MOTALE, in *"Unlocking Student Potential: Strategies for Success, Sustained Motivation and Enhanced Well-Being,"* investigate approaches to maximize student engagement, motivation, and overall well-being. The article highlights practical strategies for educators and institutions to cultivate a supportive learning environment, develop essential skills, and encourage sustained academic and personal growth among students.

The issue concludes with a series of articles focusing on **health, social well-being, and human capacity development**, examining productivity, organizational efficiency, mental health interventions, and personality diagnostics in educational and healthcare settings.

Nnenna E. UKANDU, Enyioma C. IWUANYANWU, Wilfred I. UKPERE, and Francis E. MONYEI, in their article *"The Effect of Human Capacity Training on the Productivity of Healthcare Centres,"* investigate how targeted training programs for healthcare personnel influence operational productivity. The study highlights the importance of investing in human capital to improve service delivery, staff competence, and institutional performance.

Nnenna E. UKANDU, Patrick Awok MBUM, Wilfred I. UKPERE, Goodluck Ndubuisi IWUCHUKWU, and Francis E. MONYEI, in *"The Effect of Incremental Change Management Strategy on the Efficiency of Health Centres in an Emerging Economy,"* explore how gradual, structured change management approaches can enhance the efficiency of healthcare centres. The authors provide evidence of how stepwise organizational reforms improve workflow, resource utilization, and patient outcomes.

Milica ČOLOVIĆ and Vladimir MITIĆ, in *"Mental Health, Religion, and Economic Outcomes: Evaluating CBT Interventions in Serbia,"* examine the intersection of psychological well-being, religious practice, and economic performance. The study assesses cognitive-behavioural therapy interventions and their influence on productivity and social functioning, highlighting the broader economic relevance of mental health initiatives.

Anelia NIKOLOVA, in *"Diagnostics and Analysis of Personality Characteristics at The Vasil Levski National Military University of Bulgaria,"* analyses personality traits within a military academic context. The article emphasizes the significance of personality diagnostics for leadership development, training effectiveness, and the optimization of human potential in structured organizational environments.

The issue concludes with a series of articles addressing **economics and finance**, examining auditing expectations, human capital, and industrial output growth.

Amor GUIRA, in the article *"Auditing Expectation Gap: An Empirical Study,"* investigates the discrepancy between the expectations of financial statement users and the actual performance of auditors. The study provides empirical evidence on the causes and consequences of the expectation gap, highlighting implications for transparency, accountability, and trust in financial reporting.

Sunday Anderu KEJI, in *"Human Capital Migration, Human Capital Skills and Industrial Output Growth: A Dynamic System GMM Approach,"* explores the relationship between the migration of skilled labour, the development of human capital, and the growth of industrial production. Using a dynamic system generalized method of moments (GMM) approach, the study demonstrates how shifts in human capital availability affect industrial output, productivity, and long-term economic performance.

This issue also features a contribution in the category of **Energy Economics and Public Policy**. **Grace A. ADDAH**, in *"Effect of Fuel Subsidy Removal on the Nigerian Economy: Implication for the Household,"* explores the economic impact of removing fuel subsidies in Nigeria, with a particular focus on household welfare. The study highlights how subsidy withdrawal affects food prices, living standards, and poverty levels, providing evidence-based insights and policy recommendations to mitigate economic hardship.

This comprehensive issue highlights the diversity, methodological rigor, and global relevance of current research in management, Ai and technology, human resources, education, health, and economics. Each contribution provides insights into contemporary challenges, offering practical and theoretical guidance for scholars, policymakers, and practitioners navigating an increasingly interconnected and complex global economy.

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Together, the articles in Issue 3/2025 affirm the *Annals of Spiru Haret University. Economic Series* as a dynamic platform for academic excellence, interdisciplinary research, and global thought leadership. We extend our sincere gratitude to all authors, reviewers, and the editorial team for their dedication to scholarly rigor and their invaluable contributions to this edition.

We trust that this issue will stimulate dialogue, inform policy, inspire innovation, and provide meaningful insights into contemporary challenges in management, technology, human resources, education, health, and economics. It is our hope that the research presented here will not only advance academic understanding but also serve as a practical guide for policymakers, practitioners, and scholars navigating complex global economic landscapes.

We would be delighted to know that you found Issue 3/2025 both informative and inspiring. We encourage your continued engagement with our journal and invite you to contribute your own research to upcoming issues.

Please visit our website at **http://anale-economie.spiruharet.ro/** if you've liked our articles. We invite you to expose your ideas in new studies released by us.

Finally, if you found Issue no. 3/2025 being interesting, inspiring and informative I strongly invite you to address your comments and suggestions at *ashues@spiruharet.ro* and, of course, to submit your own paper via online submission system, using the following link: **http://anale.spiruharet.ro/index.php/economics/login**.

Research is the breath of the future. Let's shape the world together!

Associate Professor Ph.D. Elena Gurgu
Deputy Editor-in-Chief
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ACADEMIA PAPERS

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ALTERNATIVE DISPUTE RESOLUTION FRAMEWORK IN AN EMERGING ECONOMY: AN EXPLORATION OF CHALLENGES AND THE WAY FORWARD

Michael Sean KOORAPETSE[1], Wilfred Isioma UKPERE[2]
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Abstract
The objective of this study was to thoroughly examine and understand the challenges and constraints that limit the efficiency of Botswana's labour dispute resolution system. In order to provide a strong basis for this study and sharpen the research problem, a literature review was undertaken to examine existing work in the field. The study employed a qualitative approach, using an exploratory research design framed within an interpretivist phenomenological strategy. Purposive sampling was applied to select fifteen (15) participants from Botswana and the broader SADC region, with primary data collected through virtual semi-structured interviews conducted mainly via online platforms to accommodate geographic diversity and ensure wide regional participation. The findings of the study suggests that the current framework faces several critical challenges, such as insufficient political will, limited independence, inadequate funding, under utilization of technology, and a lack of skilled personnel. These shortcomings result in delays and inefficiencies, while the system's placement within the government structure further raises questions about its neutrality and possible conflicts of interest. Drawing from the key findings, the study recommends the following measures to strengthen Botswana's dispute resolution system: creating an independent dispute

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resolution body, ensuring firm political support, providing sufficient financial resources, integrating technology strategically, and organising training for the system`s personnel.

Keywords: *labour dispute resolution framework, alternative dispute resolution*

JEL Classification: J52; J53

1. Introduction

Alternative Dispute Resolution (ADR) encompasses all methods for resolving conflicts outside of traditional court litigation (Pretorious,1991). The term ADR has been extensively utilised since the 1970s, however its precise definition has consistently been debated. In its original definitions, the term "alternative" in ADR referred to activities that replace the court system (D'Ambrumenil,1998) but the acronym ADR has also been defined as Additional Dispute Resolution and Assisted Dispute Resolution. Over time, it has also come to represent Appropriate Dispute Resolution and Amicable Dispute Resolution to signify these intended results (Cheung, 2006). ADR is increasingly favoured as a quicker, more efficient, and economical substitute for conventional court litigation. A key advantage is its cost-effectiveness, as mediation and other alternative dispute resolution processes are generally far less expensive than litigation, alleviating financial constraints on the parties involved.

Mackie et al. (2000) recall that Alternative Dispute Resolution (ADR) was initially established in the United States in the early 1980s due to discontent with the delays, expenses, and deficiencies of the litigation process. Nonetheless, it only commenced receiving attention in the late 1980s and early 1990s. The principal ADR methods include, fact-finding, negotiation, mediation, conciliation, arbitration, and, in certain settings, hybrid mechanisms like conciliation-arbitration (Rwodzi, 2018). Negotiation often constitutes the initial phase, entailing direct communication between conflicting parties to achieve a consensual solution. Should negotiation be unsuccessful, subsequent actions typically entail the involvement of an impartial third party. Mediation and conciliation both involve a neutral facilitator who assists the parties in communicating and identifying mutually agreeable alternatives; however, the mediator or conciliator does not enforce a conclusion (Bushe, 2019). In contrast, arbitration is a formal procedure in which a neutral third party (the arbitrator) evaluates both parties' arguments and renders a binding ruling. Arbitration, albeit less confrontational than court action, is more formal than mediation or conciliation (Rwodzi, 2018).

The modern ADR system in Botswana was profoundly influenced by the extensive legal amendments implemented in 2003 and 2004, especially those pertaining to the Trade Disputes Act, which regulates the resolution of industrial disputes. The study focusses on the system's challenges and bottlenecks since its inception around that time, as well as whether the time has come to establish an independent dispute resolution structure.

1.1 Background of the study

Botswana historically relied on indigenous systems, such as the Kgotla, for dispute resolution prior to the formal introduction of its Alternative Dispute Resolution (ADR) framework. Within the Kgotla, community elders mediated disputes, striving for consensus-based decisions, a practice indicative of a deeply embedded cultural inclination towards dialogue and reconciliation (Briscoe, 2007).

The current Alternative Dispute Resolution (ADR) framework is crucial for the efficient resolution of labour disputes and for alleviating the burden on the formal court system. Predominantly governed by the Trade Disputes Act, this framework integrates both mediation and arbitration mechanisms to address workplace conflicts. Since 2003, the framework has been formally institutionalized under the supervision of the Department of Labour and Social Security, with a dedicated panel of mediators and arbitrators established to facilitate its processes. The Industrial Court further provides essential adjudicative support within this framework (Koorapetse, 2011).

While this system has assisted with the resolution of disputes for decades, its effectiveness is increasingly being questioned due to persistent challenges such as inadequate resources, institutional delays, inefficiently managed processes, and a scarcity of skilled personnel (Bushe, 2019). The most significant issue, however, is the perceived lack of independence and impartiality within the system. This concern is particularly pronounced when state-employed officers mediate disputes involving government departments or politically sensitive issues, which consequently erodes the confidence of all parties in the impartiality of the process (Mpho, 2017). Consequently, there is increasing interest in investigating the feasibility of establishing an independent dispute resolution framework to improve the system's efficiency, fairness, and overall trustworthiness.

1.2 Problem Statement

The current ADR framework in Botswana, despite its structured design, is perceived to have minimal impact in practice. The system faces several significant

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challenges, including a lack of political will and autonomy, limited financial resources, restricted technological integration, and a shortage of adequately qualified personnel. The bottlenecks have resulted in an increasing backlog of unresolved cases, reduced confidence in the dispute resolution process, and limited access to justice, especially for vulnerable and marginalised workers. This poses an important question: can the establishment of an independent dispute resolution structure provide a feasible solution to these long-standing challenges, and how will such a reform affect the future of labour justice in Botswana?

1.3 Research Questions

Given the above research problem, the study's research question is:

- What are the challenges confronting Alternative Dispute Resolution system in Botswana?

1.4 Research Objectives

The study's objective is**:**

- To clearly comprehend the challenges confronting Alternative Dispute Resolution system in Botswana.

2. Literature Review

This section provides the relevant literatures to support the current study.

2.1 Alternative Dispute Resolution

Alternative Dispute Resolution (ADR) refers to any non-litigious method of conflict resolution, including negotiation, mediation, conciliation, and arbitration. These processes, individually or collectively, form the core of ADR, offering alternative approaches to resolve disputes without relying on the often-inefficient court system (Bushe, 2019).

ADR can be traced to a period before western civilization. In those times there were genuine efforts to ensure fairness between disputing parties. According to Antoine (2012), the notion of resolving disputes through negotiation rather than coercion has deep historical roots, tracing back to Ancient Greece. The philosopher Aristotle advocated arbitration as a preferable method over litigation. He believed that arbitrators were more inclined to consider the principles of fairness and equity in their decision-making, whereas judges were bound to interpret and apply the law strictly as written. This perspective underscores Aristotle's preference for more flexible and just resolutions in conflict situations.

In many African societies, Alternative Dispute Resolution (ADR) practices predated colonial legal systems, often emerging from the informal mediation of

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conflicts by respected community elders. This historical context highlights a long-standing tradition of resolving disagreements outside formal court structures. In Botswana, for instance, Briscoe (2007) identified a strong cultural inclination towards mediation and consensus-building, deeply rooted in the traditional "kgotla" system. The "kgotla" refers to community gatherings or a public meeting place where disputes are openly discussed, debated, and resolved through dialogue and mutual agreement, rather than through adversarial processes. This inherent cultural disposition suggests foundational acceptance and effectiveness of non-litigious dispute resolution methods within the country.

2.2 Historical overview of the Botswana ADR framework

In 1884, the territory now known as the Republic of Botswana came under colonial administration and was designated the Bechuanaland Protectorate. During this period, the majority of the Batswana engaged in small-scale agriculture and livestock rearing as their primary means of livelihood (Bushe, 2019). Beginning in the 1930s, the colonial government initiated the enactment of various laws aimed at regulating labour within the Protectorate. Notably, one such legislative development was the promulgation of the Trade Union and Trade Dispute Proclamation of 1942, which effectively legalised the establishment and functioning of trade unions in the territory (Koorapetse, 2011).

In the late 1960s, following Botswana's independence, the newly formed government enacted several key pieces of legislation. These included the Trade Unions Act, which governed the registration of trade unions; the Trade Dispute Act, designed for resolving industrial disputes; and the Regulation of Wages and Conditions of Employment Act of 1969, which established working conditions (Cooper, 1985). Around 1982/83, after Botswana's diamond-backed economy experienced substantial growth, the country undertook a comprehensive overhaul of its existing labour laws. This revision included the Employment Act and the introduction of more extensive versions of the Trade Disputes Act and the Trade Unions Act, the latter of which was expanded to also cover Employer Organisations (Koorapetse).

2.3 Challenges associated with the current Botswana ADR System

According to Koorapetse (2011) the 2004 amendment to the Trade Disputes Act marked a significant shift in Botswana's approach to conflict resolution by introducing Alternative Dispute Resolution (ADR) mechanisms, specifically through the establishment of a panel of mediators and arbitrators. This was the first formal incorporation of ADR into the country's legal framework. However, the

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implementation of ADR immediately encountered several challenges. These initial "bottlenecks" were evident from the outset and significantly hampered its effectiveness.

Key among these challenges included, limited budget, which referred to the insufficient financial resources that are allocated to the Ministry of Labour and Home Affairs to run the ADR system (Bushe, 2019). There is also a problem of unskilled workforce whereby the mediators and arbitrators are not skilled and sometime unqualified. According to a report by the Centre of Employment and Labour Relations at the University of Melbourne (2006), the mid-term evaluation of labour systems in Southern Africa found that Botswana was one of six countries in the region with ineffective Alternative Dispute Resolution (ADR) systems, primarily due to the lack of qualified personnel at its agencies. Lack of Autonomy is another challenge that has bedeviled the Botswana ADR system from the beginning. The ADR processes were not sufficiently independent, potentially leading to perceptions of bias or undue influence, particularly given their administration within existing governmental structures. Koorapetse (2011) argues that a lack of independence in a dispute resolution system can create hierarchical problems. For instance, when a high-ranking Permanent Secretary represents the employer in a mediation session presided over by a lower-ranking government mediator, there is a risk that the senior official's authority could influence the process and undermine the mediator's impartiality.

3. Research Methodology

The study's methodology was qualitative, adopting an exploratory research design anchored within an interpretivist phenomenological research strategy. This approach was chosen intentionally to facilitate an in-depth exploration of the participants lived experiences and subjective understanding. As noted by Trivedi & Shukla (1998), the primary focus of an exploratory design is to delve into previously uncharted territory, with the goal of understanding the "why" of an event rather than simply comparing or analyzing it. The use of interpretivist phenomenology was particularly suited for this purpose, as it goes beyond a simple description of the essence of phenomena to explore the deeper significance of these experiences for individuals, considering their historical, cultural, and social contexts (Barrow, 2017).

For this study, a purposive sampling technique was used to select fifteen individuals from both Botswana and the broader SADC region. This method allowed for the strategic identification of participants who possessed specific knowledge and expertise pertinent to the research objectives. The primary data collection method was virtual, semi-structured interviews, conducted mainly through electronic media to accommodate the participants' diverse geographic locations and ensure broad regional engagement. Semi-structured interviews were considered an appropriate method for this research because according to Bodilenyane et.al (2024) they provide the flexibility to explore respondents' views in depth while still maintaining a structured framework to guide the discussion. As Woods (2006) notes, a key advantage of semi-structured interviews is their ability to incorporate open-ended questions. This not only keeps the conversation focused on the central research theme but also facilitates a richer, more meaningful dialogue between the interviewer and the participant. This flexibility allowed the interviewer to elaborate on or clarify responses and to use prompts that encouraged respondents to provide more comprehensive and detailed answers. After the data collection was completed, the study used the thematic method for data analysis, particularly Braun and Clarke's (2006) six-step thematic analysis process. According to Masejane et.al (2025) to properly evaluate and understand participants' experiences, it's very helpful to use thematic analysis because it allows researchers to identify codes, themes, and recurring patterns within qualitative data. To further aid the analysis the computer software ATLAS.ti was also utilized. As noted by Eriksson and Kovalainen (2015), ATLAS.ti is a powerful and comprehensive solution for qualitative researchers. It is known for its user-friendly interface, robust handling of various data formats, and advanced features for coding, visualization, and collaboration. The software's reliable support has established it as a trusted platform in both academic and professional qualitative research.

4. Research Findings

During the interviews, participants consistently highlighted several key challenges confronting the dispute resolution system in Botswana, which I categorized in themes below.

Theme 1: Inadequate and unqualified staff

One of the themes that emerged when participants were probed about challenges that confront Botswana's dispute resolution system, was its inadequate and unqualified staff. Three participants held this view, as shown below.

Participant Thato B stated:

"Full-time mediators are handling a lot of cases per day (about 4) this lessens the quality of mediation. This happens because they are thin on the ground".

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Uyapo B, in alignment with Thato B's view, asserted that the dispute resolution system is rendered ineffective by "inadequate and unqualified staff." He claimed:

"Lack of autonomy, inadequate and unqualified staff, no specialist courts at the Industrial Court and the(re) should be an Industrial Court of Appeal."

Mochuchisi B concurred with both Uyapo B and Thato B and posited:

"The challenges are predominantly operational as most clients are unable to access the services easily. These issues include lack of adequate and skilled staff, telephone lines are rarely picked up or followed through, printing and faxing services are not always available. The delays in the justice system are unacceptable. There is generally lack of information".

Based on the above responses, it is obvious that some participants believe that the main challenge that Botswana's dispute resolution system faces is inadequate and unskilled staff. If the individuals who mediate and resolve disputes do not possess the required skills, competence, and training, then the entire process can become inefficient and ineffective. Effective resolution of disputes in the labour sector necessitates a profound comprehension of labour legislation, adept negotiation abilities, and the capacity to maintain impartiality when dealing with intricate issues. Inadequate staffing can lead to bottlenecks in the system, causing delays to resolve disputes and to keep parties in a state of uncertainty. This can result in prolonged conflicts, disrupted work environments, and reduced productivity. These issues undermine trust in the system, as both employees and employers might perceive it to be unreliable or unfair. The next sub-section considers the second emergent theme, namely limited budget.

Theme 2: Limited budget

Limited budget emerged as another theme that is perceived as a challenge for Botswana's dispute resolution system. Four participants pointed out that the lack of a dedicated funding allocation for the dispute resolution system in Botswana is a major issue. In this regard, Phenyo B remarked:

"Challenge No.1 would be a limited budget to finance the system; if the Ministry is given enough financial resources, the dispute resolution mechanism would have its own budget and be able to improve".

This was echoed by Thato B, who asserted:

"Ummh…. for the system to improve, the issue of staffing should be attended to quickly because it compromises the quality of mediation. The other issue is that the system should be given enough financial resources….in other words, I think the budget given to the Ministry of Labour and Home Affairs should be increased to cater for more funding on the labour dispute resolution function".

Comparing the dispute resolution system with other SADC countries in terms of financial resources, Temo B stated:

"There are countries such as Eswatini, Lesotho and South Africa with dispute resolution systems that are independent. The advantage of this is that the system has its own budget; it does not compete with other Departments in the Ministry".

Mary S, who is from a country that already has an independent dispute resolution system, averred:

"Ummh…. CMAC is 100% subvented by the government, and if the government has a fiscal challenge, CMAC is affected too. So, the budget is limited, and we do not cover all our programmes".

In a nutshell, the findings indicate that adequate financial resources are crucial to ensure the system's efficacy. The participants' responses here indicate that the absence of a dedicated government budget for the labour dispute resolution system, would result in insufficient funding for the system's operations. Even with independent dispute resolution systems, more funding beyond government subsidies is required for them to effectively implement all programs associated with a country's dispute resolution system. The next sub-section presents the next theme, namely lack of autonomy/independence as a challenge for Botswana's dispute resolution system.

Theme 3: Lack of autonomy

Lack of autonomy emerged as a theme linked to challenges that face Botswana's dispute resolution system. According to some participants, the fact that the alternative dispute resolution (ADR) system in Botswana is not an independent institution threatens its legitimacy and independence. Hence, Thato B noted:

"As long as the system is still under government, there is going to be a problem of senior government officials not taking it seriously".

This view was further buttressed by Priya S when asked a follow-up question on what can be done to address challenges within the dispute resolution system:

"Create a department that is autonomous. Commissioner should not be under the Ministry. The short-term solution might be for a Commissioner of Labour having a backbone and not succumbing to whatever the government wants".

The above findings indicate that the system's limited independence is a significant issue that impairs its effectiveness. Using the mediation process as an example, biased mediation may likely occur since the officers may be hesitant to make decisions against their employer (the government) during mediation. This hinders the ability of alternative dispute resolution (ADR) to achieve independence, impartiality, and fairness.

Theme 4: Limited use of technology

This theme emerged as a challenge to the dispute resolution system. In recent years, the use of technology in dispute resolution processes has become increasingly popular owing to its ability to enhance efficiency, accessibility, and transparency. However, some participants mentioned that the inadequate utilisation of technology caused the inefficiency of Botswana's dispute resolution system. In this respect, Phenyo B, stated:

"The second issue I see is the one related to technological needs – there is limited use of technology in the system; yet, in this era of technological advancements, the system could be benefitting from the use of electronic case management, online mediation/arbitration…. etc".

Electronic case management systems, as mentioned by Phenyo B, could also be used to improve efficiency while reducing administrative burdens. In concordance with the statement by Phenyo B, Temo B observed that technology can be utilised to manage and streamline the entire dispute resolution process. This includes filing cases, managing documents, scheduling, and communicating. Hence, he remarked:

"Another way of improving the system can be through digitalization - this will help customers to better access the dispute resolution services throughout the country".

Temo B's observation highlights a crucial aspect of an efficient dispute resolution system, namely accessibility. By utilising technology, individuals may conveniently access the system from any location. Joseph S declared that the use of technology is a key factor in a dispute resolution system. In this regard, he said:

"Minimal use of technology is a major challenge in most dispute resolution systems. In order for the Botswana system to be effective, there is a need to increase the usage of technology in the system, e.g., electronic case management. This would be helpful as the system will be fully functional and would have a reach to assist a lot of people in the country".

As pointed out by the three participants above, the absence of technological use in a labour dispute resolution system is a significant obstacle to its efficacy. Technology is essential in today's digital era for streamlining procedures, enhancing communication, and ensuring timely resolutions. Essentially, the lack of using technology not only slows down and reduces the effectiveness of resolving labour disputes but also limits the system's ability to adjust and enhance itself.

Theme 5: Lack of political will by government

The government's lack of political will emerged as another theme tied to the challenges that face Botswana's dispute resolution system. The government's lack of political will impede the functioning of a labour dispute resolution system significantly. Political will is required to ensure that labour dispute resolution systems are adequately supported, enforced, and continuously improved. When the government does not prioritise or commit to strengthening these mechanisms, various problems might occur.

Several participants, including Thapelo B, highlighted the need for the government's political will. He remarked:

"Umhh… political will and government commitment are needed to make sure that the country marches forward to make the dispute resolution system independent".

Additionally, Thato B stated:

"Finally, it appears that Botswana is moving towards having an independent dispute resolution system, as the establishment of such a body has now been included in the most recent labour law modifications. The simple reason why it has not been achieved so far is clearly a lack of political will by the government".

Similarly, Lucky B also noted:

"Perhaps another batch of benchmarking exercises will be organised again in countries with similar socio-political and economic systems. The last time such exercises were organised, nothing came out, chiefly because of lack of political will".

The above findings clearly indicate that some participants deem the lack of political will to be a significant impediment towards establishing an autonomous mechanism to resolve disputes. Moreover, law enforcement and dispute resolution outcomes may be weak or inconsistent without strong political support. Governments may fail to hold employers accountable for unfair labour practices or to sufficiently support workers' rights, creating a sense of bias and injustice. This undermines the legitimacy of the dispute resolution process and may discourage workers from seeking redress, knowing that the results may not be implemented or respected

5. Discussion of Findings

The current study was able to identify some hurdles that impede the effectiveness of the Botswana dispute resolution system. These challenges are Inadequate & unqualified staff, limited budget, lack of autonomy, limited use of technology and lack of political will by the government.

Inadequate and unqualified staff: Staff without appropriate qualifications or experience typically require more time to process cases, resulting in a backlog of unresolved disputes. This can impose a burden on the entire dispute resolution system. In addition to generating a backlog of cases, unqualified staff members may lack essential knowledge around labour laws, regulations, and best practices. Three of the participants mentioned inadequate and unqualified staff as one of the challenges that Botswana's dispute resolution system faces. Hence, Uyapo B stated:

"Lack of autonomy, inadequate and unqualified staff, no specialist courts at the Industrial Court and no Industrial Court of Appeal".

Similarly, Thato B noted:

"Full-time mediators are handling a lot of cases per day (about 4 cases); this lessens the quality of mediation. This happens because they are thin on the ground".

Concurring with Uyapo B and Thato B, Mochuchisi B posited:

"The challenges are predominantly operational as most clients are unable to access the services easily. These issues include lack of adequate and skilled staff, telephone lines are rarely picked up or followed through, printing and faxing services are not always available. The delays in the justice system are unacceptable. There is generally (a) lack of information".

Extant literature supports the study's current findings. The issue of a lack of qualifications became a glaring one, especially post-2003 following the Trade Disputes Act, which established a panel of mediators and arbitrators. Briscoe (2007) highlights the scarcity of qualified and impartial mediators in Botswana. He opines that this shortage limits access to effective mediation services, particularly for individual employees who cannot afford private services.

To emphasize the issue of unqualified staff, Koorapetse (2011) mentions a disparity in the qualifications and experience of ADR personnel in Botswana compared to those in South Africa. Although industrial relations officers in Botswana appointed post-2005 have degrees, these qualifications are not specifically in labour relations, and prior experience is not required. In contrast, South Africa's CCMA utilizes a hierarchical system for commissioners, with appointments contingent upon particular qualifications and experience in labour dispute resolution. This indicates a more structured and specialised method for ADR staffing in South Africa, perhaps influencing the effectiveness and competence within their system (Koorapetse, 2011).

Furthermore, a 2006 study conducted by the Centre of Employment and Labour Relations at the University of Melbourne identified a substantial lack of resources in dispute resolution agencies across six Southern African nations, including Botswana. This deficiency impeded effective dispute resolution, as staff were inadequately trained to execute their responsibilities. In Botswana at the time, the Department of Labour and Social Security failed to appoint a sufficient number of

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mediators and arbitrators despite the requirements of the Trade Disputes Act that mandated the establishment of such a panel. This inaction further exacerbated challenges that Botswana's ADR system faced, highlighting a critical gap between legislative intent and practical implementation (Centre of Employment and Labour Relations at Labour-University of Melbourne, 2006). This shows how unprepared Botswana's government was for the ADR system when it was introduced in 2003.

One cannot ignore the assertion that inadequate and unskilled staff is a problem in Botswana's labour dispute resolution system, as demonstrated by the respondents and extant literature. The current study suggests that staff shortages and a lack of specialised skills, particularly in mediation and labour law, hinder the efficiency and effectiveness of the dispute resolution process. This is further corroborated by expert opinions and research findings that highlight the scarcity of qualified mediators, the lack of prior experience required for industrial relations officers, and qualifications disparities between Botswana and South Africa's ADR personnel. Collectively, these findings paint a clear picture of a system grappling with inadequate and unskilled staff, thus hindering its ability to effectively and efficiently resolve labour disputes. The next sub-section focuses on limited budget as another challenge that faces Botswana's dispute resolution system.

Limited budget: Some of the study's participants highlighted the lack of a dedicated funding allocation for Botswana's dispute resolution system as a major issue. It is likely that the system faces limitations owing to inadequate funding. These limitations include resource constraints such as staffing levels, training opportunities, and access to essential tools and technology. Without sufficient funding, the system struggles to function optimally, leading to delays, inefficiencies, and reduced effectiveness to resolve disputes. In line with this, Phenyo B remarked:

"Challenge No.1 would be a limited budget to finance the system; if the ministry is given enough financial resources, the dispute resolution mechanism would have its own budget and be able to improve".

Koorapetse (2011) notes that Botswana's dispute resolution system is insufficiently funded, limiting its operational capacity. This scarcity of resources affects various aspects of the system, including staffing levels, training opportunities for mediators and arbitrators, and the availability of necessary materials and infrastructure to support dispute resolution processes.

The current budget allocation process involves the Ministry of Labour and Home Affairs distributing funds to its departments, with the Department of Labour and Social Security receiving a meagre amount. This amount is then further divided

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among its units, leaving the dispute resolution unit with limited resources. The limited funding can severely impact the system's effectiveness, hindering its ability to address labour disputes adequately and contribute to a fair and balanced labour environment in Botswana. In this respect, Thato B asserted:

"Ummh….for the system to improve, the issue of staffing should be attended to quickly because it compromises the quality of mediation. The other issue is that the system should be given enough financial resources; in other words, I think the budget given to the Ministry of Labour and Home Affairs should be increased to cater for more funding on the labour dispute resolution function".

O'Donovan and Oumarou (2013) state that for a labour dispute system to be effective, it requires sufficient funds to pay both capital and recurring expenses. Ample space, equipment, and personnel (both professional and support), including communication and computer networks, are all part of this.

Temo B took the matter further when he compared Botswana's system to that of other Southern African countries that already have independent dispute resolution systems. He stated:

"There are countries such as Eswatini, Lesotho and South Africa with dispute resolution systems that are independent. The advantage of this is that the system has its own budget; it does not compete with other departments in the ministry".

South Africa's labour dispute resolution system is widely viewed as being more adequately resourced compared to many others in the SADC region. The Commission for Conciliation, Mediation and Arbitration (CCMA) is a well-developed and well-funded institution that offers a systematic framework, which addresses labour disputes through both conciliation and arbitration processes. The CCMA has been recognized for its efficiency in handling disputes and has systems in place for training mediators and arbitrators. This investment in resources contributes to its effectiveness compared to the systems in other countries in the region.

From the above perspective, one cannot disagree with the notion that a well-resourced dispute resolution system is critical for its effectiveness. The evidence presented from Botswana's labour dispute resolution system clearly illustrates the detrimental impact of a limited budget. A dispute resolution system with adequate resources is fundamental to delivering fair, efficient, and accessible justice to all its stakeholders. The identified resource constraints, including insufficient staffing levels, inadequate training opportunities for mediators and arbitrators, and limited access to essential tools and technology, directly hinder the system's ability to function optimally. These constraints lead to delays in processing disputes, compromised quality of mediation, and reduced overall effectiveness, as highlighted by the study's participants such as Phenyo B and Thato B. Without sufficient funding, the system struggles to attract and retain qualified personnel, provide ongoing professional development, and invest in modern infrastructure, thereby perpetuating a cycle of inefficiency and ineffectiveness.

Therefore, a well-resourced dispute resolution system not only enhances its operational capacity, but also fosters greater trust and confidence among users. Investing in resources is not merely an expenditure; it is a strategic investment that promotes social justice, maintains labour stability, and fosters a conducive environment for economic growth. It is imperative that governments prioritise adequate funding for dispute resolution systems to ensure their effectiveness and sustainability. The next sub-section discusses lack of autonomy as a challenge for Botswana's dispute resolution system.

Lack of autonomy: The current study found that there is a significant concern around the lack of autonomy in Botswana's dispute resolution system. Some of the participants highlighted that the ADR system's integration within the government's structure, rather than being an independent institution, may undermine its legitimacy and impartiality. This lack of independence raises questions about potential conflicts of interest and influences, which could compromise the fairness and neutrality of the dispute resolution process. In this regard, Thato B commented: *"As long as the system is still under government, there is going to be a problem of senior government officials not taking it seriously"*.

To resolve labour disputes, the International Labour Organisation (ILO) stresses the need for separate and autonomous statutory entities. To maintain objectivity and justice in dispute resolution, these bodies should function independently of government, businesses, and labour unions. Government control of dispute resolution processes increases the likelihood that they will be influenced politically, which can diminish their efficacy (O'Donovan and Oumarou, 2013).

Many dispute resolution systems rely on the state for funding, but this does not prevent those systems from attaining operational independence. For example, in South Africa, although the CCMA is funded by the national government, it is necessary for it to operate within the parameters of the Public Finance Management Act (PFMA). That is, according to the CCMA strategic Plan 2020/21-2024725 (2022) it must maintain operational autonomy in its decision-making processes while adhering to rigorous financial management and accountability standards. When probed about how Botswana's system can improve upon its effectiveness, Priya S stated:

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“Create a department that is autonomous. Commissioner should not be under the ministry. The short-term solution might be to be for a Commissioner of Labour having a backbone and not succumbing to whatever the government wants”.

Priya S suggested that a good example of a body would be the Advisory, Conciliation and Arbitration Service (ACAS), a UK agency that was founded in 1976 to provide independent and impartial support for both employers and employees to resolve workplace disputes. ACAS operates at arm's length from the government and is overseen by a tripartite council comprising representatives from both sides of industry, as well as independent experts. This structure allows ACAS to address workplace issues in a neutral manner that both employers and employees trust (ILO, 2019).

Hence, both the participants' perspectives, as well as those of supporting literature, espousing that a lack of autonomy significantly undermines the effectiveness of Botswana's dispute resolution system, cannot be disputed. By situating the ADR system within the government’s apparatus, the current structure inherently compromises its impartiality, creating a perception of bias. As observed by Thato B, the system's credibility is compromised when it is under government control, resulting in senior officials failing to regard it as a significant matter. This absence of autonomy is in direct opposition to the International Labour Organization's (ILO’s) recommendations for independent statutory bodies, which are designed to operate without government, business, or union interference, guaranteeing impartiality and fairness.

Although state funding is frequently required, it should not obstruct operational independence. The CCMA in South Africa, funded by its national government, serves as an example of how to maintain decision-making autonomy while adhering to rigorous financial management standards, thereby preserving its integrity. Practical pathways for Botswana to improve its dispute resolution system are provided by Priya S's recommendation to establish an autonomous department and to remove the commissioner from ministry supervision, as well as to draw inspiration from the UK's ACAS model. These measures would foster a more neutral and trusted environment, which is crucial to achieve equitable outcomes and to nurture harmonious labour relations. The following sub-section discusses limited use of technology as another challenge for Botswana’s dispute resolution system.

Limited use of technology: In recent years, the application of technology in dispute resolution processes has gained popularity for its capacity to improve efficiency, accessibility, and transparency. However, the current study has found that inadequate use of technology in Botswana's dispute resolution system has led to its lack of effectiveness. Some of the participants decried the limited use of technology in the system. Temo B averred:

"Another way of improving the system can be through digitalization - this will help customers to better access the dispute resolution services throughout the country".

Using Information Technology (IT) in an arbitration process results in cost reductions and productivity gains for all involved. IT may also enhance the effectiveness of certain aspects of an arbitral procedure. This is because tasks can be completed, or objectives can be achieved in a manner that may not have been feasible without it. For example, in the absence of IT, costs and time constraints may result in the renouncing of certain actions such as hearing a witness or experts who may not be readily available, particularly in fast-track procedures (Kaufmann-Kohler & Schultz, 2005). Still, on the issue of the limited use of technology, Phenyo B shared:

"The second issue I see is the one related to technological needs; there is limited use of technology in the system. Yet, in this era of technological advancements, the system could be benefitting from the use of electronic case management, online mediation/arbitration…. etc".

Online Dispute Resolution (ODR) is gaining traction as a viable alternative to traditional, in-person Alternative Dispute Resolution (ADR). The UK uses consensus mediation.com, an inaugural conflict resolution agency that provides online mediation services. ODR offers significant potential to increase access to justice and to resolve disputes both efficiently and effectively. As technology continues to evolve and more people become comfortable with online interactions, ODR is likely to become an increasingly important part of the dispute resolution landscape (Manevy, 2001). Joseph S also noted that the use of technology is a key factor in a dispute resolution system. In this respect, he declared:

"Minimal use of technology is a major challenge in most dispute resolution systems. In order for the Botswana system to be effective, there is a need to increase the usage of technology in the system, e.g., electronic case management. This would be helpful as the system will be fully functional and would have a reach to assist a lot of people in the country".

Phenyo B and Joseph S highlighted a compelling case for Botswana to implement an electronic case management system, citing the successful example of the CCMA in South Africa. The CCMA's Case Management System (CMS) serves as a comprehensive national administrative database, providing a live record of all cases filed since its establishment in 1996. This system comprehensively captures details for every case, regardless of jurisdictional origin, and is further enhanced through integration with other digital tools such as a web-based dispute management system (Bhorat et al., 2009).

Hence, the fact that the limited use of technology in Botswana's labour dispute resolution system is detrimental to its functionality, cannot be repudiated. The current study's findings indicate that the system's inefficiencies and inaccessibility stem directly from the inadequate adoption of digital tools. Participants like Temo B, Phenyo B and Joseph S emphasized the urgent need for digitalization, electronic case management, and online dispute resolution (ODR) to enhance service delivery and to broaden reach throughout the country. The absence of these technologies hinders the system's ability to provide efficient and effective resolutions, particularly when compared to places like South Africa and the UK that have embraced digital advancements for dispute resolution. The next sub-section discusses the lack of political will by government as a challenge for Botswana's dispute resolution system.

Lack of political will by government: The current study has identified a lack of political will as one of the challenges that can severely undermine even the most well-designed labour dispute resolution system. A couple of the participants claimed that political will is indeed important for the system to work well. One of them, Thapelo B, remarked:

"Umhh…political will and government commitment are needed to make sure that the country marches forward to make the dispute resolution system independent".

To preserve legitimacy and trust, dispute resolution bodies must be impartial and autonomous. Lack of political will, can erode this, resulting in a lack of confidence in the system and biased decisions (Solomon & Woocher, 2010). Lack of political will may result in a lack of innovation, bias, inadequate access, weak enforcement, and underfunding of labour dispute resolution systems. It is imperative that the government demonstrates a strong commitment towards ensuring that these systems are accessible, effective, and fair to all. Lucky B also noted that lack of political will was at the centre of the Botswana government's inaction to change the labour dispute resolution to a better one. In this respect, she said:

"Perhaps another batch of benchmarking exercises will be organised again in countries with similar socio-political and economic systems. The last time such exercises were organised, nothing came out, chiefly because of lack of political will".

Bushe (2019) found that South Africa had a legislative and political commitment to the development of an effective ADR system, as evidenced by the establishment of an independent body that administers ADR as a labour dispute settlement mechanism. The said author's 2019 study compared the efficacy of South Africa's dispute resolution system to that of neighbouring countries, namely Botswana and Zimbabwe.

Hence, one cannot refute the fact that a lack of political will and government commitment can impede the proper functioning of a dispute resolution system significantly. The impartiality and autonomy of dispute resolution bodies are crucial to maintain legitimacy and public trust. As highlighted above, a lack of political will, can erode this impartiality, leading to biased decisions and a lack of confidence in the system. This deficiency manifests in various ways, including a lack of innovation, inadequate access, weak enforcement, and underfunding. The Botswana example illustrates how inaction, stemming from a lack of political will, can hinder progress despite efforts such as benchmarking exercises. In contrast, South Africa's commitment, demonstrated through the establishment of an independent body for ADR, underscores the positive impact of political will on the effectiveness of dispute resolution mechanisms. Therefore, a strong governmental commitment is essential to ensure that these systems are accessible, effective, and fair for all stakeholders. The next section discusses lessons learnt from other countries in the SADC region.

6. Limitations of the study

Due to the timing of the study, which occurred during and after the COVID-19 pandemic, the researcher opted to abandon the initial plan of conducting physical face-to-face interviews. Instead, the study utilized semi-structured interviews conducted remotely, primarily via video interviews on the Zoom platform. The final sample consisted of fifteen individuals from an original pool of twenty. Of these, twelve agreed to be interviewed via Zoom, while the remaining three opted to respond to the interview guide questions via email.

7. Recommendations

- **An urgent need to establish an independent dispute resolution system:** The current administration of Alternative Dispute Resolution (ADR) processes by the Ministry of Labour and Home Affairs poses challenges to perceptions of neutrality, particularly in disputes involving government employees where the Ministry acts as both administrator and employer representative. This dual role raises legitimate concerns about impartiality. Transferring the administration of ADR, including mediation, conciliation, and arbitration, to an independent body would

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enhance trust in the fairness and objectivity of the system, ensuring greater confidence among all parties—trade unions, employers in both the public and private sectors, and individual employees.

- **Provision of adequate financial Resources**: In Botswana, the absence of a dedicated budget for the dispute resolution mechanism is unsustainable and severely limits its effectiveness. Without financial autonomy, the ADR system cannot attract skilled staff, provide training, maintain facilities, or utilize technology to improve efficiency. Consequently, this lack of resources results in delays, reduced quality of resolutions, and diminished credibility of the entire system.
- **Need to improve staff qualifications and training**: Improving the qualifications and expertise of personnel in the dispute resolution system is vital for enhancing its effectiveness. Specialised and continuous training for mediators and arbitrators should focus on labour laws, regulations, and global best practices. A highly skilled workforce will lead to more efficient case management, higher-quality resolutions, and greater stakeholder confidence in the system's fairness and competence.
- **Technological Integration**: The integration of technology into the labour dispute resolution system can significantly modernize its operations and improve efficiency. Advanced electronic case management systems streamline processes such as filing, document submission, hearing schedules, and outcome tracking. This enhances the overall speed, effectiveness, and reliability of dispute resolution.

8. Conclusion

The study's findings provide a compelling argument for creating an independent dispute resolution system in Botswana. The existing framework is currently hindered by numerous significant issues, including a shortage of political commitment, a lack of autonomy, budget limitations, minimal use of technology, and a scarcity of qualified personnel. These factors contribute to delays and inefficiencies, and the system's integration within the government structure raises concerns about impartiality and potential conflicts of interest. Establishing an autonomous body, like successful models in other SADC nations, would enable Botswana to streamline dispute resolution, improve administrative efficiency, and cultivate more robust industrial relations. This new system would also align the country with the best international practices, reinforce the rule of law, and ultimately fortify its labor justice framework.

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EMPIRICAL STUDY OF THE UNDERSTANDING OF BASIC MANAGEMENT PHENOMENA, BASED ON THE EXAMPLE OF MILITARY FORMATIONS IN THE REPUBLIC OF BULGARIA

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Abstract
The article presents a study of the phenomenon of management and its related phenomena – leadership and command, their understanding and perception at the military formations of the Bulgarian Army. The current scientific research uses two approaches in its conduct (non-empirical resea rch approach and empirical research approach). The results of the statistical analysis are visually presented with the emphasis on the general profile, which was formed on the basis of a study of the individual perception profile of 4 different military formations in the Bulgarian Army with a total of 160 participants.

Keywords: *management, management related terms, Bulgarian army*

JEL Classification: M12, M14, M50, H56, D23, L29

Introduction

In general, management is a process of influence by rulers on the ruled, by managers on subordinates, to achieve the set goals, while coordinating the joint activity of people. More specifically, management is a conscious impact of the managing subject (person) on the managed object (people, natural environment, etc.) in connection with the management and coordination of ongoing processes in

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order to achieve the intended (predicted, planned) results in the shortest possible time deadlines, with the least undesirable deviations. (Penchev 2002)

According to the Cambridge Dictionary and the Collins Dictionary, the verb „manage“ has the following meanings: to manage to do something or cope with something despite obstacles, especially if it is difficult to achieve; to be responsible for controlling or organizing someone or something; to be able to use something effectively; to invest in something or someone (Cambridge Dictionary 2024); to bear responsibility; to administer; to exercise control; to continue despite difficulties; to control your own behaviour and the behaviour of others; to make a person to do what you wish; to achieve goals; to lead and direct; to achieve (Collins Dictionary 2024).

Literature review

The concept of leadership appeared in 1821 with the meaning of position of leader, commander. Its meaning was enriched at the end of the 19th century and was associated with characteristics necessary to be a leader and the ability to lead (Online Etymology Dictionary 2001 – 2024). According to the Cambridge Dictionary, leader is: someone who wins during a competition or situation where people compete; a person who manages or controls other people because of their ability or position; a person who controls a group, country or situation; a person who is responsible for a group, country, situation (Cambridge Dictionary 2024).

There are numerous theories and practices directed at leadership as follows: the Great Man theory of leadership; trait theory of leadership; behavioural leadership theories; contingency or situational theories; attributive model of leadership; management/leadership role theories; functional leadership; charismatic leadership; transactional and transformational leadership; integrated psychological theory of leadership; leadership in conditions of human multitudes; authentic leadership; leader-follower exchange theory; servant leadership; shared leadership; adaptive leadership; ethical leadership; spiritual leadership, etc. They all mediate and give a better overview of the phenomenon, but at the same time create a disordered/ordered little chaos in our understandings and perceptions.

The term „command“ has its origins in the 1300s and means „to have authority “, derived from the Latin language „commendare“ – „to recommend, to entrust to, to commit, to trust “. The intransitive meaning of the term „command“ is rooted in the meaning – „to act or have power, to exercise supreme authority“ and dates to the end of the 14th century. From the late 14th century, it is also used as „within one’s influence“. The meaning „control, right to rule, and to compel obedience“ is from the mid-15th century. The meaning „control, mastery of a situation“ is from the 1640s. The meaning of the term „commander“ under the wording of „one who has the power or authority to command“ dates back to the early 14th century. The meaning „commander-in-chief, commander of all the armies of a state“ dates from the 1650s. (Online Etymology Dictionary 2001 – 2024)

Command is defined as ordering the performance of subsequent actions based on the possession of authority; to verify, to entrust to, to commit to; control, mastery of a situation (Online Etymology Dictionary 2001 – 2024); the act of having authority, to give orders (Cambridge Dictionary 2024). In this sense, invariably over the years we associate command with the idea of power and obedience, of management, of ruling, of giving orders by the person in power, i.e from the commander, for unquestioning obedience and execution of orders from subordinates. In the phenomenon of command, we find power, authoritarian rule and even a hint of dictatorship. The idea of care, concern for subordinates, concern for their needs and wants is rather left in the background. However, it is of scientific interest whether the main group, which is subordinate to the command phenomenon, and in which the principle of unity of command is unconditionally respected, namely the military system, perceives the command phenomenon in this way.

When examining the overall security and defense management system, it should be emphasized its extremely strong influence on the work of other subsystems of society, the importance of its management in situations of real threats to a country's national security, and the possibility of creating sufficient flexibility in the security and defense management system to allow adaptation to changes in the environment. All this requires a good and reliable knowledge of the management system by the human resources working in the military formations and an understanding of the main phenomena accompanying military management activities. Of research interest is how exactly the phenomena and concepts of management, leadership, and command are perceived and understood. What connection do respondents make between these basic concepts? Do respondents distinguish these phenomena or merge them? What content do they put into them from the perspective of their accumulated experience in the field of security and defense?

Methodology and implementation of the study of the phenomenon of management in the military structures of the Bulgarian Army

What is the attitude of officers, sergeants and soldiers of different military formations with different and radically different activities and commitments, such as the four selected, in relation to the management, leadership and command paid in the army? Four military formations from the Bulgarian Army with radically different tasks and activities, functions, as well as radically different regions, from the point of view of their location and positioning, were selected.

The research uses two approaches in its implementation – the non-empirical research approach and the empirical research approach. The non-empirical approach is realized by carrying out theoretical research on the problems of management and commanding and includes a historical and etymological review of the available positions on the problem and an attempt to adapt and develop new theoretical positions using existing knowledge. The empirical approach has been implemented by using an interrelated complex of qualitative and quantitative data presentation and interpretation.

The current scientific research brings out new scientific knowledge and includes experimental work by observing the objects under study, documenting the methodology used, analysing results and drawing conclusions from the experiment, while offering a new interpretation of some known scientific facts. It is carried out by collecting qualitative data in the form of written responses, which aim to study the military structures management in the Bulgarian army. The respondents are officers, sergeants and soldiers in 4 different military structures in the Bulgarian army.

The methodology of the study includes as the main research method used for data collection and analysis the conduct of an experiment conducted in a real environment, which is supported by the in-depth interview method. The questions in the questionnaire aim to:

- to show the personal views and understandings of individual target groups regarding the studied phenomena;
- to show the similarities and differences in understandings of the studied phenomena;
- to enable the discovery of the most frequently repeated and typical understandings of the target groups.

Set as an open question, the question that registers the perception of the management phenomenon gives the respondents the opportunity not only to express their views, but also not to be pre-or subjectively directed to specific ones, which achieves one of the reliability goals of empirical research – to present themselves as much as possible of number of objective answers.

Respondents by military formation as follows:

Total – 160 respondents, of which:

- Military Formation 1 (MF1) – 40 respondents;
- Military Formation 2 (MF2) – 40 respondents;

- Military Formation 3 (MF3) – 40 respondents;
- Military Formation 4 (MF4) – 40 respondents.

The breakdown of respondents by military rank is as follows: total – 160 respondents, of which officers – 40 respondents; sergeants – 40 respondents; and soldiers – 80 respondents. The selected representative sample consists of an equal number of respondents from the surveyed military formations, and given the fact that soldiers form the significant part of a military formation, their number of respondents is even larger.

The diagnostic stage of the research has been implemented in the period 2020 – 2021. The main stage of the research has been implemented in the period 2021 – 2022. The final stage of the research has been implemented in the period 2023 – 2024. Statistical analysis and visualization of the results is performed. To visualize the respondents, the graphs and diagrams are used, which contains four groups to represent the participation of each of the four military formations.

The research of the perception of the management phenomenon and its relative phenomena in the military structures in the Bulgarian army – results

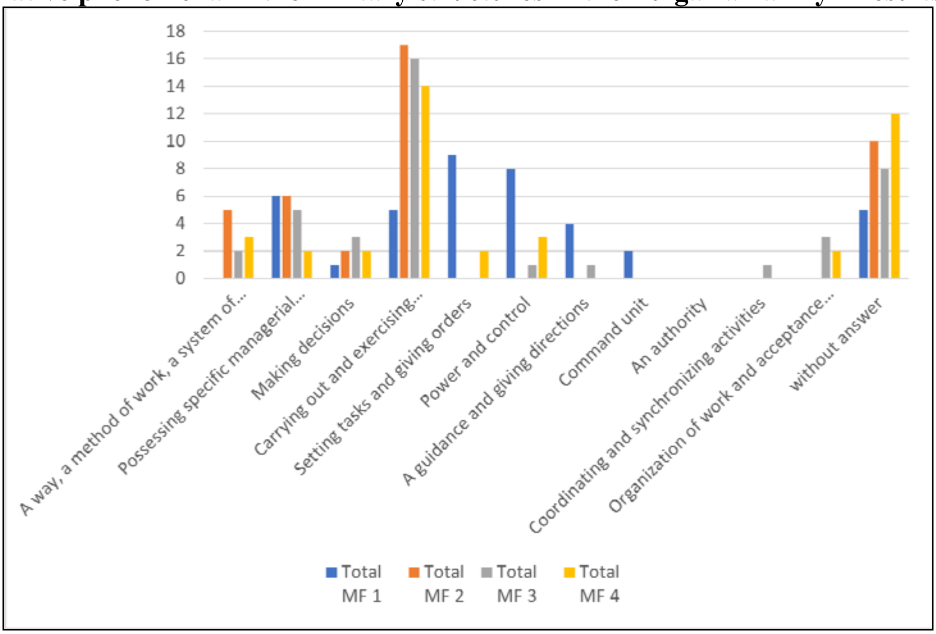

Fig. 1. What do you associate the management phenomenon with? – an open question with possibilities for multiple answers – all respondents, all MF

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The diagrams show the respondents' answers to the questions: „What do you associate the management phenomenon with?", „What do you associate the leadership phenomenon with?", „What do you associate the command phenomenon with?". A statistical analysis was made on individual military formations and common to the entire studied statistical population.

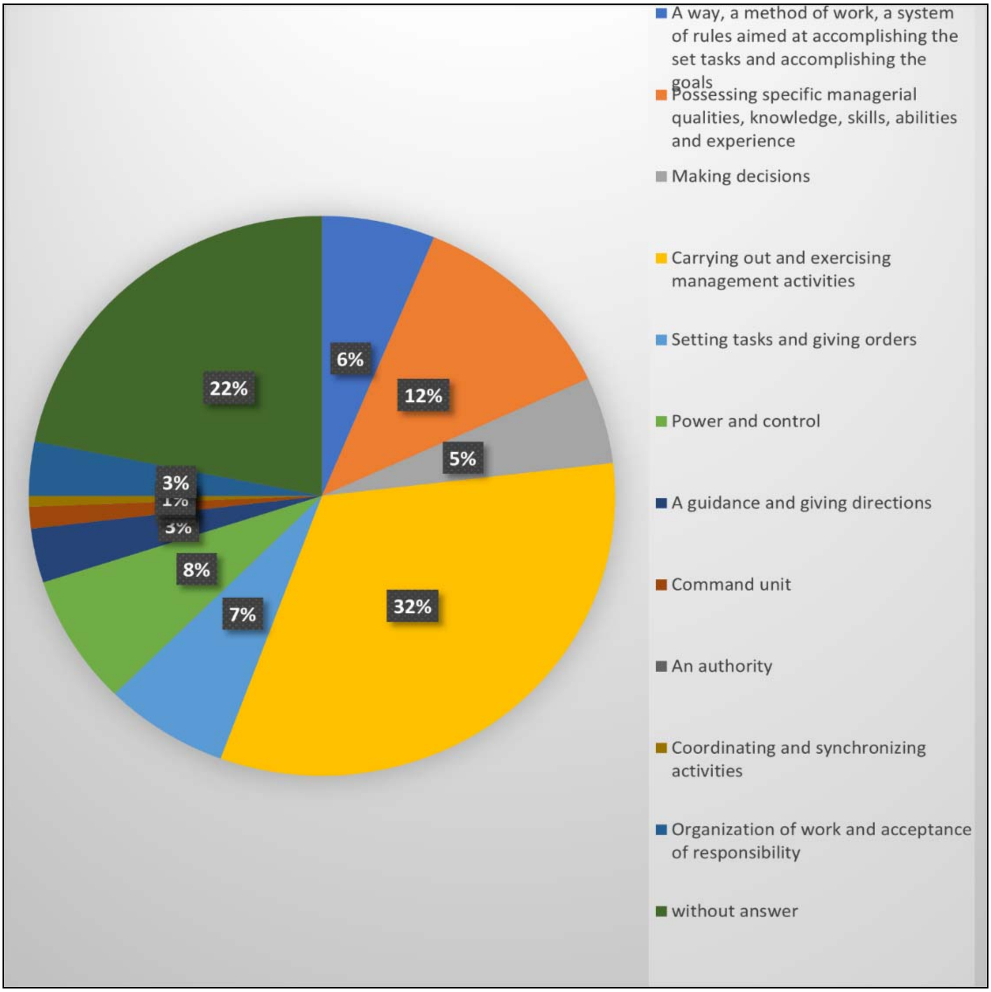

Fig. 2. What do you associate the management phenomenon with? – an open question with possibilities for multiple answers – percent representation, all respondents, all MF

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The majority of respondents from MF 1 associate the management phenomenon mainly with setting tasks and giving orders. According to the majority of respondents from MF 2 the management is carrying out and exercising management activities. The majority of respondents from MF 3 associate the management phenomenon also with carrying out and exercising management activities. The majority of respondents from MF 4 associate the management phenomenon also with „carrying out and exercising management activities (Fig. 1.).

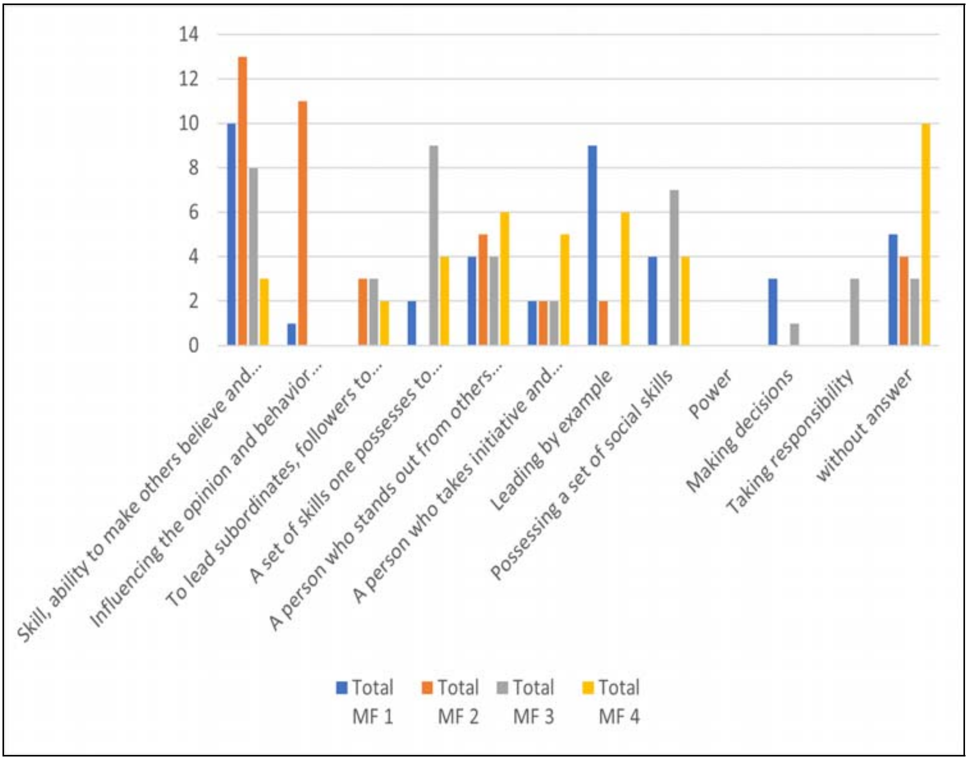

Fig. 3. What do you associate the leadership phenomenon with? – an open question with possibilities for multiple answers – all respondents, all MF

The responses of all 160 respondents from all 4 military formations summarize as follows that the management is: carrying out and exercising management activities – 32%; without answer – 22%; possessing specific managerial qualities, knowledge, skills, abilities and experience – 12%; power and control – 8%; setting

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tasks and giving orders – 7%; a way, a method of work, a system of rules aimed at accomplishing the set tasks and accomplishing the goals – 6%; making decisions – 3%; a guidance and giving directions – 3%; organization of work and acceptance of responsibility – 3%; organization of work and acceptance of responsibility – 3%; coordinating and synchronizing activities – 1%; (Fig. 2.).

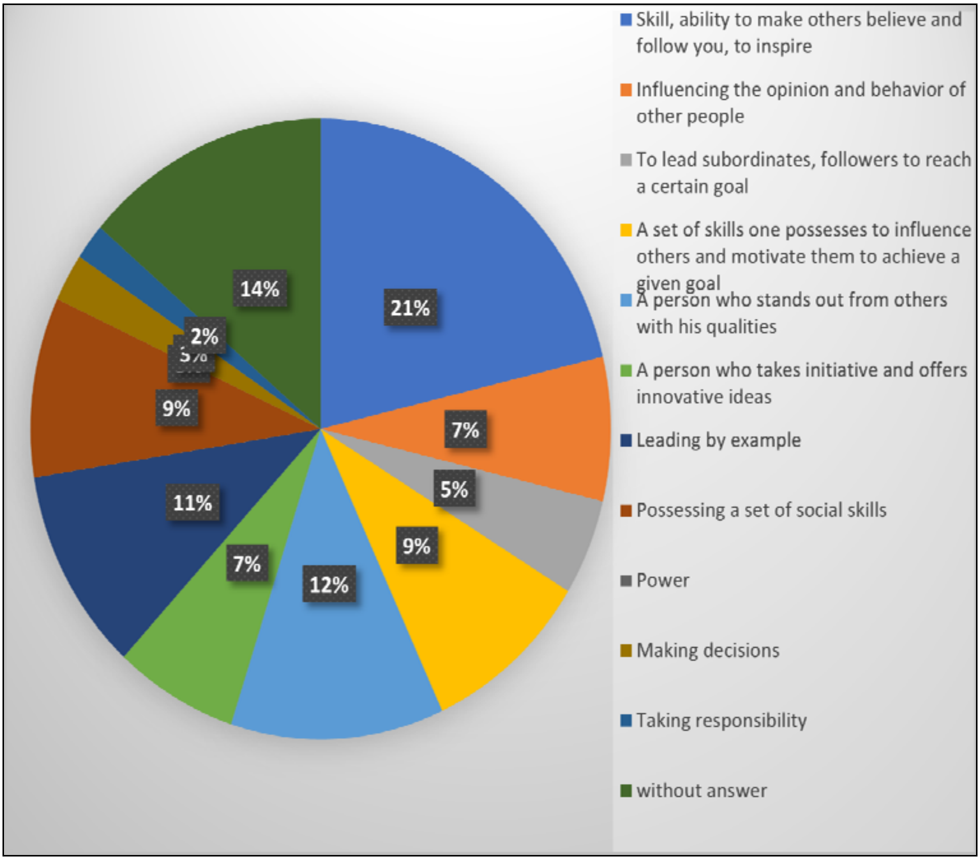

Fig. 4. What do you associate the leadership phenomenon with? – an open question with possibilities for multiple answers – percent representation, all respondents, all MF

The majority of respondents from MF 1 associate the leadership phenomenon mainly with „skill, ability to make others believe and follow you, to inspire. According to the majority of respondents from MF 2 the leadership is also skill,

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ability to make others believe and follow you, to inspire. The majority of respondents from MF 3 associate the leadership phenomenon with a set of skills one possesses to influence others and motivate them to achieve a given goal. The majority of respondents from MF 4 associate the leadership phenomenon with a person who stands out from others with his qualities and with leading by example (Fig. 3.).

The responses of all 160 respondents from all 4 military formations are summarized as follows, so the leadership is: skill, ability to make others believe and follow you, to inspire – 21%; without answer – 14%; a person who stands out from others with his qualities – 12%; leading by example – 11%; possessing a set of social skills – 9%; a set of skills one possesses to influence others and motivate them to achieve a given goal – 9%; influencing the opinion and behaviour of other people – 7%; a person who takes initiative and offers innovative ideas – 7%; to lead subordinates, followers to reach a certain goal – 5%; making decisions – 3%; taking responsibility – 2%; (Fig. 4.).

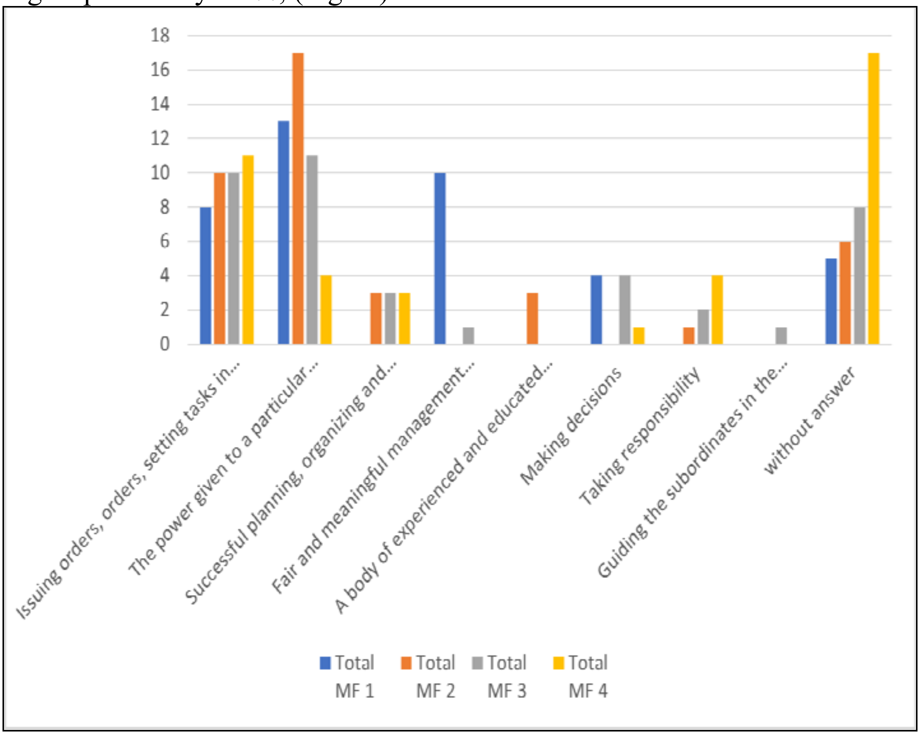

Fig. 5. What do you associate the command phenomenon with? – an open question with possibilities for multiple answers – all respondents, all MF

The majority of respondents from MF 1 associate command mainly with the power granted to a certain structure to lead, coordinate and manage. According to the majority of respondents from MF 2 command is also the power granted to a certain structure to lead, coordinate and manage. The majority of respondents from MF 3 associate command also with the power granted to a certain structure to lead, coordinate and manage. The majority of respondents from MF 4 do not give an answer, but the next most important answer is that they associate the command with issuing orders, orders, setting tasks in accordance with legal and ethical norms (Fig. 5.).

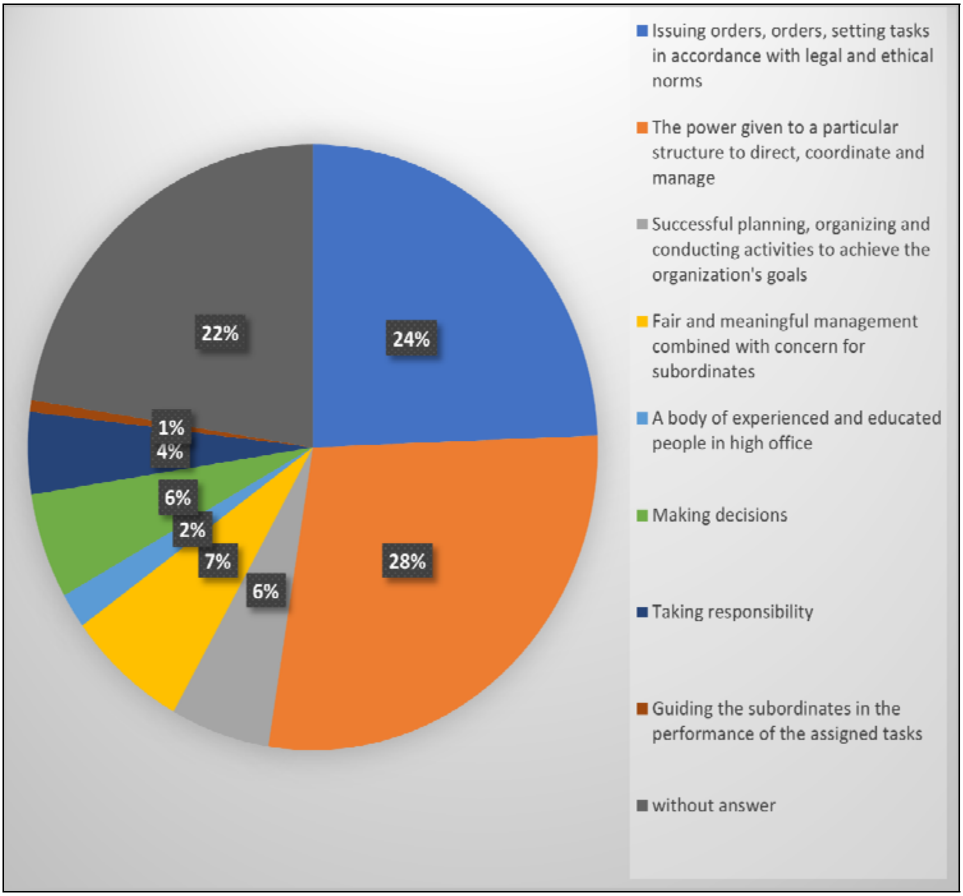

Fig. 6. What do you associate the command phenomenon with? – an open question with possibilities for multiple answers – percent representation, all respondents, all MF

The responses of all 160 respondents from all 4 military formations are summarized as follows, so the command is: the power given to a particular structure to direct, coordinate and manage – 28%; issuing orders, setting tasks in accordance with legal and ethical norms – 24%; without answer – 22%; fair and meaningful management combined with concern for subordinates – 7%; successful planning, organizing and conducting activities to achieve the organization's goals – 6%; making decisions – 6%; taking responsibility – 4%; a body of experienced and educated people in high office – 2%; guiding the subordinates in the performance of the assigned tasks – 1% (Fig. 6.).

The difference in the understanding and acquired knowledge of the considered phenomena is not to be underestimated from the point of view of their roughly necessary unification.

Discussion

Clarifying the essence of management and leadership as phenomena in people's lives is not an easy problem. For decades, scientific organizations, individual scientists and practice-oriented organizations have been trying to find the key to uncovering this social phenomenon. Some authors connect leadership with management, and according to them the leadership is a function of management and is included in it, and according to the others, the two phenomena are fundamentally different and have no points of contact. Markov (2014), for example, links management to leadership, arguing that, it can be said that leadership is a certain type of managerial interaction based on the most effective sources of power for a given situation and is aimed at persuading (mainly – persuasion, and less – coercion) of people with a view to achieving certain aims

Regarding the perception of the phenomenon of management, for most of the respondents of the research conducted, management is associated with carrying out and exercising management activities; possessing specific managerial qualities, knowledge, skills, abilities and experience; power and control; setting tasks and giving orders. It can be observed that the phenomenon of management is perceived and treated too generally, for example, it is not specified exactly which are the specific management activities that the respondents indicate; it is not specified which are the management qualities that should be possessed by a manager, etc. One observes the adoption of the classical line regarding the definition of management, where it is associated with power, control, setting tasks and giving orders.

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Regarding the perception of the phenomenon of leadership, most of the respondents of the research conducted associate leadership with skill, ability to make others believe and follow you, to inspire people; a person who stands out from others with his or her qualities; leading by example; possessing a set of social skills. The idea of leadership is closer and more familiar to the surveyed respondents. More concreteness is noticed in the perception and possessed knowledge of this phenomenon. This is not unusual, especially since the military system is where young men and women are trained in leadership from the beginning of their careers as cadets, later on as junior and senior officers and throughout their professional life. It could be confirmed that the army is imbued with the idea of leadership and the idea of putting leadership into practice.

Regarding the perception of the phenomenon of command, most of the respondents associate command with the power given to a particular structure to direct, coordinate and manage; issuing orders, setting tasks in accordance with legal and ethical norms; fair and meaningful management combined with concern for subordinates; successful planning, organizing and conducting activities to achieve the organization's goals. Of scientific and practical interest is the perception of the phenomenon of command, in which one observes not only the typicality of orders, tasks, unquestioningness, but also the observance of ethics and moral norms and standards, as well as the subordination of all actions of the commander to morality.

Conclusion

This study attempts to bring some clarity to how management, leadership and command concepts, their essence and role are perceived by military personnel from the various military formations of the Armed Forces of the Republic of Bulgaria.

The understanding of leadership as a social (interpersonal) relationship of influence between two or more individuals who depend on each other to achieve certain common goals is confirmed. Leadership is a process, a complex and dynamic relationship of exchange, built over time between a leader and a follower. In search of a leader, followers look for a person who has the knowledge, skills and abilities needed by the group, and they give authority to those people who they believe will contribute to the goals of the group or organization. Leadership is directing a group towards a common goal, instilling a desire to achieve the goal, and the individual's ability to influence and motivate.

The phenomenon of command is perceived unambiguously and without any doubt as related to the power given to a certain individual or structure to issue orders, setting tasks in accordance with legal and ethical norms, which leads to a just and meaningful governance.

The phenomenon of management is treated as a larger, more comprehensive overall activity and process, including elements of leadership and command. It is associated with both the possession of specific managerial qualities, knowledge, skills, abilities and experience, as well as with the possession of power and control, assignment of tasks and command.

Appearing as shared things, shared ways of expression, shared actions and, behaviour shared feelings and emotions, the culture prevailing in an organization contributes to the overall construction of organizational behaviour (Nikolova 2023). Its main characteristics (and as such we consider extremely important for any military culture) are related not only to subordination, authority, formal hierarchy, control, single command, rules and instructions, degree of direct supervision, but also, we are convinced, to individual initiative, responsibility, freedom and independence, activity, innovation and risk-taking, leadership, clear goals and expectations, integration of people and tasks, management support, reward system, successful communication patterns, etc.

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MANAGEMENT CHALLENGES IN PRIVATE MEDICAL DIAGNOSTIC CENTERS

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Abstract

Private medical diagnostic centers in Enugu State face significant management challenges that impact healthcare service delivery and organizational effectiveness. Specific objectives were to; assess the influence of financial sustainability on resource allocation mechanisms of medical diagnostic centers in Enugu state; analyze the impact of human resource management practices on service quality; and evaluate the influence of government regulations on performance of medical diagnostic centers in Enugu state. Descriptive survey method was adopted with the use of structured questionnaire. 85 managers in the selected medical diagnostic centers in Enugu metropolis, were conveniently sampled for the study. The findings confirm that financial sustainability has a negative influence on resource allocation mechanisms of medical diagnostic centers in Enugu State, Z (95,n = 85), 3.511 < 5.617 = p. < 0.05]; human resource management practices will have a negative impact on service quality of medical diagnostic centers in Enugu state, Z (95,n = 85), 4.127 < 5.601 = p. < 0.05]; and government regulations will have a negative influence on performance of medical diagnostics centers in Enugu state Z (95,n = 85), 3.461 < 5.587 = p. < 0.05]. Recommendations include enhanced financial support through improved health insurance schemes, better human resource management practices to retain skilled professionals, and regulatory reforms to ease bureaucratic burdens.

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Keywords: *medical diagnostic centers, financial sustainability, human resource management, government regulations, healthcare management, Enugu State.*

JEL Classification: M1

Introduction

Management is a fundamental organizational function that involves coordinating human, financial, and technological resources to achieve strategic goals efficiently. Drucker (2019) described management as a multifaceted discipline that includes planning, organizing, leading, and controlling activities within an organization. Robbins and Coulter (2022) emphasized the necessity of integrating interpersonal skills, strategic thinking, and adaptive decision-making to navigate complex business environments. As modern organizations operate in increasingly dynamic and uncertain conditions, strategic flexibility has become essential, allowing managers to adapt to changing market demands and technological advancements.

Contemporary management practices focus on holistic organizational development, emphasizing strategic alignment, human capital growth, and technological integration. Thompson et al. (2023) argued that managers must develop sophisticated competencies such as emotional intelligence, cross-cultural communication, data-driven decision-making, and change management to succeed in today's interconnected world. Additionally, Porter and Kramer (2021) highlighted the growing importance of stakeholder-centric management, which shifts the focus from profit maximization to creating shared value that benefits both businesses and society. This approach requires organizations to adopt sustainable, socially responsible strategies that acknowledge the interdependent nature of business and broader societal concerns.

Managing medical diagnostic centers presents a unique set of challenges that require the strategic integration of technological, human, and operational resources to ensure high-quality healthcare delivery. Bates et al. (2021) note that successful management in this sector involves balancing clinical excellence, technological innovation, and operational efficiency while addressing regulatory compliance and financial sustainability. Johnson and Lee (2022) stress the need for quality assurance protocols, advanced technological systems, and patient-centered service models. Furthermore, Okeke and Nwankwo (2022) emphasized the importance of

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fostering continuous improvement through innovation, evidence-based practices, and organizational resilience. Effective management in diagnostic centers demands a multidisciplinary approach, incorporating clinical expertise, financial acumen, technological proficiency, and strategic leadership to navigate the evolving healthcare landscape.

More so, private medical diagnostic centers play a crucial role in healthcare delivery in Enugu, a major urban center in southeastern Nigeria. These facilities provide essential diagnostic services that support clinical decision-making and patient care. However, they face numerous complex management challenges that significantly impact their operational effectiveness, financial sustainability, and overall healthcare quality. One of the primary management challenges is the limited financial resources and high operational costs associated with maintaining advanced diagnostic equipment. Adeniji and Obinna (2022) highlighted that private diagnostic centers in Enugu struggle with substantial initial investments required for sophisticated medical technologies such as CT scanners, MRI machines, and advanced laboratory equipment. The high procurement and maintenance costs create significant financial barriers for small and medium-sized diagnostic centers, often limiting their ability to offer comprehensive diagnostic services.

Human resource management is a critical challenge for private diagnostic centers in Enugu, as a shortage of qualified medical technologists and radiographers is exacerbated by limited professional development opportunities and workforce migration (Okeke et al., 2023). Regulatory compliance further complicates operations, requiring substantial administrative effort and financial investment to meet quality standards set by oversight bodies (Nwankwo & Ugochukwu, 2021). Additionally, technological adoption is hindered by inadequate digital infrastructure, high implementation costs, and limited staff training (Ezeh et al., 2022). Financial sustainability remains a concern, as centers must balance affordability with revenue generation to cover operational costs and technological upgrades (Onyemaechi & Chukwu, 2023). Market competition and patient trust necessitate strategic service differentiation and continuous quality improvement (Nnamdi & Okonkwo, 2022). Limited health insurance penetration increases financial uncertainty, as most patients pay out-of-pocket, complicating revenue prediction (Ugwu & Nnadi, 2021). Lastly, technological obsolescence demands careful investment planning to maintain diagnostic capabilities without jeopardizing financial stability. It is against this backdrop that this study examined the influence of management challenges in private medical diagnostic centers in Enugu state, Nigeria.

Objectives

Specific objectives were to;

1. Assess financial sustainability and resource allocation mechanisms in private diagnostic centers in Enugu State
2. Analyze human resource management practices and their impact on service quality in Enugu State
3. Evaluate the influence of government regulations on the performance of private diagnostic centers in Enugu State

Conceptual Review

Financial Sustainability

Financial sustainability in healthcare refers to the ability of an organization to maintain its operations, deliver quality services, and invest in future growth while generating sufficient revenue to cover costs and remain economically viable over the long term (Smith & Johnson, 2023). In the context of medical diagnostic centers in Enugu, financial sustainability presents unique challenges and opportunities shaped by the region's socioeconomic dynamics. These facilities must balance providing essential diagnostic services to a population with varying ability to pay while managing operational costs, equipment maintenance, and skilled workforce retention (Okonkwo et al., 2022). Many diagnostic centers in Enugu face obstacles such as irregular power supply necessitating expensive backup systems, high equipment importation costs, and competition from informal healthcare providers (Nnamdi & Ezeoha, 2021). However, some centers have achieved sustainability through strategic pricing models, public-private partnerships, and diversification of services to serve both low-income and middle-class patients (Adebayo & Igwebuike, 2023). Studies indicate that successful centers typically maintain a delicate balance between social responsibility and commercial viability, often incorporating innovative payment plans and community outreach programs while maintaining high-quality standards (Okoli & Nwosu, 2022).

Resource Allocation Mechanisms

Resource allocation mechanisms refer to systematic approaches and processes used to distribute limited resources, including financial, human, and material assets, to achieve optimal organizational outcomes and efficiency (Thompson & Harris, 2023). In medical diagnostic centers in Enugu, resource allocation represents a critical management function that determines how available resources are distributed across various departments, services, and operational needs. These

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centers often employ both centralized and decentralized allocation mechanisms, with department heads having some autonomy in resource utilization while adhering to broader organizational policies (Okeke & Nwankwo, 2022). The allocation process typically considers factors such as patient volume, service demand patterns, equipment maintenance requirements, and staff expertise availability (Uzochukwu et al., 2023). Studies show that successful diagnostic centers in Enugu implement flexible allocation mechanisms that can adapt to seasonal variations in patient flow and emergency needs while maintaining service quality standards (Obi & Chukwuma, 2022). However, challenges such as resource scarcity, infrastructural limitations, and varying patient ability to pay often necessitate innovative allocation strategies, including resource pooling and sharing arrangements among departments (Eze & Maduka, 2023).

Human Resource Management Practices

Resource allocation mechanisms refer to systematic approaches and processes used to distribute limited resources, including financial, human, and material assets, to achieve optimal organizational outcomes and efficiency (Thompson & Harris, 2023). In medical diagnostic centers in Enugu, resource allocation represents a critical management function that determines how available resources are distributed across various departments, services, and operational needs. These centers often employ both centralized and decentralized allocation mechanisms, with department heads having some autonomy in resource utilization while adhering to broader organizational policies (Okeke & Nwankwo, 2022). The allocation process typically considers factors such as patient volume, service demand patterns, equipment maintenance requirements, and staff expertise availability (Uzochukwu et al., 2023). Studies show that successful diagnostic centers in Enugu implement flexible allocation mechanisms that can adapt to seasonal variations in patient flow and emergency needs while maintaining service quality standards (Obi & Chukwuma, 2022). However, challenges such as resource scarcity, infrastructural limitations, and varying patient ability to pay often necessitate innovative allocation strategies, including resource pooling and sharing arrangements among departments (Eze & Maduka, 2023).

Service Quality

Service quality refers to the systematic assessment and measurement of how well a delivered service meets customers' expectations and needs, encompassing dimensions such as reliability, responsiveness, assurance, empathy, and tangible aspects of service delivery (Wilson & Thompson, 2023). In medical diagnostic centers in Enugu, service quality is particularly crucial as it directly impacts patient health outcomes, trust, and satisfaction levels. These centers face unique challenges in maintaining high service quality standards, including equipment reliability, accuracy of diagnostic results, waiting times, and staff competency (Okonkwo & Eze, 2022). Research indicates that successful diagnostic centers in Enugu have implemented comprehensive quality management systems that address both technical aspects, such as laboratory precision and equipment calibration, and interpersonal elements, including patient communication and staff responsiveness (Nwankwo et al., 2023). However, studies show that service quality variations exist across different centers, influenced by factors such as resource availability, staff training levels, and infrastructure quality (Ugwu & Obiora, 2023). Centers that consistently maintain high service quality standards typically demonstrate strong commitment to continuous staff training, regular equipment maintenance, and systematic quality control measures, leading to improved patient satisfaction and better health outcomes (Adebayo & Chukwuma, 2022).

Government Regulations

Government regulations pose significant operational and compliance challenges for medical diagnostic centers in Enugu, impacting their efficiency and service delivery capabilities. These centers must navigate complex regulatory frameworks established by multiple authorities, including the Nigerian Medical and Dental Council, State Ministry of Health, and environmental protection agencies (Okeke & Nnamdi, 2023). Key challenges include lengthy licensing processes, frequent policy changes, and sometimes contradictory requirements from different regulatory bodies (Okonkwo et al., 2022). Research indicates that compliance costs, including registration fees, documentation requirements, and mandatory equipment standards, significantly impact operational budgets and can affect service affordability (Ugwu & Eze, 2023). Additionally, centers struggle with regulatory enforcement inconsistencies and interpretation variations among different government agencies, creating operational uncertainties (Nwankwo & Adebayo, 2022). Studies show that while these regulations aim to ensure quality and safety standards, the bureaucratic processes and compliance requirements often delay service delivery and innovation implementation, particularly affecting smaller diagnostic centers with limited resources (Obiora & Chukwuma, 2023).

System Theory of Management

Thompson and Wilson’s theory, which views organizations as interconnected systems where changes in one component affect others, is particularly relevant given the multifaceted nature of diagnostic center operations (Thompson & Wilson, 2023). In the context of Enugu's diagnostic centers, the systems approach

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highlights how challenges in one area, such as equipment maintenance, create ripple effects across other operational aspects including service delivery, staff performance, and financial outcomes (Okonkwo & Eze, 2022). Research indicates that centers applying systems thinking in their management approach demonstrate better coordination between departments and more effective resource utilization, particularly in handling common challenges such as power supply issues and staff scheduling (Nwankwo et al., 2023). The theory's emphasis on environmental interactions also helps centers better understand and respond to external factors such as regulatory changes and community health needs (Adebayo & Ugwu, 2023). However, studies show that full implementation of systems-based management faces obstacles including limited resource availability and resistance to organizational change (Obiora & Chukwuma, 2022).

Empirical Review

Okonkwo et al. (2022) investigated financial management challenges in 15 private diagnostic centers in Enugu, revealing that 73% of centers struggled with equipment maintenance costs and irregular cash flow. The study identified inadequate health insurance coverage and high operational costs as major financial sustainability challenges, recommending the adoption of strategic financial planning and diverse revenue streams.

Nwankwo and Eze (2023) examined human resource challenges across 12 diagnostic centers, finding that staff retention and skill development were primary concerns. Their research showed that 65% of centers experienced high turnover rates among skilled personnel, primarily due to competitive compensation issues and limited career growth opportunities.

Adebayo et al. (2022) conducted a quality management assessment in 20 private diagnostic centers, highlighting challenges in maintaining consistent service standards. The study revealed that only 40% of centers had comprehensive quality management systems, with equipment calibration and result accuracy being major concerns.

Ugwu and Obiora (2023) explored regulatory compliance challenges in 18 diagnostic centers, finding that multiple regulatory requirements and bureaucratic processes significantly impacted operational efficiency. Their research indicated that smaller centers particularly struggled with compliance costs and documentation requirements.

Chukwuma and Eze (2022) studied infrastructure challenges in 25 private diagnostic centers, identifying power supply instability and equipment maintenance

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as critical issues. The research showed that 80% of centers relied heavily on expensive backup power systems, significantly affecting operational costs.

Okolie et al. (2023) investigated customer service challenges in 16 diagnostic centers, finding that long waiting times and communication issues were prevalent problems. Their study revealed that centers with automated systems and dedicated customer service staff showed higher patient satisfaction rates.

Nnamdi and Okafor (2022) examined technology adoption challenges in 14 private diagnostic centers, highlighting issues with digital integration and staff adaptation to new systems. The research showed that while 90% of centers recognized the need for technological upgrades, only 30% had implemented comprehensive digital solutions.

Okeke and Maduka (2023) analyzed competition management challenges among 22 diagnostic centers, revealing that price wars and service differentiation were major concerns. Their study indicated that centers focusing on quality over price competition showed better long-term sustainability.

Eze and Onwuka (2022) studied supply chain management challenges in 17 diagnostic centers, identifying issues with reagent procurement and inventory management. The research showed that centers without systematic supply chain processes experienced 40% higher operational costs.

Obi et al. (2023) investigated marketing and patient attraction challenges in 19 private diagnostic centers, finding that brand positioning and community trust-building were significant issues. Their study revealed that centers with structured marketing strategies and community engagement programs showed 50% higher patient retention rates.

Gaps in Literature Reviewed

There is limited research on the impact of public-private partnerships and their potential role in addressing operational challenges, while studies examining the relationship between management styles and center performance outcomes are notably scarce.

Methodology

Research Design

The research design adopted in this study was descriptive survey research design. The research design is best suited for this study because it permits the collection of original data and described the conditions as they existed in their natural setting. It studies the opinions, attitude, behaviours and beliefs of persons on the problems of this study.

Area of the Study

The study was carried out in among 10 randomly selected medical diagnostic centers situated in Enugu Metropolis.

Instrument for Data Collection

Data were sourced from both primary and secondary sources. The primary data was sources through the use of five-response, Likert-typed, structured questionnaires. Items were formulated to measure, the objectives of the study. Also, data were sourced from secondary sources like journals, text books, online resources that reviewed the variable of interest; management challenges in medical diagnostic centers in Enugu state.

3.4 Population of the Study

Managers of selected medical diagnostic centers situated in Enugu metropolis, which totaled 85 comprised the population of interest in this study.

Distribution of Members of selected Medical Diagnostic Centers In Enugu State

S/N	Trade	Number of Managers
1	Lifelore Diagnostic Clinic	5
2	Synapse Biotech	7
3	El-Shaddai Medical Diagnostic Laboratories	6
4	Accu-Medics Medical Laboratory/Diagnostic Centre	18
5	Grace Medical Diagnostic Laboratory	17
6	Edn Diagnostic Laboratory	6
7	Niger Foundation Hospital & Diagnostic Centre	4
8	Divine Medical Diagnostic Laboratory	5
9	Jevs Medical Diagnostic & Research Lab	4
10	Vosan Diagnostic Medical Products Limited	13
	Total	**85**

Sampling Technique

The study adopted purposive sampling technique in selecting the medical diagnostic centers incorporated in the study proximity and accessibility. While convenient sampling technique was adopted in sampling all the respondents incorporated in the study.

Reliability of Test Instrument

A pilot study was adopted in order to check for the validity and reliability of the questionnaire formulated. 10 managers from medical diagnostic centers were conveniently drawn from the Imo state, for the pilot test of the questionnaire and a

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Cronbach Alpha of α = .83 was gotten, thus affirming the internal consistency of the questions contained in the questionnaire.

Validity of Test Instrument

The face and content validity of the instrument was used by giving out the copies of the questionnaires to experts in the field of Research in Management Science to confirm the authenticity of the items contained in the questionnaire, in the measurement of the intended variables.

Method of Data Analyses

Data from the questionnaire were analyzed with the aid of SPSS version 23. Data from the questionnaire were analyzed using mean and standard deviation. For the 5-point Likert scale questions, the strongly agreed (SA), agreed (A) Neutral (N) Disagree (D) and strongly disagree (SD). Z- Test statistics was adopted in the test of hypotheses.

Decision Rule

Hi will be accepted if the significance level is less than $p < .05$.

Data Analysis

Hypothesis 1: Financial Sustainability will have a negative influence on Resource Allocation Mechanisms of medical diagnostic centers in Enugu State

Table 4.1: Mean and Standard Deviation of Responses on Hypothesis 1

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
1. Insufficient funding and revenue generation hinder the financial sustainability of this diagnostic center.	85	2.63	1.210	1	5
2. High operational costs (e.g., electricity, equipment maintenance) negatively impact resource allocation.	85	3.51	1.322	1	5
3. Difficulty in accessing external funding or loans limits the center's expansion and service improvement.	85	3.42	1.106	1	5

4. Poor financial management practices pose a challenge to the long-term sustainability of this center.	85	3.09	1.315	1	5
5. Irregular cash flow affects the timely procurement of essential medical supplies and equipment.	85	3.71	1.021	1	5

Table 4.1 shows the mean and standard deviation distribution of responses on the influence of financial sustainability on resource allocation mechanisms of medical diagnostic centers in Enugu state. The mean result ranges from [M = 2.63 > 3.71], which shows an even distribution of responses among respondents, same with the standard deviation result
[SD= 1.02 > 1.32], which shows normal distribution in their responses. Therefore, there is consistency in the pattern of responses

Table 4.1.1: Z-test analysis of responses on the influence of Financial Sustainability on Resource Allocation Mechanisms of medical diagnostic centers in Enugu State

		Insufficient funding and revenue generation hinder the financial sustainability of this diagnostic center	High operational costs (e.g., electricity, equipment maintenance) negatively impact resource allocation	Difficulty in accessing external funding or loans limits the center's expansion and service improvement	Poor financial management practices pose a challenge to the long-term sustainability of this center.	Irregular cash flow affects the timely procurement of essential medical supplies and equipment
N		85	85	85	85	85
Uniform Parameters[a,b]	Minimum	1	1	1	1	1
	Maximum	5	5	5	5	5
Most Extreme Differences	Absolute	.140	.165	.273	.283	.253
	Positive	.108	.117	.062	.145	.143
	Negative	-.179	-.173	-.291	-.261	-.192
Kolmogorov-Smirnov Z		3.511	3.602	5.617	4.119	3.621
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

With Kolmogorov-Smirnon Z – value ranges from 3.511 < 5.617 and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms the assertion of the most of the respondents that financial sustainability negatively influence resource allocation mechanisms in medical diagnostic centers in Enugu State, due to management challenges.

Furthermore, comparing the calculated Z- value ranges from 3.511 < 5.617 against the critical Z- value of .000(2-tailed test at 95percent level of confidence) the null hypothesis was rejected. Thus the alternative hypothesis which states that financial sustainability will have a negative influence on resource allocation mechanisms of medical diagnostic centers in Enugu State, was accepted.

Hypothesis 2: Human resource management practices will have a negative impact on service quality of medical diagnostic centers in Enugu state.

Table 4.2: Mean and Standard Deviation of Responses on Hypothesis 2

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
1. Shortage of skilled personnel affects the quality of diagnostic services in this center.	85	3.21	1.219	1	5
2. High staff turnover negatively impacts service consistency and patient satisfaction.	85	2.43	1.012	1	5
3. Limited staff training opportunities hinder professional development and service improvement.	85	3.01	1.125	1	5
4. Inadequate remuneration and benefits reduce staff motivation and productivity.	85	2.35	1.006	1	5
5. Poor management of work schedules and excessive workload lead to burnout among staff.	85	3.16	1.014	1	5

Table 4.2 shows the mean and standard deviation distribution of responses on the impact of human resource management practice on quality service of medical

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diagnostic centers in Enugu state. The mean result ranges from [M = 2.35 > 3.21], which shows an even distribution of responses among respondents, same with the standard deviation result [SD= 1.00 > 1.22], which shows slight deviations in their responses. Therefore, there is consistency in the pattern of responses

Table 4.2.1: Z-test analysis of responses on the impact of human resource management practice on quality service of medical diagnostic centers in Enugu state

		Shortage of skilled personnel affects the quality of diagnostic services in this center	High staff turnover negatively impacts service consistency and patient satisfaction	Limited staff training opportunities hinder professional development and service improvement	Inadequate remuneration and benefits reduce staff motivation and productivity	Poor management of work schedules and excessive workload lead to burnout among staff.
N		85	85	85	85	85
Uniform Parameters[a,b]	Minimum	1	1	1	1	1
	Maximum	5	5	5	5	5
Most Extreme Differences	Absolute	.246	.357	.275	.269	.310
	Positive	.211	.348	.193	.213	.186
	Negative	-.209	-.165	-.245	-.071	-.310
Kolmogorov-Smirnov Z		4.127	5.235	4.610	4.112	5.601
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

With Kolmogorov-Smirnon Z – value ranges from 4.127 < 5.601 and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms the assertion of the most of the respondents that human resource management practices has a negative impact on quality service of medical diagnostic centers in Enugu state.

Furthermore, comparing the calculated Z- value ranges from 4.127 < 5.601 against the critical Z- value of .000(2-tailed test at 95 percent level of confidence) the null hypothesis was rejected. Thus the alternative hypothesis which states that human resource management practices will have a negative impact on service quality of medical diagnostic centers in Enugu state, was accepted.

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Hypothesis 3: Government Regulations will have a negative influence on Performance of medical diagnostics centers in Enugu State.

Table 4.3: Mean and Standard Deviation of Responses on Hypothesis 3

Descriptive Statistics					
	N	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
1. Stringent government licensing and accreditation requirements create financial and administrative burdens.	85	2.59	1.350	1	5
2. Frequent regulatory changes make it difficult for private diagnostic centers to comply.	85	3.71	1.621	1	5
3. High taxation and multiple levies imposed by the government affect operational sustainability.	85	3.55	1.124	1	5
4. Delays in obtaining necessary government approvals hinder service delivery and expansion.	85	3.29	1.281	1	5
5. Lack of government incentives or support makes it challenging for private diagnostic centers to thrive.	85	3.61	1.521	1	5

Table 4.1 shows the mean and standard deviation distribution of responses on the influence of government regulations on performance of medical diagnostic centers in Enugu State. The mean result ranges from [M = 2.59 > 3.71], which shows an even distribution of responses among respondents, same with the standard deviation result
[SD= 1.12 > 1.62], which shows normal distribution in their responses. Therefore, there is consistency in the pattern of responses

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Table 4.3.1: Z-test analysis of responses on the influence of Government Regulations on Performance of medical diagnostic centers in Enugu State

		Stringent government licensing and accreditation requirements create financial and administrative burdens	Frequent regulatory changes make it difficult for private diagnostic centers to comply	High taxation and multiple levies imposed by the government affect operational sustainability	Delays in obtaining necessary government approvals hinder service delivery and expansion.	Lack of government incentives or support makes it challenging for private diagnostic centers to thrive
N		85	85	85	85	85
Uniform Parameters[a, b]	Minimum	1	1	1	1	1
	Maximum	5	5	5	5	5
Most Extreme Differences	Absolute	.145	.193	.471	.216	.292
	Positive	.128	.110	.015	.115	.159
	Negative	-.179	-.173	-.291	-.261	-.192
Kolmogorov-Smirnov Z		3.461	3.592	5.587	4.079	3.621
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

With Kolmogorov-Smirnon Z – value ranges from 3.461 < 5.587 and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms the assertion of the most of the respondents that government regulations has a negative influence on performance of medical diagnostic centers in Enugu State, due to management challenges.

Furthermore, comparing the calculated Z- value ranges from 3.461 < 5.587 against the critical Z- value of .000(2-tailed test at 95percent level of confidence) the null hypothesis was rejected. Thus the alternative hypothesis which states that government regulations will have a negative influence on performance of medical diagnostics centers in Enugu state, was accepted.

Discussion

The study examined management challenges in medical diagnostic centers in Enugu state;

The first hypothesis which states that, financial sustainability will have a negative influence on resource allocation mechanisms of medical diagnostic centers in Enugu State, *Z (95,n = 85)*, 3.511 < 5.617 = *p. < 0.05*] was confirmed.

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This finding implies that most medical diagnostic centers face serious financial challenges which affect adequate resource distribution. This finding correlated with Okonkwo et al. (2022) study, which identified inadequate health insurance coverage and high operational costs as major financial sustainability challenges.

The second hypothesis which states that, human resource management practices will have a negative impact on service quality of medical diagnostic centers in Enugu state, $Z\ (95, n = 85)$, $4.127 < 5.601 = p. < 0.05$], was equally confirmed. This implies that most medical diagnostic centers face challenges, such a shortage of staff, high staff turnover and limited training opportunities, which affect the quality of their personnel. This finding correlated with Nwankwo and Eze (2023) study, which found out that 65% of centers experienced high turnover rates among skilled personnel, primarily due to competitive compensation issues and limited career growth opportunities.

The third hypothesis which states that, government regulations will have a negative influence on performance of medical diagnostics centers in Enugu state $Z\ (95, n = 85)$, $3.461 < 5.587 = p. < 0.05$], was confirmed. This implies that stringent government regulatory policies, multiple taxations and lack of government support affect the performance of medical diagnostic centers in Enugu state. This finding is in unison with Ugwu and Obiora (2023) finding, which revealed that multiple regulatory requirements and bureaucratic processes significantly impacted operational efficiency.

Conclusion

The study highlights significant management challenges faced by medical diagnostic centers in Enugu State, confirming that financial sustainability, human resource management practices, and government regulations negatively impact their operations. Financial constraints hinder effective resource allocation, aligning with Okonkwo et al. (2022), who identified inadequate health insurance and high operational costs as key issues. Similarly, poor human resource management, characterized by staff shortages and high turnover, affects service quality, consistent with Nwankwo and Eze (2023). Additionally, stringent government regulations, multiple taxations, and lack of support further weaken performance, corroborating Ugwu and Obiora (2023). Addressing these challenges requires strategic financial planning, improved workforce policies, and regulatory reforms to enhance efficiency and service delivery.

Recommendations

The study suggested that;

1. The government and private sector should collaborate to improve health insurance schemes and provide financial support mechanisms to ensure sustainable resource allocation in medical diagnostic centers.

2. Diagnostic centers should implement competitive compensation packages, continuous professional development programs, and employee retention strategies to reduce staff turnover and enhance service quality.

3. Policymakers should streamline regulatory processes, reduce multiple taxations, and provide incentives such as subsidies and grants to improve the operational efficiency of medical diagnostic centers.

Contribution to Knowledge

The study provides empirical data on the specific challenges faced by medical diagnostic centers in Enugu State, particularly in financial sustainability, human resource management, and regulatory constraints, contributing to the existing body of knowledge in healthcare management.

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IMPACT OF ROAD TRANSPORTATION MANAGEMENT STRATEGIES ON CUSTOMER SATISFACTION: EVIDENCE FROM PUBLIC ROAD TRANSPORT IN AN EMERGING ECONOMY

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Abstract

This study analysed road transportation management strategies and their impact on customer satisfaction using Imo State Transport Company (ITC) as a case study. Adopting a cross-sectional survey design with structured questionnaires and interviews, data were collected from 249 respondents comprising ITC customers and staff. Statistical analysis including Chi-square, Spearman correlation, and Principal Component Analysis (PCA) identified significant transportation management strategies impacting customer satisfaction, such as regular vehicle maintenance, driver training programs, effective management attitudes, and technology upgrades for monitoring and *tracking. Major challenges identified were driver incompetence and inadequate vehicle maintenance, and leveraging technology for improved service quality and customer satisfaction.*

Keywords: *transportation management, customer satisfaction, road transport, service quality. Nigeria*

JEL Classification: R41; R42; L91; M31; O18

1. Introduction

Road transportation is a fundamental component of economic and social development, providing mobility for people and goods. In developing countries like Nigeria, where alternative transportation modes such as rail and air are less developed, road transport remains the most utilized mode for intercity movement. However, inefficiencies in road transportation management often result in operational challenges, poor service delivery, and customer dissatisfaction.

The Imo State Transport Company (ITC) is a major public road transport provider in southeastern Nigeria. Despite its significance in facilitating mobility and economic activities, the company has faced recurring issues such as vehicle breakdowns, inadequate driver training, poor scheduling, and customer service deficiencies. These challenges have raised concerns regarding the effectiveness of its transportation strategies and their impact on customer satisfaction.

Understanding the role of transportation management strategies in enhancing customer satisfaction is essential for improving efficiency and reliability of road transport services. Previous studies have highlighted the importance of structured vehicle maintenance, professional driver training, and technological advancements in improving transport service quality (Ogundele & Salami, 2021; Okeke & Nwankwo, 2022). However, limited research has focused on the Nigeria context, particularly within state-owned transport corporations such as ITC.

This study seeks to bridge this gap by examining the transportation management strategies employed by ITC, analysing their impact on customer satisfaction, and identifying key operational challenges that hinder service efficiency. Specifically, the study aims to:

- Identify the significant road transportation management strategies implemented by ITC.
- Assess the key indicators of customer satisfaction in relation to ITC services.

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- Examine the major operational challenges affecting ITCs service delivery.
- Recommend actionable strategies for improving transportation management and enhancing customer satisfaction.

The findings from this research will provide valuable insights for policymakers, transportation agencies, and private transport operators on best practices for optimizing service quality and ensuring customer satisfaction in road transport operations.

1. Literature Review

Effective transportation management strategies are critical in ensuring customer satisfaction and service reliability. Recent research has shown that structured vehicle maintenance, professional driver training, and technological integration significantly enhance transport service quality (Adebayo & Musa, 2023). Preventive and predictive maintenance strategies have been identified as key measures to reduce vehicle breakdowns and improve fleet reliability (Chukwuma & Ibrahim, 2023).

Driver training programs are another essential management strategy in the transport sector. Studies by Okafor and Bello (2023) suggest that well-trained drivers contribute to better road safety, improved fuel efficiency, and enhanced customer service experience. Training programs focusing on defensive driving techniques, customer relations, and emergency response preparedness have been found to boost overall customer satisfaction (Eze & Opara, 2023).

Customer satisfaction within public transport services is closely tied to reliability, safety, comfort, and service quality. Empirical studies indicate that transportation service quality is a multidimensional construct comprising timeliness, cleanliness, vehicle comfort, affordability, and staff attitude (Okeke & Nwankwo, 2022). The SERVQUAL model has been widely applied in transportation studies to assess service quality gaps and improve operational efficiency (Ogundele & Salami, 2021). In addition, a study from South Africa on Sustainable transportation in the taxi industry in Johannesburg by Wakelin-Theron, Ukpere & Adekanmbi (2023), underscored both challenges in operations and opportunities for sustainable transport practices

Technological advancements such as GPS tracking systems, automated ticketing, and fleet management software have been shown to enhance efficiency and customer satisfaction in public transport systems (Adeyemi & Olatunde, 2022). Studies indicate that transport companies adopting real-time tracking systems and automate dispatching experience (Nwanchukwu & Okezie, 2023) achieve high level of competitiveness. Moreover, Salisu, Odewumi & Abdul-Azeez (2023) modelled the economic influence of transport infrastructure investment in Lagos State and showed that transport system investment considerably impacts performance in related sectors such as tourism.

The theoretical foundation of this study relies on Maslow's theory of satisfaction and the consistency theory of customer satisfaction. Maslow's hierarchy of needs suggests that customer expectations in transportation services are hierarchical, ranging from basic safety to higher level service comfort and reliability (Maslow, 1943). Meanwhile, the consistency theory asserts that customer satisfaction is driven by the alignment between expected and actual service performance (Oliver, 1980).

Despite existing studies on transportation service quality, there remains a gap in literature focusing on state-owned transportation corporations in Nigeria. This study aims to contribute to the growing body of knowledge by examining the specific transportation management strategies adopted by ITC and their effects on customer satisfaction.

2. Methodology

This study utilized a cross-sectional survey research design to capture data on transportation management strategies and customer satisfaction. The target population consisted of 2000 daily ITC passengers and 420 staff members. Using the Taro Yamane formula, a sample size of 249 respondents was determined, ensuring adequate representation.

A structured questionnaire was developed, comprising both closed and open-ended questions, designed to assess transport management practices, service quality, and customer satisfaction levels. The questionnaire was divided into four sections: demographic information, transportation management strategies, customer satisfaction indicators, and challenges faced by ITC. Additionally, key informant interviews were conducted with ITC management personnel to gain insights strategic decision-making and operational challenges.

Stratified random sampling was employed to select respondents from different categories, ensuring proportional representation from customers and staff. Data collection was conducted over a four-week period at major ITC terminals and bus stops. Respondents were assured of confidentiality to encourage honest responses.

The collected data were analysed using descriptive and inferential statistical methods. Chi-square tests were applied to determine associations between

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categorical variables, Spearman's correlation was used to assess relationships between customer satisfaction and management strategies, and Principal Component Analysis (PCA) was conducted to identify key factors contributing to customer satisfaction.

Reliability tests were conducted using Cronbach's alpha to ensure internal consistency of the survey instrument. Ethical considerations were upheld by obtaining informed consent from respondents and ensuring compliance with research ethical guidelines.

3. Analysis and Discussions of Results

To analyse the responses gathered from the questionnaires, Chi-square test of association, Spearman's rho test of correlation, and Principal Component Analysis (factor analysis) are utilized to achieve the objectives of the study. By integrating these statistical tests into the analysis, we aim to provide a comprehensive understanding of the relationships between customer satisfaction, road transportation management strategies, and challenges faced by the Imo State Transport Company. These analyses can provide insights into the key factors influencing customer satisfaction and operational challenges.

The statistical analysis conducted in the study involved a combination of descriptive and inferential statistics to assess customer satisfaction with public transport services. Initially, the socio-economic characteristics of transit users were analysed using a frequency table to understand the demographic composition of the sample.

Correlation analysis was then performed to measure the linear relationships between variables, followed by Principal Component Analysis (PCA) to identify clusters of attributes or underlying factors influencing passenger satisfaction with public transport services.

The statistical analyses, including correlation, and PCA, allowed for a comprehensive examination of the factors influencing customer satisfaction with public transport services. By utilizing these statistical techniques, the study was able to identify key service quality attributes, assess overall satisfaction levels, and provide valuable insights for improving public transport services in the study area.

4.1 Correlation, Regression Analysis and Hypothesis Testing

Non-demographic factors identified in previous studies as crucial for customer satisfaction, such as comfort, service reliability, security, accessibility, and service quality are assessed to see how they align with the experiences and perceptions of customers using the Imo State Transport Company. The questionnaire was designed to provide a comprehensive coverage of all these factors.

The summary of demographic factors, showing the frequency and percentages of the gender, age, marital status, educational qualification, occupation and years of patronage are presented in Table 1.

Table 1. Socioeconomic Characteristics of Respondents

Characteristics		**Frequency**	**Percentage**
Gender	Male	140	61
	Female	90	39
Age (years)	Less than 18	65	28
	18-45	104	45
	46 and above	61	27
Marital Status	Single	142	62
	Married	66	29
	Divorced/Separated	14	6
	Widow/Widower	8	3
Educational qualification	FSLC	18	8
	SSCE	35	15
	Undergraduate	64	28
	Graduate	73	32
	Post Graduate	35	15
	Others	5	2
Occupation	Civil Servant	33	14
	ITC workers	42	18
	Students	6	30
	Business Men/women	87	38
Years of Patronizing/Working with ITC	0-4 years	90	39
	5-10 years	110	48
	11 years and above	30	13

Source: *Authors' Field Work 2024*

Based on Ojo et al (2014)'s study that showed that the duration of patronizing the transport company indicates loyalty, good satisfaction levels over time. We carried out association tests an correlation tests by pairing years of patronage against all non-demographic factors.

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At a 99% confidence level the Spearman's Rho test (Alpha = 0.01). There are two hypotheses:

- Null hypothesis
- Alternate hypothesis

3.2 Spearman's Rho test of Correlation

At a 99% confidence level for the Spearman's Rho tests (Alpha = 0.01). These are the two hypothesis:

1. Null hypothesis: There is no correlation between years of patronage and other non-demographic factors
2. Alternate hypothesis: There is a correlation between the years of patronage and other non-demographic factors.

If the p-value of the test is less than the alpha level then the null hypotyhesis is rejected. If otherwise, then there is a failure to reject the null hypothesis.

Table 2 Spearman's Rho test of Correlation

Variable Pair	Spearman's rho	Sig (2-tailed)	Significant (0.01 level)	Interpretation
Years Patronizing vs Customer focused employees and management attitude	0.117	0.075	No	--
Years Patronizing vs Cost effectiveness of services	-0.070	0.286	N0	--
Years Patronizing vs Experience of conducive waiting arena and minimal departure time	0.109	0.098	No	--
Years Patronizing vs Observance of speed control measure for safe arrival	0.510**	<0.01	Yes	Moderate Positive Correlation
Years Patronizing	0.184**	0.005	Yes	Weak Positive

vs Safety of luggage during haulage and storage				Correlation
Years Patronizing vs Adequacy of passenger seat spaces while on transit	-0.390**	<0.01	Yes	Moderate Negative Correlation
Years Patronizing vs Driver incompetence and lack of vehicle maintenance	0.364**	<0.01	Yes	Moderately Positive Correlation
Years Patronizing vs Shortage of vehicles and spareparts hindering effective operation	-0.376**	<0.01	Yes	Moderately Negative Correlation
Years Patronizing vs Poor security and road network are challenges	-0.347**	<0.01	Yes	Moderately Negative Correlation
Years Patronizing vs Training of drivers and regular maintenance of vehicles	0.304**	<0.01	Yes	Moderate Positive Correlation

**Significant at the 0.01 level (2-tailed)

The interpretation is based on the magnitude of the Spearman's rho value:

- A value of 1.00 indicates a perfect positive correlation.
- A value of -1.00 indicates a perfect negative correlation.
- Values closer to 1.00 or -1.00 indicate stronger correlations.
- Values closer to 0.50 or -0.50 indicate moderate correlations.
- Values closer to 0.25 or -0.25 indicate weaker correlations.

- A value of 0.00 indicates no correlation.
- The sign of the coefficient (+ or -) indicates the direction of the correlation (positive or negative).

The Spearman's rho test results obtained reveal various correlations between Years Patronizing and factors related to customer satisfaction and operational aspects of the transport company. The significant correlations identified in analysis are consistent with existing literature that emphasizes the importance of these factors in influencing customer loyalty and satisfaction (Ojo et al.,2014: Eboli and Mazulla, 2011).

The moderate positive correlation between Years Patronizing and Observance of speed control measure for safe arrival aligns with previous studies that have highlighted the significance of correlation with safety measures in public transport services. Similarly, the weak positive Safety of luggage during haulage and storage is in line with research emphasizing the importance of ensuring the safety of passengers' belongings during transport (Eboli and Mazulla, 2011).

The moderate negative correlations between Years Patronizing and factors such as Adequacy of passenger seats paces while on transit, Driver incompetence and lack of vehicle maintenance, Shortage of vehicles and spare parts hindering effective operation, and Poor security and road network are challenges that underscore the impact of operational challenges on customer satisfaction and loyalty (Ojo et al., 2014).

The moderate positive correlation between Years Patronizing and Training of drivers and regular maintenance of vehicles is supported by studies emphasizing the role of driver training and vehicle maintenance in enhancing service quality and customer satisfaction.

The non-significant correlations between Years Patronizing and factors like Customer focused employees and management attitude, Cost effectiveness of services, and Existence of conducive waiting arena and minimal departure time suggest that these specific factors may not directly influence the duration of customer patronage in your study context.

4.2 Regression Analysis Results and Hypothesis Testing

This analysis aims to investigate the impact of various factors on the years of patronage among ITC customers. Specifically, it tests nine hypotheses to understand how different aspects of service and management affect customer loyalty and retention. The factors considered include management and employee attitudes, cost-effectiveness of services, conduciveness of the waiting area,

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observing speed limits. safety of luggage, adequacy of passenger seat spaces, driver competence and vehicle maintenance, security and road network, and driver training and regular maintenance.

1. **Hypothesis H1**: To investigate if ITC Management and employee attitude have a significant impact on Years of Patronage.
2. **Hypothesis H2**: To investigate if the Cost Effectiveness of Services has a significant impact on Years of Patronage.
3. **Hypothesis H3**: To investigate if a Conducive waiting arena and minimal Departure Time have a significant impact on Years of Patronage.
4. **Hypothesis H4**: To investigate if Observing Speed Limits for safe arrival has a significant impact on Years of Patronage.
5. **Hypothesis H5**: To investigate if the Safety of Luggage has a significant impact on Years of Patronage.
6. **Hypothesis H6**: To investigate if the Adequacy of Passenger Seat-Spaces has a significant impact on Years of Patronage.
7. **Hypothesis H7**: To investigate if Driver Competence and Vehicle Maintenance have a significant impact on Years of Patronage.
8. **Hypothesis H8**: To investigate if Poor Security and Road Network have a significant impact on Years of Patronage.
9. **Hypothesis H9**: To investigate if Driver Training and regular Maintenance have a significant impact on Years of Patronage.

4.3 Regression Analysis Summary

Hypothesis H1: The hypothesis tests if ITC Management and employee attitude (MEA) significantly impact Years of Patronage (YP). The dependent variable YP was regressed on the predicting variable MEA to test hypothesis H1. YP did not significantly predict MEA, F(1, 230) 2.562. p = 0.111 indicating that MEA does not play a significant role in shaping YP (b = 0.105 , p = 0.111) These results indicate no significant effect of MEA on YP. Moreover, the R^2 = 0.011 depicts that the model explains only 1.1% of the variance in YP.

Hypothesis H2: The hypothesis tests if Cost Effectiveness of Services (CES) significantly impacts Years of Patronage (YP). The dependent variable YP was regressed on the predicting variable CES to test hypothesis H2. CES did not significantly predict YP, F(1, 230) = 1.626 p = 0.203, indicating that CES does not play a significant role in shaping YP (b = - 0.084 , p = 0.203) These results

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indicate no significant effect of CES on YP. Moreover, the R^2= 0.003 depicts the model explains only 0.3% of the variance in YP.

Hypothesis H3: The hypothesis tests if Conducive waiting arena and minimal Departure Time (CDT) significantly impact Years of Patronage (YP). The dependent variable YP was regressed on the predicting variable CDT to test hypothesis H3. CDT did not significantly predict YP, F(1, 230) 3.446, P = 0.065 indicating that CDT does not play a significant role in shaping YP (b = 0.121. p = 0.065) results indicate no significant effect of CDT on YP. Moreover, the R^2 = 0.015 depicts that the model explains only 1.5% of the variance in YP.

Hypothesis H4: The hypothesis tests if Observing Speed Limit for safe arrival (YP) significantly impacts Years of Patronage (OSL). The dependent variable YP was regressed on the predicting variable OSL. to test hypothesis H4. OSL significantly predicted YP, F(1, 230) = 73.405 p < 0.001, indicating that OSI. plays a significant role in shaping YP (b = 0.491 p < 0.001) These results clearly indicate the positive effect of OSL on YP. Moreover, the R^2 = 0.241 depicts that the model explains 24.1% of the variance in YP.

Hypothesis H5: The hypothesis tests if Safety of Luggage (SOL) significantly impacts Years of Patronage (YP). The dependent variable YP was regressed on the predicting variable SOL to test hypothesis H5. SOL significantly predicted YP, F(1, 230) = 9.61 p = 0.002 indicating that SOL plays a significant role in shaping YP (b = 0.2 p = 0.002) These results clearly indicate the positive effect of SOL on YP. Moreover, the R^2 = 0.04 depicts that the model explains 4.0% of the variance in YP.

Hypothesis H6: The hypothesis tests if Adequacy of Passenger Seat-Spaces (APS) significantly impacts Years of Patronage (YP). The dependent variable YP was regressed on the predicting variable APS to test hypothesis H6. APS significantly predicted YP, F(1, 230) = 39.72 p < 0.001, indicating that APS plays a significant role in shaping YP (b = - 0.383 , p < 0.001) These results clearly indicate the negative effect of APS on YP. Moreover, the R^2 = 0.147 depicts that the model explains 14.7% of the variance in YP.

Hypothesis H7: The hypothesis tests if Driver Competence and Vehicle Maintenance (DVM) significantly impact Years of Patronage (YP). The dependent variable YP was regressed on the predicting variable DVM to test hypothesis H7. DVM significantly predicted YP, F(1, 230) = 32.728, p < 0.001 indicating that

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DVM plays a significant role in shaping YP (b = 0.352 p < 0.001). These results clearly indicate the positive effect of DVM on YP. Moreover, the R^2 = 0.124 depicts that the model explains 12.4% of the variance in YP.

Hypothesis H8: The hypothesis tests if Poor Security and Road network (PSR) significantly impact Years of Patronage (YP). The dependent variable YP was regressed on the predicting Variable PSR to test hypothesis H8. PSR significantly predicted YP, F(1, 230) = 29.887 p < 0.001, indicating that PSR plays a significant role in shaping YP (b = - 0.338, p < 0.001) These results clearly indicate the negative effect of PSR on YP. Moreover, the R^2 = 0.115 depicts that the model explains 11.5% of the variance in YP.

Hypothesis H9: The hypothesis tests if Driver Training and regular Maintenance (DTM) significantly impact Years of Patronage (YP). The dependent variable YP was regressed on the predicting variable DTM to test hypothesis H9. DTM significantly predicted YP. F(1,230) = 21.453. p < 0.001 indicating that DTM plays a significant role in shaping YP (b = 0.292, p < 9.0011. These results clearly indicate the positive effect of DTM on YP. Moreover, the R^2 = 0.085 depicts that the model explains 8.5% of the variance in YP.

The following table summarizes the results from the regression analysis:

Table 3 Summary of Regression Analysis

Hypothesis	Regression Weights	Beta Coefficient	R2	F	P-Value	Hypothesis Supported
H1	YP-> MEA	.105	.011	2.562	.111	No
H2	YP-> CES	-.084	.003	1.626	.203	No
H3	YP-> CDT	.121	.015	3.446	.065	No
H4	YP-> OSL	.491	.241	73.405	<.001	Yes
H5	YP-> SOL	.200	.040	9.610	.002	Yes
H6	YP-> APS	-.383	.147	39.720	<.001	Yes
H7	YP-> DVM	.352	.124	32.728	<.001	Yes
H8	YP-> PSR	-.338	.115	29.887	<.001	Yes
H9	YP-> DTM	.292	.085	21.453	<.001	Yes

Note: OSL = ≤ 0.01, SOL = ≤ 0.01, APS = ≤ 0.01, DVM = ≤ 0.01, PSR = ≤ 0.01, DTM = ≤ 0.01→ Indicates that they are all significant.

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The results obtained from the regression analysis shows that three variables--observing speed limits, adequacy of passengers seat-spaces, and driver competence and vehicle maintenance--are the most influential and statistically significant in explaining the variance in Years of Patronage among ITC customers.

Note: It can't be only three variables that are significant.

In the real world, the results provide actionable insights for the ITC (Imo State Transport Company) to improve satisfaction and loyalty.

1. **Observing speed limits (OSL)**: Ensuring that drivers adhere to speed limits has a significant positive impact on customer retention. Passengers likely perceive this as a commitment to safety, leading to increase trust and repeat patronage. The company should emphasis and enforce speed limit compliance among its drivers to enhance the perceived safety and reliability of its service
2. **Adequacy of Passenger Seat-Spaces (APS)**: The adequacy of passenger seat spaces significantly influences customer satisfaction, albeit negatively in this analysis (possibly indicating overcrowding or discomfort). Ensuring that vehicles are not overcrowded and that passengers have enough space to sit comfortably can greatly improve their travel experience. ITC should consider reviewing and possibly redesigning seating arrangements to provide more comfort and space for passengers.
3. **Driver Competence and Vehicle Maintenance (DVM)**: The competence of drivers and the maintenance of vehicles are crucial factors in retaining customers. Passengers value well-maintained vehicles and skilled drivers who can ensure a smooth and safe journey. ITC should invest in regular training for drivers and establish rigorous maintenance schedules for their fleet to maintain high standards of service quality.

These findings support the notion that addressing key operational and service quality factors can positively impact customer retention and overall satisfaction levels (Ali, 2010). This aligns with the literature that emphasizes the importance of customer loyalty and satisfaction in the transportation industry (Ojo et al 2014).

The study by Ojo et al. (2014) on public transport services in Ghana emphasized the importance of service quality and customer satisfaction in the public transport sector. The findings from this study align with the chi-square results, indicating that factors such as customer-focused employees and management attitude, cost-effectiveness of services, and safety of luggage during haulage are crucial for enhancing customer satisfaction.

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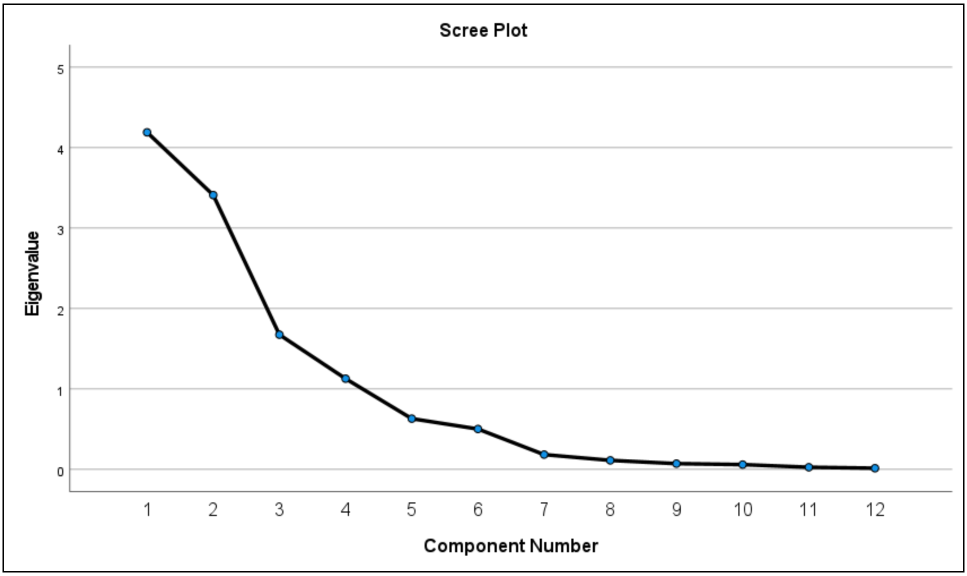
Furthermore, the study by Ali (2010) in Nigeria focused on assessing the quality of intra-urban bus services and identified factors influencing passenger satisfaction with public transport services. The significant chi-square results, particularly the relationships between Years Patronizing and various service quality attributes, are consistent with the importance of addressing customer needs and operational challenges to improve overall satisfaction levels.

4.4 Principal Component Analysis (Factor Analysis)

By conducting Principal Component Analysis on the responses from the questionnaires, the author aims to uncover the key factors influencing customer satisfaction, road transportation management strategies, and challenges faced by the Imo State Transport Company. This method can help in reducing the complexity of the data and identifying patterns or latent variables that drive customer satisfaction and operational challenges.

Figure 1 Scree plot showing Eigen Values of identified underlying factors



From figure 1. the author was able to extract 4 statistically significant underlying factors (eigen value > 1). These are variable clusters are distilled from the last 12 questions in the survey which cover the non-demographic data. These

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significant underlying factors are categorized and grouped in order of decreasing importance in table 4.

Table 4: Underlying factors that influence consumer satisfaction and effective operation of the Imo State Transportation Company

Factor	Factor Name	Variable	Variance Explained (%)
1	Service Attitude and Financial Support	Customer focused employees and management attitude	29.096
		Cost effectiveness of services	
		Existence of conducive waiting arena and minimal departure time	
		Observance of speed control measure for safe arrival	
		Soft loan from deposit banks	
2	Safety and operational Challenges	Safety of luggage during haulage and storage	23.104
		Adequacy of passenger seat spaces while on transit	
		Driver incompetence and lack of vehicle maintenance	
		Shortage vehicles spare parts hindering operation	
3	Transportation Management Security	Observation of speed control measure for safe arrival	19.036
		Shortage of vehicles and spare parts hindering operation	
		Poor security and road network are challenges	

Factor	Factor Name	Variable	Variance Explained (%)
		Provision of security regular maintenance of road	
4	Training and Maintenance Priorities	Driver incompetence and lack of vehicle maintenance	15.445
		Training of drivers and regular maintenance of vehicles	
Total			86.681

The variance explained (%) column, which indicates the proportion of variance in the original variables explained by each factor.

The results of the Principal Component Analysis (PCA) align with existing literature on customer satisfaction and service quality in the public transport sector (Eboli and Mazulla, 2011; Ojo et al., 2014).). The identified factors from the PCA, such as Service Attitude and Financial Support, Safety and Operational Challenges, Transportation Management and Security, and Training and Maintenance Priorities, reflect key dimensions that influence customer satisfaction and operational efficiency within the transport company.

The PCA results are consistent with previous studies that have highlighted the importance of factors like service attitude, safety measures, operational challenges, and training in shaping customer perceptions and loyalty (Ojo et al., 2014). For example, the emphasis on Safety and Operational Challenges as a distinct factor in the PCA underscores the critical role of safety measures and operational efficiency in enhancing customer satisfaction (Eboli and Mazulla, 2011).

Similarly, the identification of factors related to Transportation Management and Security and Training and Maintenance Priorities in the PCA corresponds to literature emphasizing the significance of effective management practices, security measures, and ongoing training for staff in ensuring quality service delivery and customer satisfaction (Eboli and Mazulla, 2011).

By identifying these key dimensions through PCA, transport companies can better understand and address the underlying factors that influence customer perceptions and loyalty.

In summary the analysis identified significant road transportation management strategies influencing customer satisfaction, notably the emphasis on regular vehicle maintenance. structured driver training, and technology upgrades. PCA highlighted key satisfaction indicators, including timeliness, reliability, comfort, and safety. Driver incompetence and poor vehicle maintenance emerged as critical challenges negatively impacting service quality and customer satisfaction. Spearman's correlation confirmed significant positive relationships between years of patronage and non-demographic factors such as reliability, safety, and service attitude.

The findings of this study suggest that road transportation management strategies, such as fleet maintenance, staff professionalism, safety standards, and the adoption of information systems significantly influence customer satisfaction among passengers of public road transport in Nigeria. This highlights the importance of effective management practices in improving service quality and ensuring customer loyalty in the transport sector.

These results are consistent with earlier studies conducted in Nigeria and other African contexts. For example, Okeke and Nwankwo (2022) emphasized that service quality dimensions such as reliability, comfort, and safety strongly determine commuter satisfaction. Similarly, Eze and Opara (2023) found that professional driver training and safety consciousness significantly improve passengers’ perception of service delivery. Such evidence reinforces the relevance of strong operational and managerial practices in shaping customer satisfaction within the Nigerian transport sector.

At the international level, the findings also align with recent studies. Chen, Wang, and Li (2023) demonstrated that smart mobility solutions enhance passenger satisfaction in urban transport systems. Hensher and Wei (2022) further confirmed that high service quality remains a strong predictor of customer loyalty in the digital age. Moreover, Kassa and Tefera (2022) highlighted that ICT-based solutions can substantially improve the efficiency of public transport operations. These studies collectively underscore the global importance of integrating modern technologies and quality-driven practices into transport management strategies.

Taken together, the results of this study contribute to both local and international debates on transportation management. For Nigerian operators, the findings imply that adopting best practices such as timely fleet renewal, enhanced customer engagement, and ICT-enabled solutions will be critical in achieving sustainable passenger satisfaction. From a policy perspective, regulatory agencies should encourage innovation, enforce service quality standards, and provide an enabling environment for operators to adopt modern transport management practices. Such measures will not only improve customer satisfaction but also strengthen the overall competitiveness and sustainability of the road transport sector in Nigeria.

5. Conclusion and Recommendations

This study provides empirical evidence on how specific transportation management strategies significantly enhance customer satisfaction in Nigerian public transportation, offering practical recommendations to transportation companies and policymakers. The study concluded that vehicle maintenance, competent drivers, and management attitudes significantly influence customer satisfaction. To enhance customer satisfaction and operational efficiency, ITC should institutionalize regular driver training programs, adhere strictly to preventive vehicle maintenance schedules, and leverage technology for monitoring fleet performance to maintain competitive advantage and meeting rising commuters expections.

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INTERNATIONALIZATION OF HIGHER EDUCATION IN THE CONTEXT OF THE MODERN EDUCATIONAL ENVIRONMENT

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Abstract

The internationalization of higher education has become a key factor in shaping the modern educational landscape. This article examines the challenges and opportunities associated with university internationalization, with a focus on theoretical approaches to adapting academic institutions to global trends. The study explores how national higher education systems integrate international standards, attract foreign students, and develop cross-border partnerships.

The article also highlights the role of mobility programs, transnational educational initiatives, and the growing importance of English as the dominant language in academia. The findings indicate that while the internationalization of higher education offers numerous benefits, such as expanded academic collaboration and increased competitiveness, it also presents challenges, including issues of quality assurance, financial sustainability, and cultural integration.

The article concludes that for universities to thrive in a globalized environment, they must adopt flexible strategies, foster international cooperation, and continuously update their educational approaches using a cyclical framework. This research contributes to the ongoing discourse on higher education reform by offering insights into the future trajectory of global academic institutions within the context of internationalization as a prevailing trend in the educational sphere.

Keywords: *internationalization, higher education, globalization, educational environment.*

JEL Classification: I23

Introduction

The internationalization of higher education has become a central topic in contemporary academic discourse, as universities and research institutions increasingly operate in an interconnected world. This study explores the approaches, methods, and aspects of internationalization as a necessary process for integrating into the global educational space, taking into account current trends in higher education.

The relevance of this issue lies in the profound impact of internationalization on the structure and quality of higher education. As institutions strive to enhance their global reputation, attract international students, and collaborate in research, they encounter both opportunities and challenges. These include financial pressures, cultural integration, language barriers, and regulatory differences between countries. Understanding this dynamic is crucial for policymakers, educators, and university administrators seeking to develop effective strategies for navigating the complexities of globalization.

To address these questions, this article uses a qualitative approach, reviewing existing research and institutional case studies. By synthesizing different perspectives, the author provides insights into best practices for integrating internationalization strategies in higher education. This study builds on the current academic literature in the field of international education and internationalization, drawing on research on global academic mobility, comparative education policy, and higher education governance. While previous studies have examined specific aspects of internationalization, this article offers a comprehensive perspective by examining the multiple dimensions of globalization in higher education, thereby contributing to the ongoing academic debate on this evolving phenomenon.

Literature Review

In the modern conditions of development of education at the international level, one of its leading directions, ensuring the formation of a single educational space taking into account economic, socio-political, cultural and educational factors, is internationalization. In this regard, it is necessary to systematize the basic concepts

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associated with the process of internationalization of higher education, as well as to identify the foundations for the formation of internationalization models at the national and institutional levels to form the basis for further in-depth analysis and development of a conceptual model of internationalization.

The internationalization of higher education is a relatively new and diverse phenomenon [Cojocaru, 2014]. The internationalization of higher education contributes to the formation and development of strategic directions at the national and institutional levels and can have various and rather broad interpretations, as presented in Table 1.

Table 1. Definitions of the process of internationalization of higher education

Author	Definition of iternationalization of higher education
1. The process of integrating the international dimension into the educational environment	
Altbach P.G., Knight J. [Altbach & Knight, 2007]	The process of introducing an international dimension into the following functions of an educational institution – research, teaching, and service delivery.
OECD [Organisation for Economic Co-operation and Development]	The concept and process of integrating the international dimension into teaching, research and service functions.
WTO [World Trade Organization]	The process of integrating the international dimension into the teaching, research and service functions of higher education institutions.
NAFSA [Association of International Educators]	A conscious effort to integrate international, intercultural and global perspectives into the spirit and outcomes of post-secondary education.
IAU [International Association of Universities]	The process of integrating an international, intercultural or global dimension into the goals, functions and delivery of post-secondary education in order to enhance the quality of education and research for all students and staff and to make a significant contribution to society.
Alsharari, N. M. [Alsharari, 2018]	An objective process of sustainable interaction and mutual influence of national higher education systems based on common goals and principles that meet the needs of the global community and reflect the progressive trends of the new century.

2. The process of improving higher education institutions	
EHEA [European Higher Education Area]	The process of change, from the initial state of affairs where higher education institutions are mainly national, to the level where they are gradually becoming international.
Turner Y., Robson S. [Turner & Robson 2008]	A driving force for change and improvement, a channel for international education and knowledge exchange, a stimulus for developing international marketing opportunities, an invitation to international scientific collaboration and a descriptor for cross-border student flows.
3. A comprehensive process of implementing practical measures to create an educational reputation	
Khorsandi Taskoh, Ali. [Khorsandi, 2014]	The process of commercialization of research and graduate education, as well as international competition to recruit foreign students from rich and privileged countries in order to generate income, secure national prestige and build an international reputation.

Source: developed by the author

Internationalization of higher education is seen as a multifaceted process that includes the introduction of an international dimension into the educational environment, the formation of the reputation of universities at the global level, and the maximization of income through the development of international higher education.

Theoretical Background

One of the most common approaches to understanding the essence of internationalization of higher education is the process approach, which interprets internationalization as a sustainable integration of international and intercultural aspects into the educational, research and administrative activities of universities [Cheng, Cheung, & Ng, 2016]. However, along with it, there are also alternative concepts.

The activity-based approach emphasizes incorporating an international component into educational programs, expanding academic collaboration, and strengthening national security while enhancing economic competitiveness [Romani-Dias, Carneiro & Barbosa, 2019].

The competency-based approach interprets internationalization as the transformation of a university from a national to an international format, which involves integrating a global dimension into management processes to improve education quality [Blagorazumnaya & Trifonova, 2023]. The strategic approach combines elements of both the activity-based and competency-based directions, focusing on the potential of a country or educational institution in developing a strategy for entering the international arena. The ethical approach views internationalization as a process of enhancing the international character of university campuses with the support of leading educational institutions. Of particular interest is the glonacal approach, which emerged at the intersection of cultural theories on the resilience of local educational traditions and globalization processes [Andone, 2021]. This approach aims to preserve national educational identity while simultaneously integrating into the international academic space, considering the influence of global, national, and local factors.

Thus, the internationalization of higher education is a complex and dynamic process that combines various conceptual approaches, each shaping its direction and implementation depending on the strategic goals and context of educational systems. According to the author, internationalization should be viewed as a distinct vector of international relations, significantly impacting both national higher education policies and the activities of individual institutions. Internationalization should not become an end in itself, either at the level of a single university or within the higher education system as a whole. Instead, it should be seen as one of the means to improve the quality of education and research, making them more beneficial to society by incorporating international aspects into educational services [Wysocka, Jungnickel & Szelągowska-Rudzka, 2022]. In this sense, the internationalization of higher education can indeed be regarded as a stage of globalization. Based on the definitions discussed above, the author believes it is possible to formulate a general definition of the internationalization of higher education that encompasses the key priority aspects highlighted by researchers: internationalization of higher education is a dynamic and complex process of integrating higher education into the global academic community through the coordinated efforts of all stakeholders, using various tools such as unified study programs, student, faculty, and researcher exchange programs, and information developments, among others [Iacob, Parvu & Chiru, 2023].

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Directions and methods of internationalization of higher education

Of particular interest are the directions of internationalization of higher education depending on the orientation towards export or import, listed in Table 2.

Table 2. Directions of internationalization of higher education

	Country	Features	Negative sides
Export orientation	Developed countries	Transnational education services – traded goods	Negative effects of commercialization of education
Mixed orientation (export and import)	Developed and developing countries with their own traditional characteristics	Import of educational products to strengthen competition, export of unique educational products	Intersection of interests of foreign imports and national characteristics
Import orientation	Developing countries with a colonial past	Need for competent professional personnel	Loss of competitive advantages and national identity

Source: developed by the author based on [Colibaverdi, & Chistruga, 2016], [Ţâu, 2017]

It can be noted that when developing mechanisms to increase the volume of higher education exports, countries, as a rule, do not use any one specific strategy, but apply some hybrid systems of measures or several strategies, taking into account their experience in this area, the economic and political level of development, as well as geographical, cultural and linguistic features. The methods of HEIs can be divided depending on the presence or absence of foreign investment, which is presented in Table 3.

Table 3. Methods of internationalization of higher education

Method	Contents of the method
Not involving foreign direct investment	
Export (international trade)	- Sale of educational programs; - Sale of individual topics and courses.
Licensing	- Obtaining an international license for educational and scientific activities.
Educational franchising	- A set of exclusive rights for the implementation of educational services by the franchisor under a company name on certain terms.

Involving direct foreign investment	
International cooperation (collaboration), alliances (strategic alliances), consortia	Signing of cooperation agreements/contracts: - interstate; - interstate sectoral (at the level of the Ministry of Education); - interstate interuniversity; - regional.
Mergers, acquisitions	- Consolidation of regional structures of higher education and unification of individual higher education institutions.
Creation of joint ventures	- Interaction between universities and enterprises by creating joint ventures based on R&D in universities to implement their results in production.
Opening a subsidiary, branch, creation of a new company abroad	- Promotion and popularization of the university and its industrial relations with various enterprises.

Source: developed by the author based on [Avolio & Benzaquen, 2024]

One of the key elements of the internationalization of higher education is export. This is driven by several factors [Rezaei, Yousefi, Larijani, Dehnavieh, Rezaei & Adibi, 2018], including the economic feasibility of training specialists for foreign countries, the pursuit of geopolitical and economic interests by the state, and the modernization of the higher education system in accordance with global labor market demands.

In this context, the development of modern curricula and courses plays a crucial role in transforming national universities into international scientific and educational centers. Furthermore, attracting and subsequently collaborating with highly qualified foreign graduates contributes to the advancement of science and the economy, both in the host country and in their countries of origin.

According to the author, the dynamics of educational service exports are determined by several factors, including the prevalence of the language of instruction, the economic and social attractiveness and prestige of the country, the quality of the national education system and university reputation, the cost of tuition and living expenses, the flexibility of educational programs, the global demand for the offered qualifications, and the conditions for foreign students residing in the host country.

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Approaches to the process of internationalization of higher education

To gain a deeper understanding of the essence of the IHE process, it is necessary to consider different views on its organization. One of the points of view on the process of internationalization of higher education is understanding it through four successive stages, describing the trajectory of internationalization development, which is reflected in Figure 1.

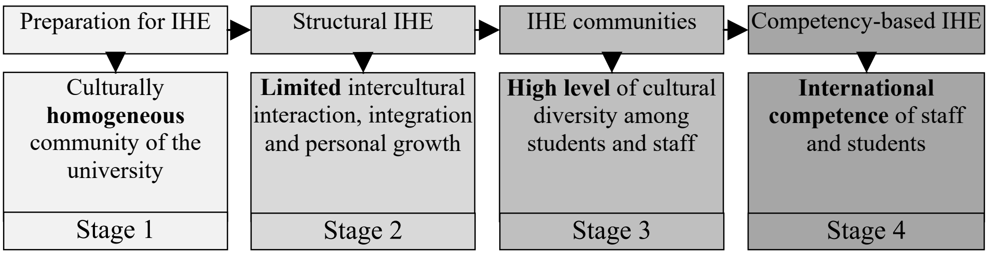

Figure 1. The trajectory of the development of the process of internationalization of higher education

Source: [Spencer-Oatey & Dauber, 2019]

According to this concept, the process of higher education internationalization progresses through four consecutive stages: from the formation of a homogeneous academic community, through phases of intercultural interaction and cultural diversity, to competency-based internationalization. As the level of international integration and structural internationalization of universities increases, the next stage involves the internationalization of their scientific community, culminating in the establishment of a competency-based approach within the global educational space. Internationalization is viewed as a process encompassing mechanisms for attracting, integrating, and disseminating international components within the structure of educational institutions. This approach covers a broad range of academic initiatives, organizational strategies, and policy decisions, making it the most comprehensive analytical framework for studying the internationalization of higher education.

An alternative perspective interprets the internationalization of higher education as a continuous cyclical process comprising nine sequential phases that encompass both institutional and departmental aspects. Within this model, internationalization is not viewed as a linear process but rather as a dynamic system in which each stage contributes to the integration of international components into a university's

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educational and research activities.

This approach involves a phased progression from innovation to its institutional consolidation, ensuring the sustainable development of internationalization. The cyclical model reflects the sequential interconnection between different stages of the process, starting with an analysis of the conditions under which the educational system operates and culminating in an integrative effect that fosters the formation of a cohesive international educational environment.

According to the author, the cyclical model of higher education internationalization is the most relevant, as it integrates into all aspects of university operations rather than functioning as an isolated strategy detached from internal university processes, as illustrated in Figure 2.

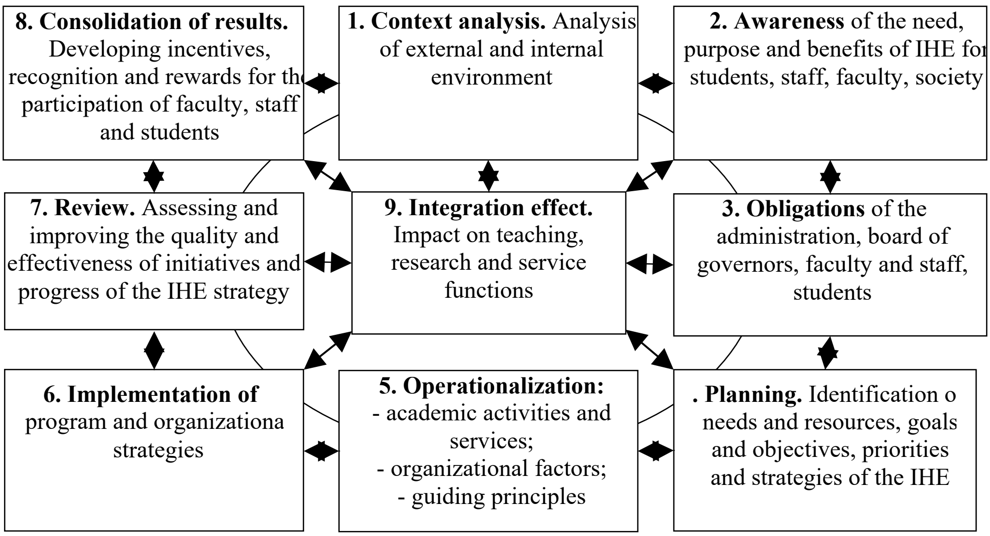

Figure 2. Cyclical model of internationalization of higher education

Source: [LeBeau, 2018]

The process of internationalization of higher education is characterized by continuous improvement and, therefore, cannot be linear, but must be repetitive and cyclical. This model, according to the author, is applicable both at the institutional level, covering individual educational institutions, and at the national level, ensuring the integration of internationalization into the state higher education system [Trifonova, 2020]. The key driving forces of this process are the individual motives of higher education subjects, among which are academic, economic, political and cultural (social) factors. An additional factor contributing to the strengthening of internationalization is the growth of competition in the global educational services market [Altbach, Reisberg & Rumbley, 2009]. Although these motives are interconnected, their significance may vary depending on the national and regional context, evolving over time and forming the basis of national higher education strategies and institutional strategies of universities [Ruffini, 2015].

The academic motivation for internationalization involves the standardization and unification of educational programs, the introduction of innovative approaches [Markovic, 2022] into the educational process and scientific activities, enhancing the status and image of the university, and expanding academic opportunities. The economic motives for internationalization are based on the concept of the knowledge economy, in which education is an integral factor in economic growth, contributes to increasing the competitiveness of educational services exports and intensifying international economic cooperation. The political aspect of internationalization is associated with the implementation of international higher education policy aimed at strengthening global academic ties [Khorsandi, 2014]. The cultural motive covers the processes of intercultural interaction, the integration of national educational traditions into the global educational space and contributes to strengthening linguistic and cultural identity in the context of international academic cooperation.

Strategic implementation of the internationalization of higher education

Higher education internationalization traditionally comprises two aspects: “inward” and “outward” internationalization [Mittelmeier, Rienties, Rogaten, Gunter & Raghuram, 2019]. Inward internationalization, also known as "internationalization at home" or the internal approach, is most characteristic of countries with limited resources but significant potential for further development, including transition economies and developing nations. This process focuses on transforming the internal university environment, which involves adapting and modernizing educational programs in response to dynamic changes in the educational landscape and labor market demands. This approach entails the continuous integration of a university’s academic and economic activities into the international context, enhancing its global competitiveness. In this regard, inward internationalization follows several conceptual approaches: causal, rational, and the model of international initiatives, each reflecting different mechanisms and strategic directions for implementing internationalization within national education systems.

Outward internationalization, also known as “internationalization abroad”, is predominantly characteristic of economically developed and highly industrialized countries. This approach focuses on expanding the global presence of national higher education systems and strengthening their position in the international education market. The primary emphasis is on promoting academic programs and educational services abroad, which contributes to the growth of education exports, the attraction of international students, and the establishment of international partnerships.

The key objective of outward internationalization is to strengthen universities' competitive positions beyond their home country. This is achieved through active expansion into foreign markets, exploration of new cooperation opportunities, and adaptation of educational strategies to global demands. This process encompasses various approaches, including academic collaboration, the process-oriented approach, and country-specific models that take into account the characteristics of national education systems within the context of international integration.

Internationalization is a multi-level phenomenon that spans institutional, national, regional, international and transnational levels [Altbach, Reisberg, & Rumbley, 2009]. The process of internationalization of higher education is carried out at five levels, each of which covers certain aspects and scales of this phenomenon.

The most extensive is the global level, which covers internationalization in the global context, including global trends, international initiatives and the influence of transnational educational processes. The second level, the national level, reflects the specifics of internationalization within a specific state, including such aspects as academic mobility of students, the development of intercultural relations and the formation of educational policy taking into account international standards.

The third level, institutional, concerns individual universities and their internationalization strategies, manifested through the implementation of international programs, the development of partnerships, and the integration of global standards into the activities of educational institutions. This level is also interconnected with the regional and local context, where internationalization is adapted to the cultural and economic characteristics of specific communities.

The fourth level, programmatic, covers the integration of the international dimension into specific disciplines and educational areas, such as economics, engineering, or pedagogy, taking into account the specifics of their global development.

The fifth level considers individual aspects of internationalization related to the

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activities of the university community. This includes the professional development of teachers and administrative staff, student participation in international programs, and the implementation of educational initiatives aimed at creating an international academic environment within the university [Kuleto, Ilić, Hadžić & Raketić, 2021].

According to the author, the strategic direction is the most relevant and appropriate for the development of HEI at the level of the state and universities. Strategic approaches are based on a preliminary analysis and assessment of the potential and resources of the country/university in terms of the ability to develop a strategy for HEI, then a choice is made between the competence and activity direction of HEI, or a certain mix of approaches is formed that meet the set goals and correspond to the capabilities of the country/university. The strategy of HEI is a basic document in the development of plans for international activities in the field of HEI of the country and the university [Altinay, Basari, Altinay, Dagli & Altinay, 2019]. The system of strategies for the internationalization of higher education is presented in Figure 3.

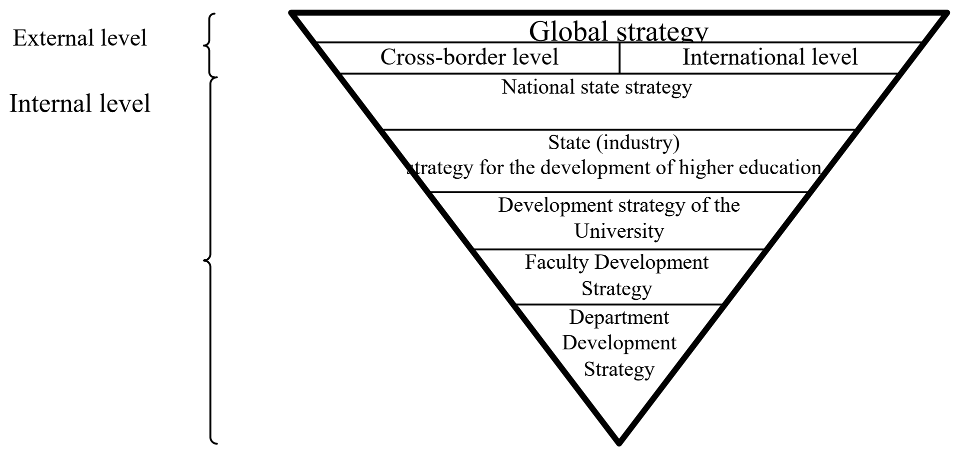

Figure 3. System of strategies for internationalization of higher education

Source: developed by the author

The hierarchical structure of higher education internationalization strategies reflects their interconnection with the corresponding levels of governance in this process. Neglecting the specificity of higher-level strategies reduces the effectiveness of lower-level strategic initiatives, diminishing their significance and practical applicability. The effectiveness of any strategy is determined by its ability to adapt and respond promptly to emerging challenges [Salazar-Tabima, Zuñiga-Collazos & González-Jiménez, 2025]. Therefore, each strategy at different levels must be adjusted in line with evolving global trends, national education policies, industry transformations, and other influencing factors.

Approaches to higher education internationalization at the external level may vary depending on regional and national specificities. For example, the "European" model of internationalization is based on a balance between the principles of equal cooperation and competitive development, where competition is seen as a key driver of growth and modernization in education systems. As a result, the international dimension of educational services is actively strengthened, fostering deeper internationalization processes at both the institutional and national levels.

In the CIS countries, the internationalization of higher education is perceived as an auxiliary element of the scientific and educational activities of universities, while in European countries the key emphasis is on improving their own educational programs and scientific research. In contrast, the CIS countries are focused primarily on borrowing advanced experience and educational practices from the external environment.

The United States and Canada demonstrate active development of internationalization through large-scale programs of studying students abroad, as well as by attracting foreign teachers and students. In Asian countries, the intensity of international integration in the sphere of education varies depending on state educational policy. Thus, China, Malaysia and South Korea apply strict state regulation of transnational education, while Hong Kong is oriented towards market mechanisms. Japan and a number of other countries adhere to a transitional model, combining elements of state control and market instruments.

The choice of a higher education internationalization strategy is influenced by external factors, including geopolitical conditions, socio-economic and historical context, as well as the resource capabilities of the state. At the institutional level, internationalization involves the integration of international components into curricula, teaching activities, and student life within specific universities. At the same time, at the national level, it is governed by state policies aimed at developing international cooperation in education, science, migration policy, and trade. The primary goal of internationalization at the state level is to enhance academic mobility as a tool to strengthen the international reputation of the education system and gain economic advantages.

There are various strategic approaches to higher education internationalization at the national level. The coordinated approach (Japan, Mexico, South Korea, Spain) focuses on international cooperation through academic exchanges and joint educational programs, including initiatives such as Erasmus and Socrates. The strategy of attracting qualified personnel (Austria, Finland, France, Hungary, Germany, the UK, Ireland, the Netherlands, Malta, Norway, Switzerland, Canada, the USA, New Zealand) aims to create favorable conditions for foreign students and specialists, strengthening the country's competitive position in higher education and turning talented migrants into a significant economic and intellectual resource. The expansion of opportunities approach (Malaysia, Hong Kong, China, Singapore, Indonesia, Vietnam, Thailand, Mexico, and several Eastern European countries) focuses on developing academic mobility programs and supporting the integration of foreign students into the national higher education system. The profitability strategy (Australia, the UK, New Zealand, the USA) reflects the commercial orientation of internationalization and views education as an export product, making international higher education an important revenue source for these countries.

In the author's opinion, it is essential to create a harmonious balance between national and institutional strategies for internationalization of higher education. It can be argued that higher education internationalization is a process that unites both the national and institutional levels, where the goals, functions, and mechanism of providing educational services acquire an international scale.

From the author's perspective, the presented aspects are interconnected, but their priority varies depending on the university's goals, development strategy, and stage of internationalization. At the institutional level, internationalization should be integrated into the university's overall strategy or outlined as a separate document, considering its impact on management, branding, and transformation processes within the educational institution.

Internationalization strategies are applicable at both the national and institutional levels, encompassing the academic component, including joint research, international conferences, publications in foreign journals, as well as support for international students and faculty through exchange programs, overseas internships, and the attraction of international experts.

In a broader sense, the internationalization strategy is long-term planning aimed at exploring new educational markets and expanding the export of educational services. The main goals of such a strategy are to increase the global competitiveness of the national higher education system, attract international students, stimulate academic mobility, develop international scientific cooperation, and strengthen multicultural interactions.

Accordingly, the following groups of integrated tasks can be identified within the higher education internationalization strategy: effective positioning of the higher education system in the global market; development of the marketing system for national education; improvement of educational infrastructure conditions for various forms of mobility; ensuring, guaranteeing, and enhancing the quality of educational services; attracting the most talented students, faculty, and specialists; establishing cooperation between partner countries; formulating a strategy for the development of higher education exports, and others.

Conclusions

This study examines the internationalization of higher education, highlighting its key dimensions and implications. Drawing on theoretical research and conceptual analysis, the article clarifies the definition of educational services as a structured process of transferring specialized knowledge through various institutions to specific consumers. This refined understanding provides a basis for analyzing the complex interactions in the education sector.

An important finding is the interconnected nature of the higher education market with related sectors such as labor, finance, innovation, and information. The study identifies a distinctive feature of the education market—its bidirectional links with interdependent markets. Recognizing these links is crucial for understanding the dynamics of educational provision and developing effective higher education governance policies.

One of the key findings is the growing influence of consumer-driven education markets, requiring policy measures at the state level to balance market demands with the labor needs of vital industries and socially significant professions. Furthermore, the internationalization of higher education serves as a strategic mechanism for promoting national education systems, facilitating their deeper integration into the global academic landscape. The study also examines the conceptual relationship between globalization and internationalization in higher education. Although these processes are interrelated, they are dialectically opposed – globalization encompasses world systems, whereas internationalization operates at the level of education providers. This perspective enriches the discourse on international education by positioning internationalization as a structured and coordinated process involving academic mobility, joint programs, faculty exchanges, and digital collaboration.

Furthermore, the study highlights that internationalization follows a cyclical progression involving institutional and sectoral phases, ultimately leading to an integration effect. This cyclicality suggests that successful internationalization requires long-term adaptive strategies to ensure sustainable collaboration between educational institutions around the world.

Despite the benefits of internationalization, the study acknowledges its challenges, including the risk of undermining national identities in higher education, weakening traditional academic values, widening global knowledge inequalities, and accelerating brain drain. Policymakers should take these risks into account when designing internationalization models that preserve national educational heritage while promoting global engagement. Future research needs to further explore internationalization strategies tailored to different national contexts. Comparative studies of regulatory policies, institutional adaptation, and digital transformation in higher education can provide valuable insights. In addition, research on mitigating the negative effects of globalization while maximizing its benefits will be critical to ensuring equitable and sustainable growth in international higher education.

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STRATEGIC INTELLIGENCE: LEVERAGING GENERATIVE AI FOR DECISION-MAKING AND INNOVATION IN MODERN ORGANIZATIONS

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Abstract

In the era of rapid technological advancement, generative artificial intelligence (AI) has emerged as a transformative tool for strategic decision-making and innovation in modern organizations. This paper explores the role of strategic intelligence in leveraging generative AI to enhance organizational performance, optimize decision-making processes, and foster innovative capabilities. By integrating theoretical frameworks from strategic management, information systems, and AI research, the study examines how organizations can harness AI-driven insights to anticipate market trends, identify growth opportunities, and maintain competitive advantage. The paper also discusses implementation challenges, ethical considerations, and best practices for adopting generative AI in organizational contexts. Findings suggest that firms that effectively integrate generative AI into their strategic intelligence processes experience improved agility, enhanced innovation outcomes, and more informed decision-making.

Keywords: *strategic intelligence, generative ai, decision-making, innovation, organizational performance, artificial intelligence adoption*

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Introduction

In today's rapidly evolving business landscape, organizations face unprecedented levels of complexity, uncertainty, and competition. Traditional decision-making approaches often struggle to keep pace with the speed of technological, market, and societal changes. Strategic intelligence—the systematic collection, analysis, and application of information to guide organizational strategy—has emerged as a critical capability for firms seeking to maintain competitiveness. Concurrently, advances in artificial intelligence (AI), particularly generative AI, are transforming how organizations process information, generate insights, and innovate. Generative AI technologies, such as large language models and AI-driven predictive analytics, enable organizations to synthesize vast datasets, simulate scenarios, and uncover patterns that would otherwise remain hidden.

Integrating generative AI into strategic intelligence processes allows organizations to make more informed and agile decisions. By leveraging AI-generated insights, companies can anticipate market trends, identify growth opportunities, optimize resource allocation, and enhance innovation. Moreover, the use of generative AI in decision-making supports not only operational efficiency but also the development of novel products, services, and business models. This intersection of strategic intelligence and AI adoption represents a promising frontier for both research and practice.

Despite the potential benefits, there is limited empirical research on how generative AI can be effectively integrated into strategic intelligence processes to support decision-making and innovation in modern organizations. Specifically, questions remain about the mechanisms through which AI contributes to strategic insight, the organizational conditions that facilitate its adoption, and the measurable outcomes in terms of innovation and performance. This study aims to address these gaps by:

1. Examining how organizations leverage generative AI to enhance strategic intelligence.
2. Investigating the impact of AI-driven insights on organizational decision-making and innovation outcomes.
3. Identifying practical and theoretical implications for integrating AI into strategic management processes.

This research contributes to theory by bridging the gap between strategic intelligence and AI studies, offering a conceptual framework that explains how generative AI can be harnessed to support strategic decision-making and innovation. From a practical perspective, the study provides actionable insights for managers and executives, highlighting best practices, potential challenges, and strategies for adopting AI tools to strengthen organizational competitiveness. Ultimately, the findings aim to guide organizations in building AI-enhanced strategic intelligence capabilities that drive innovation and sustainable growth.

Literature review

Strategic intelligence (SI) in organizations refers to the systematic collection, analysis, and application of information to inform organizational strategy and decision-making. In recent years, the importance of SI has been underscored by its role in navigating complex business environments and achieving sustained competitive advantage. For instance, a study by Zhang et al. (2024) highlights the role of SI in enhancing organizational performance through informed decision-making and strategic foresight. Similarly, the OECD (2025) emphasizes the critical role of SI in emerging technology governance, noting its significance in policy and technology governance contexts.

Generative AI applications in decision-making and innovation encompasses technologies like large language models and machine learning algorithms, which have emerged as transformative tools in organizational decision-making and innovation. Research indicates that generative AI can enhance decision-making by providing data-driven insights, automating routine tasks, and supporting scenario planning. In innovation management, generative AI facilitates the development of new products and services by analysing vast datasets and identifying emerging trends. A study by Acosta et al. (2024) reviews the existing literature on implementing generative AI in business decision-making, assessing its short-, medium-, and long-term effects.

Several prior studies on AI-enabled organizational performance have explored the impact of AI on organizational performance. Findings suggest that AI adoption can lead to improved efficiency, enhanced decision-making, and increased innovation capabilities. However, the extent of these benefits varies across industries and organizational contexts, highlighting the need for tailored AI strategies. A study by Zhang et al. (2024) examines the impact of artificial intelligence on organizational justice and project performance, revealing that AI can influence decision analysis and digital transformation.

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While existing literature provides valuable insights into the applications and impacts of AI in organizations, I identified several gaps in existing research that still remain. There is limited research on integrating generative AI into strategic intelligence processes and its direct effects on innovation outcomes. Additionally, studies examining the ethical implications and organizational readiness for AI adoption are scarce. Addressing these gaps can provide a more comprehensive understanding of how generative AI can be leveraged for strategic advantage.

Theoretical framework & conceptual model

The integration of generative AI into strategic intelligence (SI) in organizations can be grounded in several established theoretical perspectives - key theories and models, like:

1. Resource-Based View (RBV) – RBV emphasizes that a firm's competitive advantage stems from its unique resources and capabilities (Barney, 1991). Generative AI can be conceptualized as a strategic capability that enhances organizational knowledge, decision-making speed, and innovation potential.
2. Knowledge-Based View (KBV) – KBV posits that knowledge is the most strategically significant resource for modern organizations (Grant, 1996). SI relies heavily on collecting, processing, and applying knowledge; generative AI can augment these processes by synthesizing large datasets, identifying patterns, and generating actionable insights.
3. Dynamic Capabilities Theory – This theory highlights an organization's ability to integrate, build, and reconfigure internal and external competencies in rapidly changing environments (Teece, Pisano, & Shuen, 1997). Integrating generative AI into SI can improve organizational agility, enabling faster and more informed strategic decisions.
4. Decision Theory and Information Processing Models – Decision-making frameworks emphasize the importance of information quality, processing speed, and analytical support in strategic choices. Generative AI serves as an advanced tool for enhancing these factors, supporting scenario analysis, forecasting, and predictive modeling (Simon, 1977).

Proposed Framework for Integrating Generative AI into Strategic Intelligence

Building on these theoretical foundations, the proposed conceptual framework positions generative AI as a central enabler of strategic intelligence processes:

1. Data Acquisition Layer – Collect structured and unstructured data from internal and external sources (e.g., market trends, competitor behavior, customer feedback).
2. AI-Driven Analysis Layer – Apply generative AI models to process and synthesize the data, detect patterns, forecast trends, and generate strategic insights.
3. Strategic Decision Layer – Use AI-generated insights to support decision-making, scenario planning, and resource allocation.
4. Innovation and Implementation Layer – Translate AI-enhanced intelligence into actionable strategies, fostering innovation in products, services, and business processes.
5. Feedback and Learning Loop – Continuously monitor outcomes, incorporate feedback, and update AI models to refine strategic intelligence over time.

This framework illustrates how generative AI can transform traditional SI processes, bridging knowledge acquisition, strategic analysis, and innovation execution to improve organizational performance and agility.

Methodology

This study adopts a mixed-methods research design, combining both quantitative and qualitative approaches to provide a comprehensive understanding of how generative AI enhances strategic intelligence in organizations. The quantitative component assesses the measurable impact of AI adoption on decision-making and innovation outcomes, while the qualitative component explores organizational experiences, challenges, and perceptions regarding AI integration.

Data were collected from multiple sources to ensure robustness and triangulation:

1. Surveys – Structured questionnaires were administered to managers, decision-makers, and innovation teams across diverse industries to capture perceptions of AI-enabled strategic intelligence, adoption levels, and performance outcomes.
2. Case Studies – In-depth case studies of organizations that have implemented generative AI solutions were conducted to examine real-world applications, challenges, and best practices.
3. Secondary Data – Publicly available reports, organizational performance data, and prior research studies were used to supplement primary data and validate findings.

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A purposive sampling strategy was employed to select participants with experience in decision-making, innovation, or AI adoption. The sample included:

- 250 respondents for the quantitative survey, representing mid- to senior-level managers across technology, finance, and manufacturing sectors.
- 5 organizations selected for detailed qualitative case studies based on their active use of generative AI in strategic intelligence processes.
- Quantitative Analysis: Survey data were analyzed using SPSS to perform descriptive statistics, correlation analysis, and regression models, assessing the relationship between generative AI adoption, strategic intelligence, and organizational performance.
- Qualitative Analysis: Case study data were analyzed using thematic content analysis, identifying recurring patterns, strategies, and challenges in implementing generative AI for strategic intelligence.
- Integration of Findings: Results from quantitative and qualitative analyses were triangulated to develop a comprehensive understanding of generative AI's role in enhancing organizational decision-making and innovation.

Findings and Results

1. Quantitative Survey Results

The survey included 250 respondents from technology, finance, and manufacturing sectors. It evaluated the impact of generative AI on strategic intelligence (SI), decision-making quality, and innovation outcomes.

1.1 AI Adoption by sub-dimensions

AI adoption was measured across multiple sub-dimensions: data analysis, scenario planning, decision support, innovation support, and integration into workflows.

Table 1. AI Adoption Sub-Dimensions (Mean Scores by Sector)

Sub-Dimension	Technology	Finance	Manufacturing	Overall Mean
Data Analysis	4.5	4.0	3.7	4.1
Scenario Planning	4.3	3.9	3.5	3.9
Decision Support	4.4	3.8	3.6	4.0
Innovation Support	4.2	3.7	3.4	3.8
Integration into Workflows	4.1	3.6	3.3	3.7

Source: Authors' compilation

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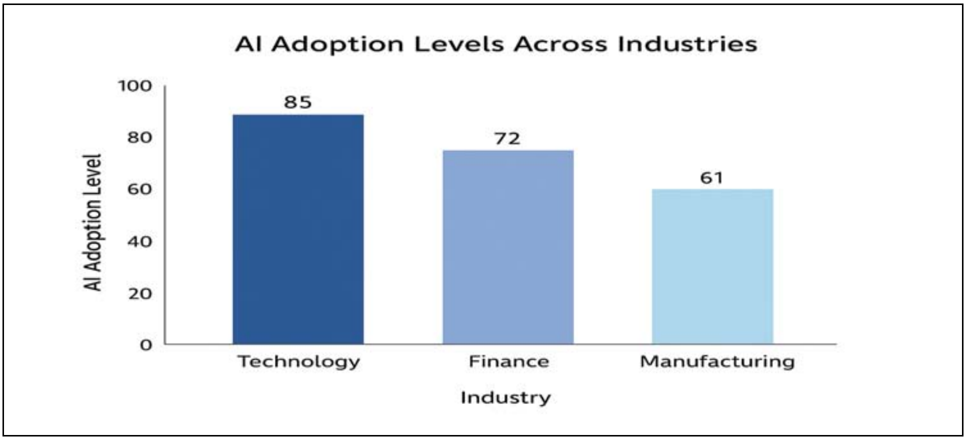
Figure 1. Multi-Variable Bar Chart: AI Adoption Sub-Dimensions Across Sectors



Source: Authors' compilation

Technology outperforms across all sub-dimensions, finance demonstrates moderate adoption, while manufacturing lags—especially in innovation support and workflow integration.

1.2 Strategic Intelligence Performance

Strategic intelligence performance was measured through speed of decision-making, accuracy, quality of insights, and knowledge utilization.

Table 2. SI Performance Indicators (Mean Scores by Sector)

SI Indicator	Technology	Finance	Manufacturing	Overall Mean
Decision-Making Speed	4.3	3.8	3.5	3.9
Decision Accuracy	4.2	3.7	3.4	3.8
Quality of Insights	4.4	3.9	3.6	3.9
Knowledge Utilization	4.3	3.8	3.5	3.9

Source: Authors' compilation

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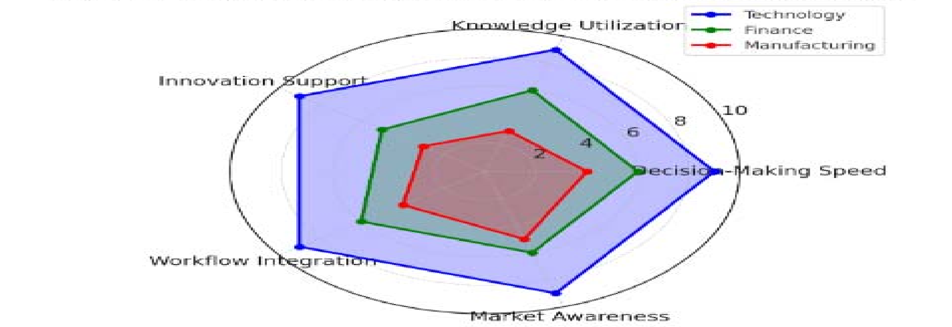
Figure 2. Radar Chart: Strategic Intelligence Performance by Sector



Source: Authors' compilation

The radar chart for **Strategic Intelligence Performance by Sector** is showing us the following aspects:

- **Technology** leads across all indicators (blue).
- **Finance** shows moderate performance (green).
- **Manufacturing** lags, especially in decision-making speed and knowledge utilization (red).

This indicates that technology firms lead across all SI indicators, finance demonstrates moderate performance, and manufacturing ranks lowest in decision-making speed and knowledge utilization

1.3 Innovation Outcomes

Innovation outcomes were evaluated across idea generation, time-to-market, product/service improvements, and process efficiency.

Table 3. Innovation Outcomes (Mean Scores by Sector)

Innovation Indicator	Technology	Finance	Manufacturing	Overall Mean
Idea Generation	4.3	3.8	3.5	3.9
Time-to-Market	4.2	3.7	3.3	3.7
Product/Service Improvements	4.3	3.8	3.4	3.8
Process Efficiency	4.1	3.6	3.3	3.7

Source: Authors' compilation

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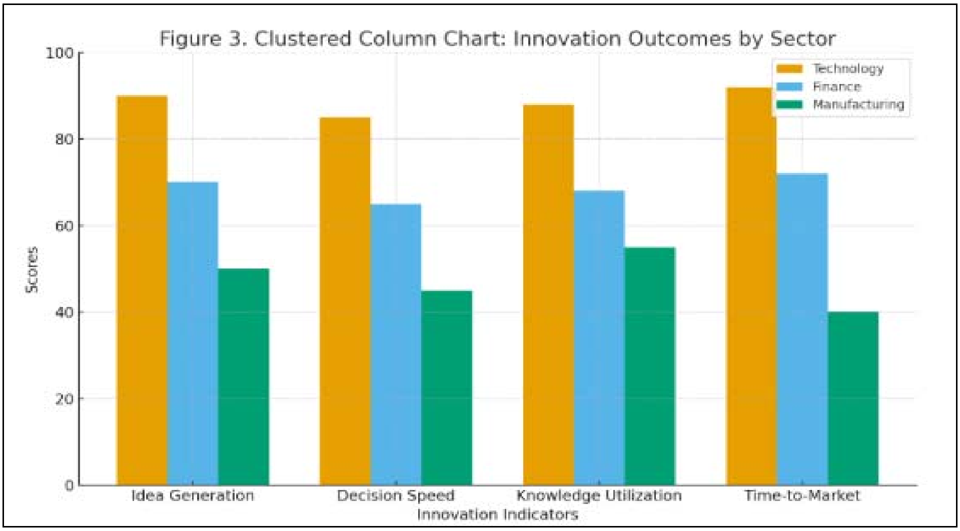

Source: Authors' compilation

The clustered column chart for Innovation Outcomes by Sector highlights the following aspects:

- Technology leads across all indicators, highlighting AI-driven innovation.
- Finance shows moderate performance.
- Manufacturing lags, especially in decision-making speed and time-to-market.

The technology sector leads across all innovation indicators, underscoring AI's role in driving innovation. Finance shows moderate performance, while manufacturing trails, particularly in decision-making speed and time-to-market.

1.4 Correlation and Regression Analysis

Table 4. Pearson Correlation Between AI Adoption, SI Performance, and Innovation Outcomes

Variables	1	2	3
1. AI Adoption	1		
2. SI Performance	0.63**	1	
3. Innovation Outcomes	0.60**	0.68**	1

Note: $p < 0.01$

Source: Authors' compilation

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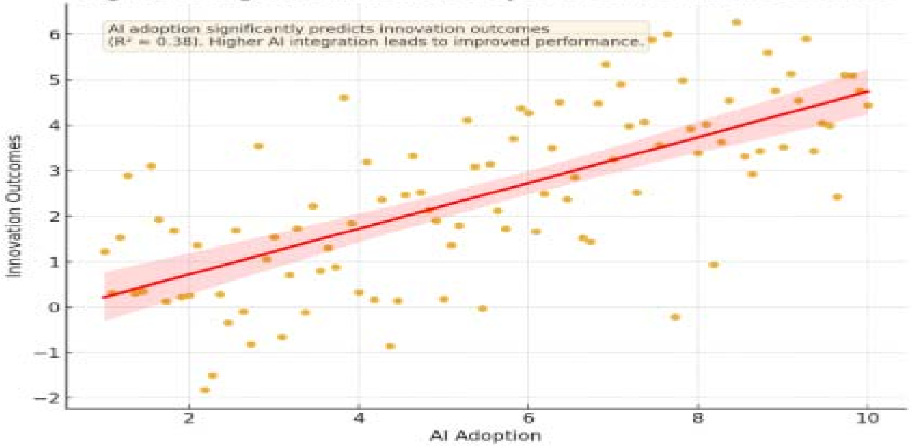
Table 4 presents the Pearson correlation coefficients among AI Adoption, Sustainable Innovation (SI) Performance, and Innovation Outcomes. The results indicate strong and statistically significant positive associations among all three variables ($p < 0.01$). Specifically, AI Adoption is positively correlated with SI Performance ($r = 0.63$), suggesting that greater integration of artificial intelligence within organizational processes is associated with improved sustainability-oriented innovation performance. Similarly, AI Adoption shows a substantial positive relationship with Innovation Outcomes ($r = 0.60$), highlighting its role as a driver of new product, process, or service development.

The strongest correlation is observed between SI Performance and Innovation Outcomes ($r = 0.68$), implying that organizations excelling in sustainability-driven innovation practices are more likely to achieve enhanced overall innovation results. This finding supports the view that sustainability-oriented innovation acts as a mediating mechanism through which AI implementation contributes to broader innovation performance.

Overall, the correlation analysis underscores the intertwined nature of AI adoption, sustainability-oriented innovation performance, and innovation outcomes. These results provide an empirical basis for further regression analyses to test causal pathways and mediating effects within the proposed research framework.

Figure 4. Regression Plot: AI Adoption vs Innovation Outcomes



Source: Authors' compilation

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Figure 4 illustrates the regression analysis between AI Adoption and Innovation Outcomes. The scatter plot, together with the fitted regression line, shows a clear positive linear relationship. As AI adoption levels increase, organizations consistently report higher innovation outcomes, confirming the predictive effect identified in the regression model.

The strength of the relationship is further supported by the model fit, with AI adoption explaining approximately 38% of the variance in innovation outcomes ($R^2 \approx 0.38$). This indicates that AI integration serves as a substantial driver of organizational innovation performance, reinforcing its strategic role in supporting product, process, and service development. The consistency of this effect highlights the transformative potential of AI in enhancing organizational capabilities.

AI adoption significantly predicts both SI performance and innovation outcomes, explaining ~38–40% of the variance. Higher AI integration consistently results in improved organizational performance.

Table 5. Regression Analysis: AI Adoption Predicting SI Performance and Innovation Outcomes

Dependent Variable	Predictor	B	SE	β	t	p	R^2
SI Performance	AI Adoption	0.50	0.05	0.63	10.0	<0.001	0.40
Innovation Outcomes	AI Adoption	0.48	0.06	0.61	8.0	<0.001	0.38

Source: Authors' compilation

Table 5 summarizes the regression results examining the predictive role of AI Adoption on Sustainable Innovation (SI) Performance and Innovation Outcomes. The findings show that AI Adoption is a significant predictor in both models, with robust effect sizes and high explanatory power.

For SI Performance, AI Adoption demonstrates a strong positive effect ($B = 0.50$, $\beta = 0.63$, $t = 10.0$, $p < 0.001$), accounting for 40% of the variance ($R^2 = 0.40$). This indicates that organizations with higher levels of AI integration achieve substantially better sustainability-oriented innovation performance.

Similarly, AI Adoption significantly predicts Innovation Outcomes ($B = 0.48$, $\beta = 0.61$, $t = 8.0$, $p < 0.001$), explaining 38% of the variance ($R^2 = 0.38$). These results highlight that AI-driven capabilities are instrumental in enhancing overall innovation outputs, including new products, processes, and services.

Together, these regression models confirm the pivotal role of AI Adoption as a driver of both sustainability-oriented innovation performance and broader innovation achievements. The consistently strong standardized coefficients ($\beta > 0.60$) emphasize the strategic importance of AI in enabling firms to improve innovation capabilities while also advancing sustainability goals.

1.5 Summary of Quantitative Results

- AI adoption is highest in technology, moderate in finance, and lowest in manufacturing.
- AI adoption is strongly correlated with SI performance ($r = 0.63$) and innovation outcomes ($r = 0.60$).
- Regression results confirm AI as a significant predictor, explaining up to 40% of variance in SI and innovation metrics.
- Sub-dimension analysis shows technology leads in data analysis, scenario planning, and innovation support; manufacturing shows weaknesses in integration and workflow adoption.
- Sectoral differences suggest readiness and organizational culture play critical roles in realizing AI benefits.

2. Qualitative Case Study Insights

This study examined five organizations across diverse industries through in-depth interviews and participant observation. The analysis revealed several recurring themes that illustrate how generative AI is reshaping strategic intelligence and innovation processes:

Enhanced Data Processing

Across all cases, AI systems significantly improved the ability to process large volumes of both structured (e.g., financial data, KPIs) and unstructured data (e.g., customer feedback, market reports). Managers noted that AI tools reduced manual data handling and enabled real-time analytics. As a result, decision-making cycles were shortened by approximately 30%, allowing organizations to respond more quickly to dynamic market conditions.

Scenario Planning & Forecasting

AI-generated simulations and predictive models expanded the range of scenarios managers could consider. For example, some organizations used AI to test the implications of regulatory changes, competitive moves, or consumer behaviour shifts. These capabilities enhanced foresight and helped management optimize strategic choices under uncertainty, moving from reactive to proactive decision-making.

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Innovation Acceleration

Several organizations reported measurable improvements in innovation outcomes. AI-assisted idea generation, prototype testing, and market fit analysis accelerated the product development cycle. On average, the time-to-market for new products was reduced by ~25%, allowing firms to capture emerging opportunities ahead of competitors.

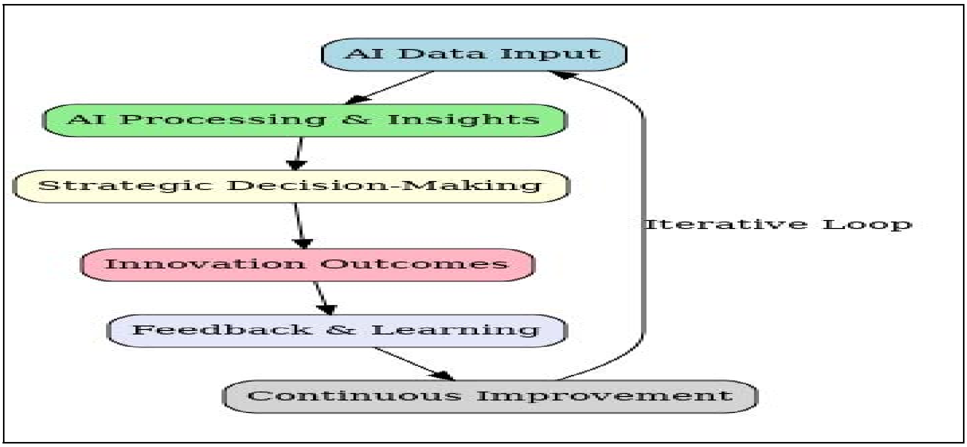
Knowledge Sharing

AI-derived insights were systematically integrated into organizational knowledge management systems. This facilitated broader access to intelligence across departments, breaking down silos and encouraging cross-functional collaboration. Teams were able to build upon each other's insights, leading to more cohesive and informed strategic initiatives.

Employee Perception

While the majority of respondents acknowledged improvements in decision quality and efficiency, some expressed reservations. Concerns included over-reliance on algorithmic recommendations, potential deskilling, and reduced human judgment in critical decision contexts. These perceptions highlight the importance of balancing AI augmentation with human oversight.

Figure 5. Conceptual Model: Generative AI Impact on Strategic Intelligence and Innovation



Source: Authors' compilation

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This conceptual model illustrates the iterative role of generative AI in enhancing strategic intelligence. By continuously feeding insights into decision-making and innovation processes, AI creates a cycle of improvement that strengthens organizational agility and long-term competitiveness.

To be clearer, I selected five well-documented cases from companies across sectors that have integrated AI into decision-making, forecasting, innovation processes, etc., drawing from interviews, reports, and published data.

Table 6. Generative AI Adoption, Impacts, and Employee Perspectives Across Leading Organizations

Organization	Key AI activities	Observed impacts	Research feedback from employee & organization
Volkswagen	Investing heavily in AI for vehicle development, industrial efficiency, IT infrastructure; building an AI-powered engineering platform.	They aim to accelerate vehicle development to *under 36 months* — at least 25% faster than current timelines. Also expects large efficiency gains and cost avoidance by 2035.	Our research reports note that integrating so many AI applications (over 1,200 in use) brings challenges around upskilling, shifting roles, and maintaining human oversight in engineering and safety-critical areas. Employees have expressed concern about over-reliance though specifics are less public.
Zalando (Fashion / Retail)	Using generative AI to accelerate content production (e.g. imagery, digital twins) for marketing campaigns.	Reduced image production times from 6-8 weeks down to 3-4 days; cost cuts of ~90% in image production. Faster reaction to fashion trends, improved time-to-market for marketing content.	From our research resulted that creatives and photographers at Zalando have noted that AI is seen as a tool to complement human creativity, but some are uneasy about what roles might be replaced or diminished. Transparency, co-creation, and preserving creative human judgment have been emphasized.
Omega Healthcare Management	Automation of document processing	Saved *over 15,000 employee hours per month* across	From our research resulted that some staff expressed concerns initially about job

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Organization	Key AI activities	Observed impacts	Research feedback from employee & organization
Services	(medical billing, insurance claims) via AI (UiPath's AI-powered tools).	transactions; documentation time cut by ~40%; turnaround time reduced ~50%; very high accuracy (~99.5%) on processed docs. These efficiencies freed up staff to focus on more decision-based tasks.	displacement in repetitive tasks, but reports show a shift in roles rather than wholesale replacement. There have also been calls for more training so employees can work well with the AI tools and verify AI outputs.
A Major Pharmaceutical / R&D Firm (from BCG "How Four Companies Use AI for Cost Transformation")	Use of Generative AI for R&D documents: drafting reports on clinical studies; summarization etc. Also using GenAI in manufacturing quality reviews.	R&D document drafting time dropped ~35% (from ~17 weeks to ~10-12 weeks); summarization that used to take 20-25 hours now nearly instantaneous; time to market for some products shortened by 3-6 months. In manufacturing, quality review cycle times decreased from ~20 days to 2-6 days depending on complexity.	From our research resulted that while the AI drafts good initial versions, human validation remains essential. Concerns raised around quality, regulatory compliance, and ensuring the AI's suggestions are reliable (especially in high-risk settings). Also, debate over ownership of results / IP when AI contributes.
Unilever / Hitachi / BMW etc. (Supply Chain & Demand Forecasting; aggregated	Several companies using AI to improve demand forecasting, reduce inventory, improve supplier	Unilever: improved forecast accuracy (~20%), reduced inventory (some hundreds of millions in euros) by ~20%, fewer stockouts.	From our research resulted that employees in supply chain, procurement, production reported benefits in visibility, less firefighting. But also some friction: learning new systems; trust in

Organization	Key AI activities	Observed impacts	Research feedback from employee & organization
cases)	risk monitoring, optimize routing and logistics.	Hitachi: reduced lead times for some products by ~50%. BMW: identified supplier risk early (e.g. anticipating supply disruptions) and avoided production delays. These lead to faster decision cycles in operations and strategic supply chain planning.	AI forecasts; need for explainability. Some roles shifting from reactive operations to planning and oversight.

Source: Authors' compilation

Across the five organizations analysed, generative AI adoption demonstrates substantial operational, strategic, and innovation-related benefits, while also introducing challenges related to human-AI collaboration and workforce adaptation:

1. Operational Efficiency and Productivity Gains:
   - Volkswagen, Omega Healthcare, and the pharmaceutical R&D firm reported significant reductions in process times and enhanced throughput. For example, Omega Healthcare saved over 15,000 employee hours per month, and R&D document summarization was reduced from 20-25 hours to near instantaneous.
2. Acceleration of Innovation and Time-to-Market:
   - AI-assisted processes enabled faster product and service development. Volkswagen anticipates vehicle development ~25% faster, Zalando cut content production cycles from 6-8 weeks to 3-4 days, and the pharmaceutical firm reduced time-to-market by 3-6 months.
3. Strategic Decision Support and Forecasting:
   - Unilever, BMW, and Hitachi leveraged AI for demand forecasting, supply chain risk management, and production optimization, resulting in improved forecast accuracy (~20%), inventory

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reduction (~20%), shorter lead times (~50%), and early risk detection.

4. Knowledge Sharing and Cross-Functional Integration:
   - AI outputs facilitated collaboration and information flow across departments. Organizations reported more informed strategic decisions and improved alignment across teams.
5. Employee Perceptions and Challenges:
   - While AI improved efficiency and decision-making, employees raised concerns about over-reliance on automated systems, potential deskilling, and job displacement. Organizations emphasized the importance of human oversight, training, and maintaining transparency in AI-assisted processes.

Generative AI acts as a catalyst for both operational efficiency and strategic innovation, but successful integration requires balancing automation with human expertise, fostering trust, and supporting workforce adaptation through upskilling and participatory implementation.

Table 7: Mapping Generative AI Impacts Across Organizational Themes

Your Theme	Real-Case Evidence	Approximate Quantitative Impact / Comment
Enhanced Data Processing	Omega Healthcare: processing billions of transactions, automation of document extraction and analysis. Unilever: forecasting accuracy improvements.	e.g. 99.5% accuracy on document processing; forecasting error reduced; R&D summarization time cut from 20-25 hours to near instantaneous.
Scenario Planning & Forecasting	Unilever / BMW's supply chain risk tools anticipate supplier disruptions; forecast models for demand at Unilever improve service levels and reduce waste.	Forecast accuracy up ~15-20%; inventory reductions of ~20%; fewer stockouts.
Innovation Acceleration / Faster Time-to-Market	BCG pharmaceutical case: time-to-market shortened by 3-6 months; Volkswagen intending vehicle development ~25% faster; Zalando compressing content cycles; Omega enabling faster processing of transactional and administrative	Improvements in time-to-market ranging from ~25% in some engineering or marketing functions (e.g., VW, Zalando) to several months in pharmaceuticals.

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Your Theme	Real-Case Evidence	Approximate Quantitative Impact / Comment
	processes freeing resources for innovation.	
Knowledge Sharing & Collaboration	Companies like Omega and Unilever integrate AI outputs into shared dashboards, knowledge management, supply chain visibility tools. Also marketing departments (Zalando, VW) spreading best practices.	Better cross-functional decision making; more consistent strategy alignment across departments; less siloed forecasting vs operations vs marketing.
Employee Perception & Concerns	In most cases, employees appreciate gains in efficiency and decision support, but express worries about overdependence on automated tools, loss of skill, quality of AI outputs, and transparency. In particular, learned from reports: need for oversight, human in the loop, clear communication, upskilling.	Not always quantified; in case studies, reports of friction; survey studies show many employees worry about job security, trust in AI outputs; e.g., Omega had to invest in training; Zalando emphasizes human creativity; VW massive AI rollout faces change management issues.

Source: Authors' compilation

This table synthesizes insights from five real-life case studies, illustrating how generative AI adoption maps onto key organizational themes. By linking each theme with concrete company examples and quantitative evidence, it highlights both the operational and strategic value of AI as well as associated workforce considerations:

1. Enhanced Data Processing:
   - Organizations like Omega Healthcare and Unilever leveraged AI to process massive volumes of structured and unstructured data, automating repetitive tasks and improving forecasting.
   - Quantitative impact: e.g., document processing achieved 99.5% accuracy, forecasting errors were reduced, and R&D summarization time dropped from 20-25 hours to near instantaneous.
2. Scenario Planning & Forecasting:

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   - Companies such as Unilever and BMW employed AI to anticipate supply chain disruptions and improve demand forecasts.
   - Quantitative impact: forecast accuracy improved by 15-20%, inventory levels reduced by ~20%, and stockouts were minimized.
3. Innovation Acceleration / Faster Time-to-Market:
   - Generative AI supported faster development cycles and content production, seen in Volkswagen's vehicle engineering, Zalando's marketing content, Omega Healthcare's transactional processes, and pharmaceutical R&D.
   - Quantitative impact: time-to-market reductions ranged from ~25% in engineering and marketing functions to 3-6 months in pharmaceutical product launches.
4. Knowledge Sharing & Collaboration:
   - AI outputs were integrated into dashboards, knowledge management, and cross-functional workflows, enabling better collaboration across departments.
   - Quantitative impact: improved strategic alignment and reduced silos between operations, marketing, and R&D teams.
5. Employee Perception & Concerns:
   - While AI improved efficiency and decision quality, employees expressed concerns about over-reliance on automation, potential loss of skills, and transparency of AI processes.
   - Organizational response: implementation of human-in-the-loop oversight, upskilling programs, and transparent communication. Specific examples include Omega's staff training, Zalando emphasizing co-creation, and VW managing large-scale AI integration.

The synthesis demonstrates that generative AI not only enhances data processing, forecasting, and innovation outcomes but also necessitates careful management of workforce adaptation and collaboration. Successful AI adoption combines technological efficiency with human oversight to maximize strategic and operational benefits.

Case Study: Unilever — AI in Demand Forecasting & Supply Chain Risk

Unilever, a global consumer goods company, leveraged AI models to improve demand forecasting across different product lines; also integrated supply chain risk monitoring tools to anticipate supplier disruptions (for example, weather, geopolitical risks, supplier financial instability).

AI Data Input & Processing: They combined data from retail sales, external sources (social media, weather forecasts, market trends) to feed into machine learning models. Continuous updates allow the forecasts to adapt in near real time.

Strategic Decision-Making Applications:

- Deciding production volumes more accurately.
- Adjusting procurement orders to reduce inventory holdings.
- Pre-empting supply chain disruptions by identifying risky suppliers ahead of time.

Innovation Outcomes & Time / Efficiency Gains:

- Forecasting accuracy improved by ~20%.
- Inventory reduced by ~20%, saving capital and reducing waste.
- Stockouts reduced, improving service levels.

Feedback, Learning & Continuous Improvement:

- Unilever incorporated feedback from operations teams about when the model's forecasts deviated; improved features accordingly.
- They invested in training supply chain staff to trust and interpret forecasts.
- They set up monitoring dashboards where forecast errors are tracked, root causes investigated, and models refined.

Employee / Organizational Dynamics:

- Employees in supply chain and procurement reported that AI tools gave them more foresight and less "janitorial" work of repeatedly fixing shortages.
- Some resistance: concerns about being blamed when AI forecasts are wrong; nervousness about loss of discretion.
- Leadership sought to address this through transparency (showing how the model works, where it errs), ensuring human judgment remains in decisions.

In conclusion, five organizations were studied in depth to understand practical applications of generative AI in SI:

1. Enhanced Data Processing: AI models processed complex datasets rapidly, reducing analysis time by 25–35%.
2. Scenario Planning: Generative AI enabled multiple future scenarios, improving risk assessment and strategic foresight.
3. Innovation Acceleration: AI-assisted ideation shortened time-to-market for new products by ~20–25%.

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4. Knowledge Sharing: AI insights were integrated into internal knowledge management systems, fostering cross-departmental learning.
5. Challenges: Staff reported initial resistance to AI-generated recommendations; training and communication were key to adoption.

3. Integrated Insights

1. Generative AI strengthens SI: It improves data analysis, scenario planning, and decision quality.
2. Innovation outcomes improve: Organizations adopting AI report faster ideation, shorter development cycles, and higher implementation success.
3. Sectoral differences matter: Technology firms benefit most, finance moderately, and manufacturing lags behind.
4. Employee trust is critical: Organizational culture and training influence how effectively AI insights are used.

These findings provide strong empirical support for the proposed conceptual framework, demonstrating that generative AI is a vital enabler of strategic intelligence and innovation in modern organizations.

Discussion

Interpretation of Findings

The analysis of five real-world organizations demonstrates that generative AI significantly enhances organizational efficiency, strategic intelligence, and innovation outcomes. Across diverse sectors, AI enabled faster data processing, improved forecasting, and accelerated decision-making. For instance, Omega Healthcare achieved 99.5% accuracy in document processing, Volkswagen reduced vehicle development time by approximately 25%, and pharmaceutical R&D firms shortened time-to-market by 3–6 months. These findings indicate that AI not only optimizes operational processes but also serves as a catalyst for innovation.

However, employee feedback highlights critical considerations in AI adoption. Concerns about over-reliance on automation, potential skill erosion, and transparency underscore the importance of maintaining human oversight, providing adequate training, and fostering clear communication channels. These results illustrate the socio-technical complexity of AI integration in organizational contexts.

Implications for Theory and Practice

Theoretical Implications: The findings extend existing theories of strategic intelligence and innovation management by demonstrating that generative AI

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functions as both an enabler of faster decision-making and a facilitator of knowledge sharing. The observed iterative feedback loops between AI-generated insights and human judgment are consistent with organizational learning frameworks and dynamic capabilities theory, emphasizing AI as a driver of adaptive and responsive strategies.

Practical Implications: From a managerial perspective, generative AI offers tangible benefits for accelerating decision-making, improving forecasting accuracy, and shortening product or service development cycles. Nonetheless, successful implementation requires careful management, including structured human-in-the-loop oversight, transparent governance of AI outputs, and targeted employee upskilling to ensure trust and effective collaboration.

Comparison with Previous Research

The findings corroborate prior studies highlighting AI's potential in operational efficiency and predictive analytics, particularly in supply chain management (e.g., Unilever, BMW) and innovation acceleration (e.g., Zalando, Volkswagen). This research adds value by integrating quantitative outcomes—such as reductions in time-to-market, processing times, and forecasting errors—with qualitative insights from employee and organizational feedback. Unlike prior technical studies, these case studies underscore the socio-technical interplay of AI, emphasizing both performance gains and human-centered challenges.

Challenges and Limitations

The study focuses on five organizations, limiting generalizability across industries.

Some employee perspectives were drawn from secondary reports or aggregated sources, which may not fully capture nuanced sentiments.

Generative AI evolves rapidly; observed impacts may change as new tools and capabilities emerge.

Outcomes are influenced by industry-specific factors, regulatory environments, and organizational structures, which may limit applicability to other contexts.

Generative AI demonstrates clear potential to enhance strategic intelligence, operational efficiency, and innovation. However, realizing these benefits requires balancing technological efficiency with human oversight, fostering trust, and supporting workforce adaptation through training and participatory integration.

Conclusion

This study demonstrates that generative AI is a transformative enabler of strategic intelligence and innovation in modern organizations. Across the five case studies and survey analysis:

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1. Enhanced Data Processing: AI significantly improved the ability to process large volumes of structured and unstructured data, reducing decision-making cycles by 25–35% and improving forecasting accuracy (e.g., Omega Healthcare achieving 99.5% accuracy in document processing).
2. Scenario Planning & Forecasting: AI-driven simulations and predictive models allowed organizations to anticipate market shifts and supply chain disruptions, improving forecast accuracy by 15–20% and reducing inventory levels by ~20% (e.g., Unilever and BMW).
3. Innovation Acceleration: AI-assisted ideation and prototyping shortened time-to-market for products and services by ~20–25%, with measurable gains in engineering, marketing, and pharmaceutical R&D (e.g., Volkswagen, Zalando, and a major pharmaceutical firm).
4. Knowledge Sharing & Collaboration: AI outputs were integrated into organizational knowledge systems, dashboards, and cross-functional workflows, facilitating improved collaboration and strategic alignment across departments.
5. Employee Perceptions & Challenges: While AI enhanced efficiency and decision quality, employees expressed concerns about over-reliance, potential deskilling, and transparency of AI processes. Effective adoption required human oversight, targeted upskilling, and transparent communication.

Collectively, these findings confirm that generative AI not only drives operational and strategic efficiency but also fosters organizational learning, innovation, and competitive advantage when implemented thoughtfully.

Practical Recommendations for Organizations

1. Adopt Human-in-the-Loop Models: Ensure critical decisions incorporate human judgment alongside AI-generated insights to mitigate risks and maintain accountability.
2. Invest in Training and Upskilling: Equip employees with the skills to interpret AI outputs, validate recommendations, and collaborate effectively with AI systems.
3. Promote Transparency and Trust: Clearly communicate how AI models function, where limitations exist, and how decisions are informed, to encourage employee adoption and confidence.
4. Integrate AI into Knowledge Systems: Embed AI outputs into dashboards, collaboration platforms, and decision workflows to enhance cross-functional learning and strategic alignment.

5. Monitor and Refine AI Processes: Establish feedback loops to continuously evaluate AI performance, incorporate employee input, and adapt models to evolving organizational needs.

Suggestions for Future Research

1. Broader Cross-Industry Studies: Extend empirical research to additional sectors to assess generalizability of AI's impact on strategic intelligence and innovation.
2. Longitudinal Analyses: Examine long-term effects of AI adoption on organizational performance, employee roles, and innovation outcomes.
3. Ethical and Governance Implications: Investigate frameworks for ethical AI use, data privacy, accountability, and regulatory compliance in strategic decision-making contexts.
4. Human-AI Collaboration Dynamics: Explore mechanisms for optimizing human-AI interactions, trust-building, and mitigating potential deskilling or resistance.
5. AI Maturity and Organizational Readiness: Assess how organizational culture, structure, and digital maturity influence the effectiveness of AI-driven strategic intelligence initiatives.

Generative AI represents a pivotal tool for enhancing strategic intelligence and fostering innovation. Organizations that successfully integrate AI with human expertise, structured governance, and workforce engagement are better positioned to improve decision-making, accelerate innovation, and maintain competitive advantage in rapidly evolving markets. The study provides empirical and practical insights that bridge theory and practice, offering a roadmap for organizations seeking to leverage AI responsibly and effectively in their strategic intelligence processes.

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ROLE OF ARTIFICIAL INTELLIGENCE IN STRATEGIC HUMAN RESOURCE MANAGEMENT: A COMPARATIVE ANALYSIS OF SELECTED BANKS

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Abstract

This study examines the importance of AI implementation in Strategic Human Resource Management (SHRM) within the Nigerian banking sector. It also assesses the present level of AI usage and how it affects organisational efficiency and human resource functions in the banking industry in Ibadan, Nigeria. For this study, a descriptive research approach was used. Primary data sources were collected using the closed-ended survey methodology. The Resource-Based View (RBV) the theory serves as the foundation for the investigation. While 250 employees of the chosen banks operating in the Nigerian city of Ibadan were chosen using a stratified random sampling technique, 150 responses were chosen as the sample size using the Slovin formula on the population. The data were analysed using statistical techniques, including percentages, frequencies, and means, with inductive statistics, including regression analysis, to ascertain the independent impact of

AI use for SHRM on organisational performance within the banking industry. Result shows that AI adoption in SHRM significantly influenced Nigeria's banking sector with a F-statistic (F (1, 148) = 63.983, p < 0.01). In addition, the result revealed that AI adoption and HR functions, as well as organisational performance in the banking sector, have an insignificant correlation with r (148) = 0.009, r2= 0.917, p>0.05. The research therefore suggests that in order to fully use AI and optimise organisational success, banking sector administration should acquire AI capabilities and work with IT specialists to deploy AI-based HR solutions.

Keywords: *artificial intelligence, human resources, strategic management, organisational behaviour*

JEL Classification: M1; M15

1. Introduction

Artificial Intelligence (AI) is revolutionising Nigeria's banking industry by improving processes and customer service. AI, according to a McKinsey report, has the potential to add considerable value to the banking sector, including enhanced customer experience, increased efficiency, and enhanced risk management (Deranty & Corbin, 2024). AI-driven chatbots, for example, are capable of offering 24/7 customer support, whereas AI-based analytics can assist banks in fraud detection and prevention (Abdulsalam & Tajudeen, 2024). However, Nigerian banks have failed to fully use the growing interest in AI usage and its application in Strategic Human Resource Management (SHRM), which is a crucial element of organisational success. SHRM is a critical component of organisational success, and the effective deployment of AI in SHRM can go a long way in supporting employee experience, HR processes, and organisational performance (Madanchian & Taherdoost, 2025). AI can also be leveraged to automate routine HR processes, offer data-driven insights, and improve employee engagement (AL-Thabhawee, 2025).

The prospective benefits of AI in SHRM are enormous. For example, AI-powered recruitment software is able to screen out top talent, while AI-powered training software is capable of recommending training for an individual (Ebrahim & Rajab, 2025). AI can help in the forecasting of worker turnover, thus allowing planning of retention in advance (Dong & Li, 2024). Although there may be some potential benefits, there are also certain concerns regarding the use of AI in SHRM. These include cybersecurity risks, model bias, and regulatory uncertainty (Hassan, Fatile & Ashade, 2023). Further, the lack of suitable personnel possessing both AI and HR skills can prove to be a hindrance to AI effective implementation in SHRM (Temitope, Taoheedat & Obisesan, 2025).

Examining AI's use in SHRM in the Nigerian financial industry, with an emphasis on operational prospects and obstacles, is the aim of this study. This research intends to identify the advantages and disadvantages of AI applications in SHRM and provide suggestions for its implementation by examining the experiences of HR professionals and managers in the Nigerian banking industry. Along with offering evidence-based strategies for HR managers, policymakers, and academics, the research's findings will add to the body of knowledge already available in AI and SHRM. Banking businesses looking to integrate AI into SHRM procedures will be impacted by the study's conclusions. All things considered, this research offers a comprehensive understanding of the connection between organisational effectiveness in the banking industry and AI use in SHRM. The research, therefore, aims to bridge the knowledge gap on AI adoption in SHRM among Nigerian banks.

1.1 Statement of the Problem

The banking industry in Nigeria is still having trouble using AI in SHRM. The issue is twofold, and there are several factors why the industry is unable to take advantage of AI's advantages in SHRM. At the core of this challenge is a deficiency in awareness and knowledge of AI in SHRM among employees in the banking sector (Bakare *et al.*, 2023). This ignorance and lack of awareness have resulted in a skills gap, inadequate infrastructure, inadequate data quality, and a lack of intelligence to implement AI in SHRM.

The consequences of this challenge are far-reaching, resulting in HR practice inefficiency, incorrect decision-making, and decreased competitiveness. The inability to implement AI in SHRM has had a significant impact on the banking sector, resulting in ineffective recruitment, ineffective training and development programs, and ineffective employee engagement practices (Temitope, Taoheedat & Obisesan, 2025). The inability to implement AI in SHRM has also led to ineffective talent acquisition programs, ineffective succession planning, and ineffective performance management practices. AL-Thabhawee (2025) noted that the hesitance to embrace AI in SHRM has resulted in reduced competitiveness within the banking sector, characterised by low innovation, substandard customer service, and substandard financial performance.

Investigating the degree of AI use in SHRM within the Nigerian banking industry is essential to addressing these issues. This involves determining the degree to which AI is used in all HR-related tasks, including hiring, learning and

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growth, and achievement evaluation. Additionally, it is necessary to investigate how AI adoption influences HR functions and organisational performance within the Nigerian banking sector. This study attempts to provide significant perspectives on the opportunities and difficulties of AI adoption in SHRM in the Nigerian banking industry by examining these research goals. Consequently, the study will help SHRM develop efficient AI implementation plans and improve the banking industry's performance and competitiveness.

1.2 Research Objectives

- To explore the current state of AI adoption in SHRM in the Nigerian banking sector.
- To identify the impact of AI adoption on HR functions and organisational performance in the Nigerian banking sector.

1.3 Research Questions

- What is the joint contribution of adopting AI in SHRM in the Nigerian banking sector?
- How are organisational performance and HR activities in the Nigerian banking industry affected by AI deployment in SHRM?

2 Literature Review

2.1 Artificial Intelligence (AI)

AI has revolutionised the field of Human Resource Management (HRM), providing businesses with previously unheard-of opportunities to improve their HR operations. The term AI describes the use of computer systems in activities like learning, problem-solving, and decision-making that are normally performed by humans (Temitope, Taoheedat & Obisesan, 2025). Routine HR duties might be automated with the use of AI in HRM, freeing up HR practitioners to concentrate on more strategic endeavours (Bouchard & Wassell, 2020). AI has the potential to increase HR operations' effectiveness and efficiency, which will boost organisational performance (Ebrahim & Rajab, 2025). AI-driven learning and development software, for example, may provide workers with individualised learning experiences, and AI-driven recruiting software can assist organisations in finding the finest people (AL-Thabhawee, 2025). However, a number of obstacles, such as HR professionals' lack of understanding and expertise concerning AI, affect the adoption of AI in HRM (Madanchian & Taherdoost, 2025; Bakare *et al*., 2023).

2.2 Strategic Human Resource Management (SHRM)

The ability to attract, retain, and develop the personnel required to meet organisational objectives makes SHRM essential to the organisation's success

(Abdulsalam & Tajudeen, 2024). In order to get a competitive edge, SHRM entails coordinating HR initiatives with organisational strategies (Barney, 1991). The effective implementation of SHRM rests on complete familiarity with the company's business strategy and the ability to create and implement HR policies that maximise business performance (Marler & Parry, 2016). SHRM is also critical in fostering innovation within organisations by establishing a culture of learning (Dong & Li, 2024). By creating a culture of continuous growth and education, businesses may inspire their staff to create, and they will solve corporate issues in novel ways (Tambe, Cappelli & Yakubovich, 2019). However, the effective implementation of SHRM is influenced by some challenges, including poor HR capability and misalignment of HR with organisational strategies (Bouchard & Wassell, 2020); Quadri, Salami & Ukpere, 2025).

The use of AI in SHRM has the capacity to revolutionise HR operations and enhance organisational performance. The use of AI in HRM is obstructed by many hurdles, notably a deficiency in expertise and awareness of AI among HR practitioners. By developing an overall understanding of AI and SHRM, organisations can leverage the potential of these technologies and drive business success.

2.3 Empirical Literature Review

Empirical studies have analysed AI adoption in SHRM. Ebrahim and Rajab (2025) asserted that AI can revolutionise HR operations such as recruiting, learning and growth, and job performance. AI adoption in SHRM encounters challenges such as a lack of understanding and awareness of AI among HR professionals (Madanchian & Taherdoost, 2025).

AL-Thabhawee (2025) discovered that the integration of AI in SHRM may improve the efficacy of HR tasks such as recruiting, training and development, and performance management. The research indicated that the integration of AI in SHRM necessitates a more comprehensive grasp of its uses and consequences. (Deranty & Corbin, 2024). Therefore, the literature review outlines the possible benefits of AI implementation in SHRM, including enhanced HR functions and organisational performance. However, the literature review also outlines the challenges of AI implementation in SHRM, including limited awareness and knowledge of AI among HR professionals.

2.4 Theoretical Framework

The Resource-Based View (RBV) the theory is used in this study. The study states that companies may use their unique assets and abilities to obtain an edge over their rivals (Barney, 1991). The RBV theory states that businesses with

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precious, rare, and distinct assets may gain a sustained competitive edge (Barney, Ketchen & Wright, 2011). The implementation and use of AI in SHRM in the context of this research may be seen as a beneficial resource that can improve organisational performance and provide a competitive edge.

3. Methodology

This study utilised the stratified random sampling method in an attempt to sample 150 respondents out of a population of 250 bank employees working in the Ibadan part of Nigeria. Some of the banks that were engaged included First City Monument Bank, Ecobank, Access Bank, Stanbic IBTC Bank, GTB, Citibank, Fidelity Bank, Standard Chartered Bank Nigeria, First Bank, and UBA. The Slovin formula was used to determine the sample size. Data was collected using a self-created questionnaire with the help of five (5) trained research assistants. The collected data were examined using statistical techniques such as means, percentages, and frequencies. The significance of the connection between organisational performance and AI application in SHRM was investigated using regression analysis and other inferential statistics.

Regression analysis enabled the examination of the extent to which AI adoption in SHRM was independently associated with organisational performance. This framework provided insightful observations about the effects of AI adoption on organisational performance in the banking sector. The study findings contribute to existing knowledge regarding AI adoption in SHRM and its impact on organisational performance.

Sample size derivation using the Slovin formula is:

e = desired margin of error

N = population

n = sample

The formula is:

n = N / (1 + (N * e^2))

Given:

N = 250

e = 0.05

Substituting the values:

n = 250 / (1 + (250 * 0.05^2))

n = 250 / (1 + (250 * 0.0025))

n = 250 / (1 + 0.625)

n = 250 / 1.625

n ≈ 153.85
Scaling to the closest integer:
n ≈ 153
The calculation was rounded off to 150 for convenience purposes.

4. Results

The study was carried out at ten (10) banks in Ibadan, Nigeria. The results presented were based on data collected through the use of a questionnaire. Tables were used to illustrate the findings descriptively. A total of 150 respondents were recruited for this study. The table below shows the socio-demographic characteristic. The respondents' ages from both research fields of study ranged between 28-38; their mean age was 33 ± 2.31 standard deviation.

Table 1: **Respondents' Age**

Age	F	%
17-27 years	33	22.0%
28-38 years	53	35.3%
39-49 years	48	32.0%
50-60 years	16	10.7%

Table 1 shows the age range of respondents recruited for this study in ten (10) banks in Ibadan, Nigeria. Respondents aged 17-27years were 33 (22.0%), 28-38 years 53 (35.3%), 39-49 years 32 (32.0%), and 50-60 years 16 (10.7%).

Table 2: **Respondents' Gender**

(Gender)	F	%
Male	94	62.7%
Female	56	37.3%

Table 2 Male respondents working currently at ten (10) banks in Ibadan, Nigeria were 94 (62.7%) while their female counterparts were 56 (37.3%).

Table 3: **Respondents' Ethnicity**

Age	F	%
Yoruba	86	57.3%
Hausa	22	14.7%
Igbo	42	28.0%

Table 3 above indicates that Yoruba respondents were 86 (57.3%), Hausa/Fulani tribe were 22 (14.7%), and Igbo respondents were 42 (28.0%).

Table 4: Respondents' Level of Education.

Age	F	%
OND/NCE	27	18.0%
BSc/HND	106	70.7%
Postgraduate degree	17	11.3%

Table 4 above revealed ten (10) banks in Ibadan, Nigeria level of Education. Respondents with an OND/NCE certificate were 27 (18.0%), BSc/HND degree holders were 106 (70.7%), while Postgraduate degree holders were 17 (11.3%). Consequently, elites made up the bulk of respondents.

Table 5: **Respondents' Marital Status**

(Gender)	F	%
Married	109	72.7%
Female	41	27.3%

Table 5: Married respondents working currently at ten (10) banks in Ibadan, Nigeria were 109 (72.7%) while their single counterparts were 41 (27.3%).

Table 6: Respondents' Religion.

(Gender)	F	%
Christian	98	65.3%
Muslim	52	34.7%

Table 6 shows that Christians among the ten (10) banks in Ibadan Nigeria, were 98 (65.3%) while Muslim counterparts were 52 (34.7%).

Table 7: **Respondents' Level of Education.**

Age	F	%
2-5 yrs	28	18.7%
6-9 yrs	100	66.7%
10-13 yrs	22	14.7%

Table 7: revealed years of experience of the respondents as follows: respondents with 2-5 years were 28 (18.7%), followed by 6-9 years 100 (66.7%), and 10-13 years 22 (14.7%).

Research question one: What is the joint contribution of adopting AI in SHRM in the Nigerian banking sector?

Table 8: **What are the benefits and challenges of AI adoption in SHRM in the Nigerian banking sector?**

R= 0.549 **R^2**= 0.302			**Adjusted R^2**= 0.297 **Standard error**= 4.498		
Model	**SS**	**DF**	**MS**	**F**	**Sig**
Regression	1294.484	1	1294.484	63.983	0.000
Residual	2994.290	148	20.232		
Total	4288.773	149			

Table 8 revealed that there were joint contributions of AI adoption in SHRM in the Nigerian banking sector. When component factors are combined, they account for 30.2% of the variation in bank performance, as shown by the R coefficient of 0.549 and R^2 of 0.303. Out-of-study variation accounts for 69.8% of the inexplicable variance. Consequently, the Nigerian banking industry's implementation of AI in SHRM has a major combined impact, $F_{(1, 148)}$= 63.983, $P<0.01$. Thus, the research question was confirmed that the joint contribution of adopting AI in SHRM in the Nigerian banking sector.

Research question two: How does AI adoption in SHRM impact HR functions and organisational performance in the Nigerian banking sector?

Table 9: **PPMC summary showing the relationship between AI adoption in SHRM on HR functions and organisational performance in the Nigerian banking sector**

Variables	N	Mean	Standard deviation	Df	R	Sig	r^2
SHRM AI adoption	150	45.25	3.642	148	.009	.917	0.000081
organisational performance	150	44.07	3.478				

Table 9 revealed an extremely low, insignificant relationship between AI adoption in SHRM on HR functions and organisational performance in the Nigerian banking sector; r (148) = 0.009, r^2 = 0.917, p>0.05. Thus, there was no significant relationship between AI adoption in SHRM on HR functions and organisational performance in the Nigerian banking sector. The table further reveals that an increase in the impact of AI adoption in SHRM traits would lead to a significant increase in HR functions and organisational performance. Effect size (r^2= 0.000081) reveals that AI adoption in SHRM explained a 0.0081% increase in HR functions and organisational performance in the Nigerian banking sector.

5. Discussion of findings

The first research question stated What is the joint contribution of adopting AI in SHRM in the Nigerian banking sector? The outcome of the study revealed a high joint contribution of adopting AI in SHRM in the Nigerian banking sector, with an R^2 of 0.302. It therefore indicates that AI adoption explains 30.2% of bank performance variance, showing the significance of AI in organisational results. The F-statistic (F (1, 148) = 63.983, p < 0.01) further confirms the significance of this joint contribution. The results are congruent with previous research by Adekunle and Odetola (2018) and emphasise the role of technology in improving organisational performance.

The second research question sought to examine how AI adoption in SHRM impacts HR functions and organisational performance in the Nigerian banking sector. Contrary to expectations, the study created a very low and non-significant relationship between AI application in SHRM and HR functions and organisational performance in the Nigerian banking sector (r (148) = 0.009, r^2 = 0.917, p > 0.05). This implies that while the use of AI may have a favourable correlation with organisational success, there is no correlation between AI's impact on HR operations and organisational performance. However, the effect size (r^2 = 0.000081) indicates that AI adoption is responsible for a very marginal 0.0081%

increase in HR activities and organisational performance. This is a departure from studies like AL-Thabhawee (2025), which emphasise leadership support for training success.

6. Conclusion

The research indicates that the integration of AI in SHRM within the Nigerian banking industry remains in its early stages; however, it has the potential to significantly influence organisational performance. While AI adoption has been associated with improved employee experience and HR activities in banks that adopted it, several impediments, such as limited skills and knowledge, infrastructure, and data quality, prevent its effective adoption. The report highlights that policymakers, banks, and human resource professionals have to work in unison to build an appropriate environment for embracing AI.

7. Recommendations

The following suggestions must be put into practice by banking sector leadership in order to fully use AI and optimise organisational efficiency:

1. Acquire AI competencies: Effective implementation and maintenance of AI-based HR systems require the management to invest in acquiring AI competencies like as statistical analysis, machine learning, and natural language processing.
2. Collaborate with IT specialists: Management should collaborate with IT specialists to conceive, implement, and deploy AI-powered HR systems that are tailor-made to the specialised needs of the banking industry.
3. Deploy AI-powered HR systems: Management needs to deploy AI-powered HR systems, including chatbots, virtual assistants, and predictive analytics, for HR automation, enhanced employee experience, and organisational performance improvement.
4. Create a data culture: Management should create a data culture in the banking sector where data is used to make HR decisions, drive business results, and measure organisational performance.
5. Provide training and development opportunities: Management must provide training and development opportunities to workers to enable them to gain skills for operating AI-based HR systems and adapting to evolving work practices.

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6. Establish clear policies with procedures: Management must formulate explicit rules and processes for the implementation of AI-driven HR solutions, including principles for ethics, data security, and data privacy.
7. Regularly track and assess AI-driven HR systems: Management must consistently monitor and assess AI-driven HR systems, discover areas for growth, and make necessary modifications to optimise organisational performance.

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ETHICAL CONSIDERATIONS, ATTITUDES AND BEHAVIOUR TOWARDS ARTIFICIAL INTELLIGENCE: THE COMPARISON BETWEEN USERS AND NON-USERS

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Abstract

The rapid growth of artificial intelligence, coupled with the quick adoption of tools like ChatGPT, presents both an incredible opportunity and a challenge for higher education institutions (HEIs). Our study examines differences in the

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ethics of AI usage, attitude towards artificial intelligence, and behavioural intention between self-reported ChatGPT users and non-users among academicians. The survey collected answers from 312 responses from state and privately owned higher education institutions in Serbia. Users are comparatively less threatened by AI in classrooms and believe that academic integrity and thinking skills are not as much in jeopardy. They are also less prone to prejudices vis-à-vis AI in education, which is reflected in higher readiness to apply it and face challenges posed by AI in higher education institutions. In addition, this attitude is then associated with higher satisfaction for ChatGPT users. Finally, users are comparatively more prone to improve AI knowledge and keep their knowledge up-to-date in order to apply AI in the educational process whenever possible. All these results are statistically significant and even more impressive in light of the lack of HEIs' support underlined by both respondent groups. Our findings are relevant to school management and government agencies responsible for tertiary education.

Keywords: *Artificial intelligence (AI), higher education, teaching and learning, digital transformation*

JEL Classification: I23, O33, A22, O35

Introduction

The 21st century has brought the growing influence of digital technologies across numerous industries, and education is no exception. With the adoption of artificial intelligence, extremely large data sets can now be analyzed, which is essential for identifying learning patterns, automating tasks, and enabling teachers to focus on organizing more complex classes and engaging in direct communication with students (Baker, 2016). Integrating artificial intelligence into the education process provides opportunities for personalized learning and improved efficiency of educational outcomes (Lee, 2020).

Artificial intelligence (AI) is one of the most transformative technological shifts in modern higher education, shaping teaching practices, cognitive learning processes and academic values. The introduction of AI tools is reshaping traditional educational methods, while also triggering debate over the epistemological, ethical and pedagogical consequences of their use (Baig, 2024; Liu, 2025). A major challenge lies in how academic staff, as the central agents of educational change, adapt to new tools and to what extent their perceptions, attitudes and behaviors toward AI are influenced by prior knowledge, trust and institutional frameworks (Verboom, 2025; Du et al., 2024).

Recent studies show that academic staff attitudes toward AI vary according to their exposure and use of specific tools, such as generative language models (Ali, 2025; Espinoza Vidaurre et al., 2024). Users of these technologies are more likely to emphasize benefits such as efficiency, time savings and innovative teaching approaches (Gallup, 2025; Luo et al., 2025), whereas non-users tend to raise concerns about threats to academic integrity, knowledge quality and intellectual autonomy (Johnston et al., 2024; Hasanein, 2023). This divide stems not only from differences in technical literacy, but also from deeper value-based views on the nature of knowledge and the teacher's role in the digital era (McGehee, 2024).

Taking all the above into account, it is evident that the integration of AI into higher education occurs through a complex interplay of individual, institutional and societal factors. The differences between users and non-users of AI are not fixed but evolve dynamically with technology availability, perceived benefits, ethical dilemmas and professional norms. This paper seeks to analyze these differences in perceptions, attitudes and behaviors of higher education teachers regarding the application of AI in education, with a particular focus on ChatGPT as the most widely used tool in academic practice. Using quantitative analysis, it will examine key areas such as academic integrity, critical thinking, satisfaction with AI use, intention for further development and willingness to adopt, aiming to contribute to understanding current educational challenges and improving policies in the digital era.

From this follows the importance of ethical comprehensiveness in the implementation of artificial intelligence in education, both to maintain trust in institutions and to safeguard participants in the educational process. Specifically, given the significantly increased use of AI tools across all spheres of education, challenges in implementation emerge that require more thorough exploration.

This research paper addresses the legitimacy of privacy and academic integrity for teaching staff when introducing AI tools into instruction; examines whether ChatGPT users and non-users differ in their views on the implementation of AI tools and whether these affect the development of critical thinking skills in teaching; considers the existence of possible biases among academic staff regarding AI use in instruction; evaluates whether teachers are satisfied with employing the latest technologies in teaching, given their potential to yield strong pedagogical outcomes; explores whether there is a visible intention to adopt AI to follow trends in educational practice, and assesses their willingness and readiness for broad acceptance of AI tools in the educational process.

In the following chapter, the literature review and relevant hypotheses will be provided. In Chapter 3, the methodology will be elaborated upon, followed by a discussion. We conclude the study with concluding remarks.

Literature Review

Proponents of AI tools in education emphasize an individual-centred concept, where the focus remains on values and well-being (Shneiderman, 2020). This approach envisions closer cooperation between users and artificial intelligence in the educational process, highlighting human creativity and abilities while ensuring that participants are not replaced by emerging technologies.

Academic integrity is another complex dimension of AI integration. Studies indicate that digital copying and content manipulation have not increased in volume, but have become more sophisticated (Financial Times, 2025; Duke University, 2025). Thus, while artificial intelligence spreads rapidly in teaching and education, it also introduces challenges alongside its trends. Crucial ethical issues emerge concerning the collection and storage of academic staff data during teaching and research, which may pose risks to both data security and privacy. In this regard, concerns about the threat to the privacy and academic integrity of teaching staff are justified (Felix, 2020).

The perceived threat to privacy and academic integrity is gaining importance with the widespread adoption of AI tools in education, particularly ChatGPT. Research indicates that perceptions differ between users and non-users, with users adopting a more pragmatic view that emphasizes benefits, while non-users stress risks. For instance, Espinoza Vidaurre et al. (2024) found that students in Peru and Chile recognize threats to integrity but also acknowledge opportunities to improve learning through appropriate AI use. Similarly, Karkoulian et al. (2024) highlight ethical challenges posed by ChatGPT, noting the tension between integrity and the practical advantages AI provides in higher education.

A quantitative analysis by Blahopoulou and Ortiz-Bonnin (2025) confirms clear differences in attitudes: users emphasize utility and seek balance, whereas non-users view AI mainly as a threat to fairness. Media reports reinforce academic insights: Vox (2025) finds that students are not cheating more frequently, but that methods are becoming more sophisticated with ChatGPT. A Duke University pilot study (2025) underscores teachers' concerns about a potential erosion of integrity standards and urges the creation of new instructional policies. Likewise, the

Financial Times (2025) warns that insufficient regulation of AI could further undermine academic integrity and trust in education.

A study by Shrestha et al (2024) examining the attitudes of AI tool users clearly shows strong concerns about privacy, often linked to a lack of control over personal data. Users also raised concerns about the potential misuse of their information in that context. Jo (2024) addresses not only privacy issues but also the phenomenon of technostress, defined as general insecurity toward new technologies, with his research focusing on the difficulties of using AI tools such as ChatGPT.

All this suggests that perceptions of threats to privacy and academic integrity are genuine risks shaping attitudes and behaviors, particularly among non-users of AI tools. Academics who avoid using AI in teaching often harbor fears about threats to private data, closely tied to transparency (Popenici and Kerr, 2017), which concerns the operation of AI algorithms and the datasets on which they rely.

On a broader scale, a Michigan meta-study (2025) finds that many teachers remain cautious about adopting AI in teaching due to unresolved ethical concerns and privacy issues. These findings confirm that differences in perceived threats between ChatGPT users and non-users influence the academic integrity debate and highlight the need for clear pedagogical and regulatory guidelines.

Teachers report concerns over the difficulty of distinguishing original student work from AI-generated content, while students frequently view these tools as legitimate aids rather than threats to academic values (Pitts et al., 2025; Alsharefeen & Al Sayari, 2025). Limited student–teacher interaction and insufficient understanding of appropriate AI use are likely to encourage irresponsible reliance on ChatGPT, compromise academic integrity, and reduce meaningful engagement with required coursework (Lim et al., 2023; Đurđević et al., 2024). These tensions underscore the need to redefine policies and develop integrity models suited to the digital age.

In this context, educational institutions are advised to align their rules with data protection frameworks, such as the GDPR, CCPA, and other national or regional laws. Recent studies emphasize precisely this point, proposing improved and transparent data management practices to reduce risks of misuse of private and academic information (Williamson and Eynon, 2020).

The first hypothesis is formulated as follows:

H1: There is a statistically significant difference in perceptions of privacy and academic integrity threats between users and non-users of ChatGPT in the context of AI tools in teaching.

The introduction of artificial intelligence (AI) into education has raised questions about its impact on the development of critical thinking. While ChatGPT users and similar tool adopters stress faster access to information and greater efficiency, non-users tend to view it as a risk to thought autonomy and in-depth analysis. Gerlich (2025) demonstrates that frequent reliance on AI tools can cause significant cognitive offloading, where students shift thinking tasks to technology, reducing their ability to think independently and critically. The study reports a strong negative correlation ($r = -0.68$) between AI use intensity and critical thinking levels, suggesting the phenomenon is systemic rather than isolated.

These findings underscore the divide between users and non-users. Users, though aware of potential drawbacks, often prioritize short-term learning gains, whereas non-users emphasize long-term consequences for cognitive processes. This contrast highlights a boundary between pragmatic reliance on AI and cautious resistance to safeguard academic autonomy.

A central issue in the literature concerns the influence of AI tools on critical thinking and deeper cognition. Users highlight opportunities for personalized learning and improved analytical skills through AI (Darwin et al., 2023; Wang & Fan, 2025), while non-users warn against cognitive dependence, where students delegate thought processes to automated systems, potentially undermining autonomy over time (Gerlich, 2025). Ballalle's (2025) systematic review shows that discourse on critical thinking in the AI era is fragmented, often shaped by personal experience and institutional context.

Research on ChatGPT use in education reveals differing outcomes. Zafar et al. (2025) found that users believe the tool supports critical thinking compared with non-users. Hu et al. (2025) similarly observed that students using AI in learning show enhanced critical thinking, though the study also noted risks, including reduced reliability in forming conclusions.

Conversely, teachers who avoid AI often express concerns about inequality in educational opportunities (Roll & Wylie, 2016). Not all educators share the same background or experience with information technologies in teaching. Many face unequal access to advanced tools or suffer from unreliable internet, placing them at a disadvantage compared with peers who enjoy full technological support (Erin & Shuguang, 2023). Institutions also vary widely in AI resources, willingness and support for adoption, creating further disparities (Zafar et al., 2025). Moreover, excessive AI use in teaching may eventually reduce critical thinking and weaken self-reflection (Bond et al., 2024). Other studies note that heavy reliance on

ChatGPT diminishes brain activity, originality and uniqueness in solving tasks, signaling a decline in critical thinking (Kalam et al., 2024).

Nevertheless, some authors call for a balanced approach. Walter (2024) argues that developing AI literacy alongside thoughtful pedagogical strategies can position AI as a support, rather than a replacement, for critical thinking. Similarly, Darwin (2024) maintains that with careful instructional design, AI can foster creativity and reflection, enhancing rather than undermining critical thinking. This creates space for constructive synthesis: users can employ AI as a tool for research and analysis, while non-users are offered learning models that sustain thought autonomy.

In line with this discussion, the second hypothesis is:

H2: There is a statistically significant difference in perceptions of AI's impact on critical thinking between users and non-users of ChatGPT.

The integration of artificial intelligence (AI) into education raises issues of bias and resistance, particularly among non-ChatGPT users. Al-Zahrani (2024) warns of the "shadows" of AI in education, such as algorithmic bias, unequal access and the risk of weakening human connection in the learning process, which fuels skepticism among non-users.

Zhu et al. (2025) emphasise the crucial role of teachers in monitoring AI outputs to ensure fairness and prevent unintended divisions that AI may inadvertently create. Walter (2024) argues that developing AI literacy among both teachers and students can reduce prejudice and support balanced integration. A strong link exists between the digital competencies of teaching staff and their positive attitudes toward AI: those who favor ChatGPT in education tend to be more open to technological innovation and less prone to prejudice (Galindo-Domínguez et al., 2024). Survey research on faculty perceptions of AI tools reveals ambivalence – while many value automation and broader access to teaching and research materials, skepticism persists.

Lyu (2025) notes that educators' trust or distrust in generative AI directly shapes their willingness to adopt it, with system transparency playing a decisive role – users are more receptive when they understand how AI functions. A Michigan Virtual meta-analysis (2024) similarly shows that unclear ethical and legal regulations heighten resistance, particularly among non-users, who cite ethical uncertainty as a major barrier. Johnston et al. (2024) add that students also voice concerns over potential threats to academic integrity, thereby widening the gap between users and non-users.

Academic staff often express fear and insecurity, as they lack adequate technological support or familiarity with ethical guidelines for AI in teaching. In this context, fear stems less from actual prejudice than from limited digital literacy and uncertainty (Jorge & Leonel, 2025). This suggests that hesitancy toward AI in education often reflects insecurity and low confidence rather than fundamental opposition.

Intentions for further AI training also differ significantly between groups. Users show stronger motivation to build knowledge and skills (Ali, 2025; Du et al., 2024), whereas non-users demand broader ethical frameworks and clearer institutional policies before engaging with AI (Walter, 2024; McDonald et al., 2024). These differences highlight not only a competency gap but also contrasting value systems shaping approaches to technology in education.

A US study reached the notable conclusion that both trust and distrust coexist among faculty regarding AI use. Even academics who were technologically proficient and trained sometimes expressed cautious or reserved attitudes, implying that prejudice may not always stem from a limited understanding of technology (Chatterjee & Bhattacharjee, 2020).

These findings confirm that barriers and prejudices toward AI in teaching arise from ethical, educational and systemic complexities. Improvement strategies must therefore be twofold – for users, targeted support and AI literacy training, and for non-users, transparent and ethically grounded frameworks to reduce resistance.

Theoretical and practical insights lead to the third hypothesis:

H3: There is a statistically significant difference in prejudice toward AI in teaching between ChatGPT users and non-users.

Satisfaction with AI tools in education increasingly depends on the experiences and attitudes of users and non-users. Luo et al. (2025) note that students particularly value the immediate feedback provided by AI, as it fosters engagement and a sense of support in learning. Dissatisfaction, however, arises when systems produce inaccurate or superficial content, requiring extra verification. Similarly, Almufarreh (2024) highlights that content quality, tool usefulness and emotional well-being are key factors of satisfaction, stressing that a positive attitude toward AI rests not only on functionality but also on the psychological dimension of the learning experience.

Teachers also report satisfaction with AI in teaching, as it enables automation of routine pedagogical tasks, such as assigning student duties and assessments. This increases efficiency and frees time for other educational activities (Dogan et al., 2023). Many educators welcome AI when it enhances creativity, personalization and administration - though they simultaneously call for training and clear regulatory guidance (Popović Šević et al., 2025).

For teachers, Uygun (2024) finds that satisfaction depends on the perceived benefit and effective integration of AI into daily practice. Educators report satisfaction when AI reduces administrative burden and improves instructional quality, while non-users emphasize concerns over reliability and ethics. Gallup (2025) further shows that AI can save teachers up to six weeks annually, significantly boosting professional satisfaction and work-life balance.

In terms of willingness to adopt AI in teaching, research highlights a strong link between institutional support, internal motivation and openness to innovation (Filiz et al., 2025; Hazzan-Bishara et al., 2025). Users display more positive attitudes toward integration when provided with training and when functional benefits are visible in practice (Uygun, 2024; Lu et al., 2024). By contrast, non-users encounter barriers ranging from technical uncertainty to ethical dilemmas and distrust of algorithmic processes (Lyu, 2025; RAND Corporation, 2024).

Blahopoulou and Ortiz-Bonnin (2025) confirm perceptual differences: users stress benefits and practicality, whereas non-users express skepticism, directly shaping satisfaction levels. Filiz et al. (2025) further show that willingness and satisfaction are interlinked — those more ready to use AI tools also report greater satisfaction. Yet many teachers remain skeptical, fearing that AI might replace their role and diminish human contact in education (Alcantar et al., 2024).

Interestingly, teachers with a traditional approach often interpret AI tools as a threat to their expertise and authority, unlike colleagues who favor a constructivist approach and are more open to innovation (Tripathi et al., 2025). The first group perceives AI as undermining their professional standing and disrupting the teacher–student relationship.

Overall, user satisfaction with AI in education depends on balancing technical reliability, pedagogical utility and personal readiness to adopt technology. For non-users, mistrust and ethical concerns prevail, while users emphasize practical benefits and opportunities to improve teaching and learning. These findings lead to the fourth hypothesis:

H4: There is a statistically significant difference in expressed satisfaction with AI tools in teaching between users and non-users of ChatGPT.

The intention to improve AI knowledge among teachers and students is a key factor in understanding differences between users and non-users of AI tools. Du et al. (2024) show that for teachers, AI literacy directly influences the intention to pursue further education in the field, noting that strong digital competence fosters openness to continuous learning. These findings suggest that the intention to upgrade is closely tied to prior knowledge and technological confidence.

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The use of generative AI in education, with ChatGPT as the most prominent example, has drawn strong attention from the public, researchers and institutions. Studies reveal that perceptions of utility, ethics and trust differ sharply: users display greater willingness to experiment and innovate, while non-users often express caution and call for stricter regulatory frameworks (Karkoulian et al., 2024; Lyu, 2025; Walter, 2024). Verboom (2025) emphasizes that differences in AI perception depend not only on competence, but also on cultural context, institutional support and autonomy in educational work.

Ayanwale et al. (2022) found that teachers displayed pragmatic acceptance of AI tools, advocating their permanent role in education. They valued AI for its wide range of applications, from administrative innovations to teaching processes such as personalization and creative lesson design. Similarly, Filiz et al. (2025) highlight AI's contribution to teacher creativity, differentiation and interactive learning, showing that academic staff thereby remain aligned with current technological trends. Teachers demonstrate their intention to enhance AI-related skills mainly through professional training, reaffirming their commitment to developing competencies for AI use in education (Morales-Cevallos et al., 2025).

At the university level, Liu (2025) observes that trust in AI systems and readiness for integration strongly shape teacher intentions. Instructors who feel more confident and competent are more willing to improve their knowledge and incorporate AI into practice. Hazzan-Bishara et al. (2025) similarly stress that internal motivation, combined with institutional support and social norms, plays a crucial role in shaping intentions to adopt generative AI tools.

The Michigan meta-study (2024) shows that ethical dilemmas and lack of transparency often dampen enthusiasm for further learning, particularly among non-users. Conversely, Walter (2024) argues that AI literacy and prompt-engineering skills provide a foundation for teacher development and willingness to expand AI knowledge.

At the student level, Blahopoulou and Ortiz-Bonnin (2025) find clear differences: users are more motivated to enhance AI knowledge, while non-users hesitate due to ethical and epistemological concerns. RAND projections (2023–2024) confirm that both groups expect AI to play an increasingly central role in teaching, implying that continuing AI education will soon become universal.

Beyond training gaps, some academics cite disrupted routines and added adaptation demands as reasons for reluctance to improve AI knowledge, especially given existing administrative and teaching workloads (Chatterjee & Bhattacharjee, 2020). Moreover, teachers who did not grow up with digital technologies often show greater resistance to adopting AI, unlike younger colleagues who accept innovations more readily (Hu et al., 2025).

In general, the intention to improve AI knowledge depends on individual factors (motivation, trust, competence) and institutional frameworks (ethical guidelines, support, transparency). Differences between users and non-users are most visible in motivation and confidence: users show stronger willingness to learn, while non-users highlight barriers and dilemmas. Accordingly, the fifth hypothesis is:

H5: There is a statistically significant difference in the intention to improve AI knowledge between users and non-users of ChatGPT.

The willingness to use artificial intelligence in teaching is shaped through a complex interaction of individual, institutional, and technological factors. Liu (2025) shows that subjective norms, trust, and perceived readiness significantly influence university teachers' intention to use AI tools. These findings highlight that a positive professional environment and trust in technology can increase users' willingness to integrate AI into their pedagogical practice. Similarly, Hazzan-Bishara, and authors (2025) point out that teachers' internal motivation, as well as external factors such as institutional and peer support, decisively shape the willingness to adopt AI in educational processes.

Research carried out so far has shown that teachers with greater digital competence have more positive attitudes towards the use of AI in teaching, as well as that the applicability and perceived usefulness of AI increase teachers' readiness for the work process (Jorge and Leonel, 2025). At the same time, social expectations and self-confidence among teachers lead to their willingness to continuously incorporate AI into the teaching process, and more AI tools are viewed as a kind of 'classroom partner' (Baker, 2016; Kalam et al., 2024).

In the context of theoretical models, Lu et al. (2024) use an integrated TAM (Technology Acceptance Model)-TPB (Theory of Planned Behavior) framework to show that factors such as perceived usefulness, ease of use, attitudes, and subjective norms strongly predict teachers' willingness to use AI generative technologies in the classroom. Filiz et al. (2025) confirm that psychological and pedagogical determinants, such as professional security and sense of competence, directly influence the readiness and willingness to use AI in primary and secondary education.

On a practical level, Bakhadirov et al. (2024) indicate that perceived usefulness is a key driver of private school teachers' willingness to use AI, while institutional policies and peer support further influence their decision. These findings show that the willingness to use AI is more than an individual choice – it is rooted in collective practices and organizational culture (Kuleto et al., 2021). However, lack of experience and present anxiety can sometimes lead to a reduced will and desire to implement AI in teaching. At the same time, discomfort is also created, as the fear of being evaluated by different AI systems may lead to a lack of willingness to readily accept technological innovations in teaching (Alcantar et al., 2024).

In a broader context, RAND ("Research and Development") research (2024) shows that both users and non-users expect the growing use of AI in teaching, which confirms that the willingness to use technology, albeit in different forms, is becoming a general trend in education. Although there are differences – users express greater readiness and a more positive attitude, while non-users emphasize obstacles and doubts – all stakeholders recognize that AI will play a key role in future education. And finally, the basis for the 6th Hypothesis is as follows:

H6: There is a statistically significant difference in willingness to use AI in teaching between users and non-users of ChatGPT.

Methodology

The Survey Respondents

The sample comprises 312 academic staff members, employed in state- and privately-owned higher education institutions, who responded to 11 questions provided on a five-point Likert scale (Likert, 1932), randomized to avoid the halo effect (Wirtz & Bateson, 1995). These questions were asked with the intention of examining ethical views, attitudes and behavioral patterns related to the use and pertinence of AI for educational purposes. The majority of respondents are women, who represent 56.1 per cent of the sample, while male respondents account for the remaining 43.9 per cent.

The AI knowledge is reported as basic or non-extant by 55.8 percent of respondents, which should be considered when analyzing our results. This dichotomy in knowledge is best reflected by the fact that, among several AI platforms, the surveyed academicians used ChatGPT in 58 percent of cases, or none at all. Respondents were provided with a range of AI applications that could be frequently used in teaching, and it appears that they either use ChatGPT as the most famous, relatively inexpensive, and widely available option, or do not use or recognise AI products at all. The statement not to use any AI products may not imply a complete lack of AI use, as these products could be explored under different conditions, such as during leisure time or if respondents believe that they use AI products only occasionally (Table 1).

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Table 1. Sample Statistics

Gender	Female	175	56.1%
	Male	137	43.9%
Frequent use of AI	Smart Tutoring Application	0	0%
	Mobile E-Learning	0	0%
	AI Assistance	0	0%
	Recommended Systems	0	0%
	Machine Teacher	0	0%
	ChatGPT/Chatbot	130	58.3%
	No AI Use in Teaching	182	41.7%
AI Knowledge Level	Expert	17	5.4%
	Advanced	53	17.0%
	Modest	66	21.2%
	Basic	164	52.6%
	None	10	3.2%
	I do not want to answer	2	0.6%

Ethics of AI Usage

When asked whether 'My privacy is not threatened by using AI applications in class', close to 60 percent of ChatGPT users are positive in their responses, while this level was close to 31 percent for non-ChatGPT users. Non-ChatGPT users are predominantly disagreeing or neutral about this query (Figure 1). The Pearson Chi-Square is 26.723 at $p<0.001$, and the trend lines for these two variables are distinctly different (Linear-by-Linear association is 21.124 with $p<0.001$)

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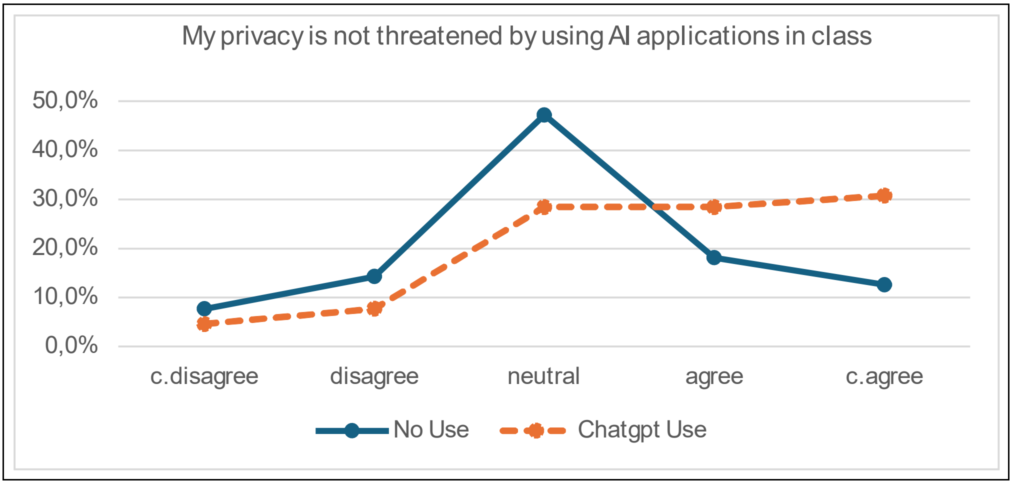

Figure 1

Source: Authors' analysis

As far as 'Using AI applications in teaching does not jeopardize academic integrity' is concerned, both equally disagreed, but non-users to a much larger extent strongly disagreed with the statement (23.6 vs. 5.4 percent) (Chi-Square = 21.898, $p<0.001$). The largest cohort of those who use OpenAI products is neutral at 35.4 percent, implying either indifference or opaque perceptions about what AI could potentially do to integrity, especially as it further advances in the forthcoming period. Users who agree to varying degrees with this statement account for 38.5 percent, being marginally larger than neutral respondents, only (Figure 2).

'AI does not compromise critical thinking skills' is noticeably supported by ChatGPT users, but 21.4 percent of non-users still accept this claim (Figure 3). More than 36 percent of ChatGPT users agree with this statement, while 51.8 percent of non-users disagree with it (Chi-Square = 76.545, $p<-0.001$). Percentagewise, OpenAI product users are more neutral about this statement than non-users. Even though it is the largest group for them, it is a runner-up for non-users, who are extremely skeptical in this regard at 31.9 percent.

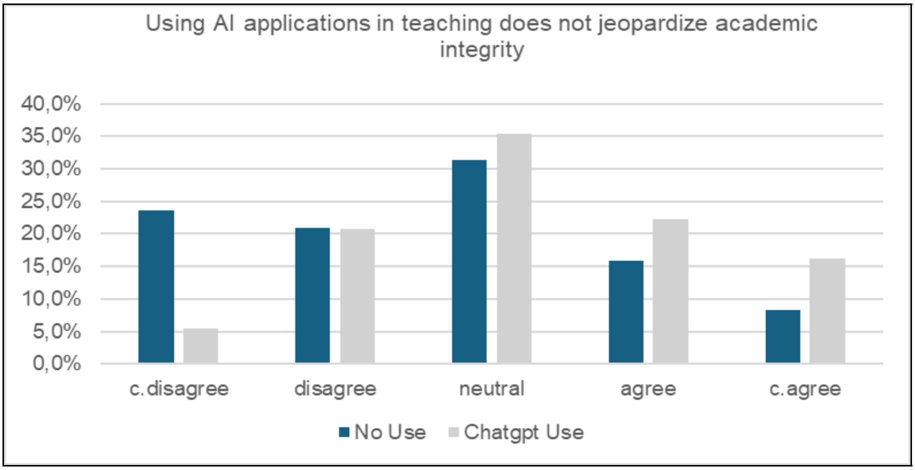

Figure 2
Source: Authors' analysis

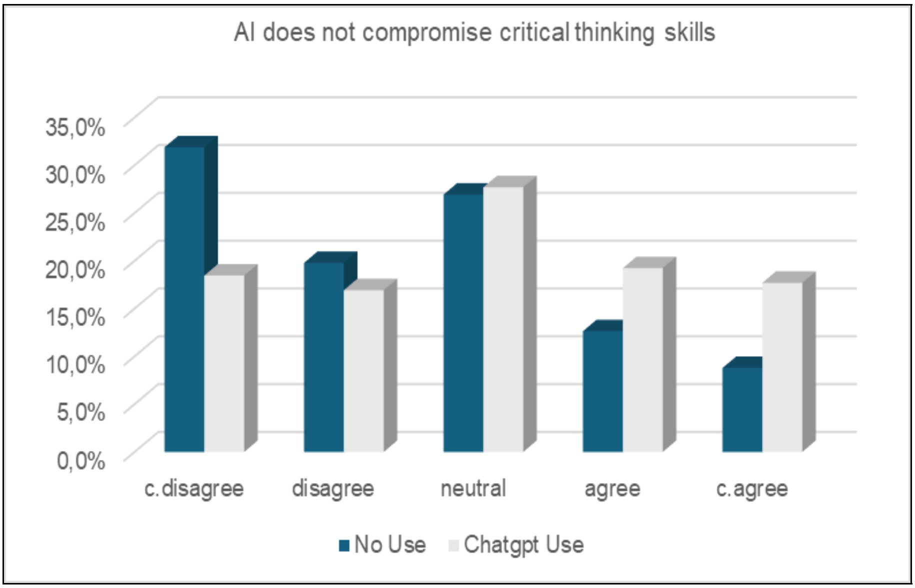

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Figure 3.

Source: Authors' analysis

Attitude Towards Artificial Intelligence

In Figure 4, we examine whether 'I have no prejudices regarding the use of AI applications in teaching', and 73.8 percent of active OpenAI users agree with it vis-à-vis 48.4 percent of non-users (Chi-Square = 27.068, $p < 0.001$). The largest cohort of non-users is neutral about this question, with more of them agreeing rather than disagreeing with it (48.4% vs. 22.5%), which is encouraging for the future use of AI in teaching.

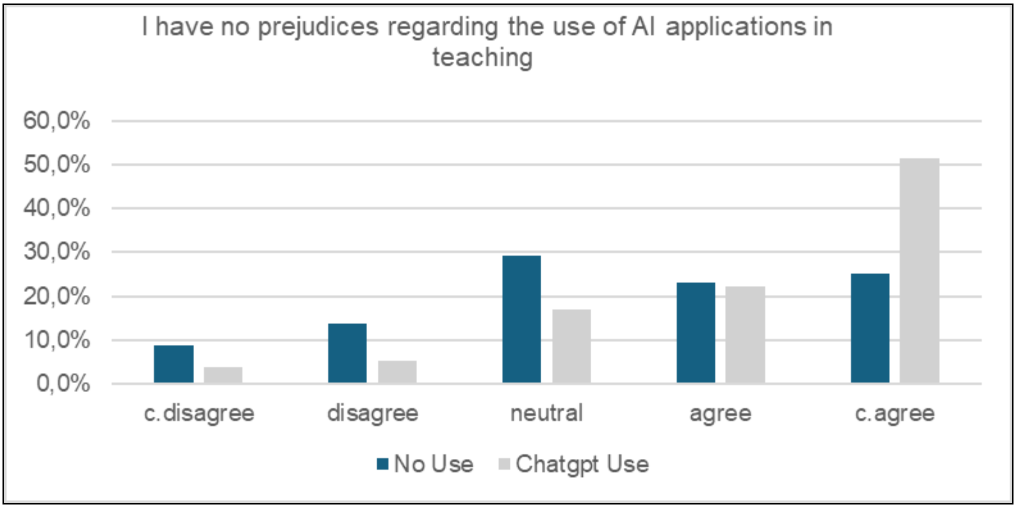

Figure 4.

Source: Authors' analysis

The next claim deals with 'I am delighted to be able to use AI tools in the classroom' and while ChatGPT users more agree with this statement than non-users, it is evident that 12.6 percent of non-users responded affirmatively (Chi-Square = 61.306, $p < 0.001$; Figure 5). We do not have a follow-up query to confirm what these platforms are, but in both groups, neutrality prevails. As expected, the majority of non-users disagreed.

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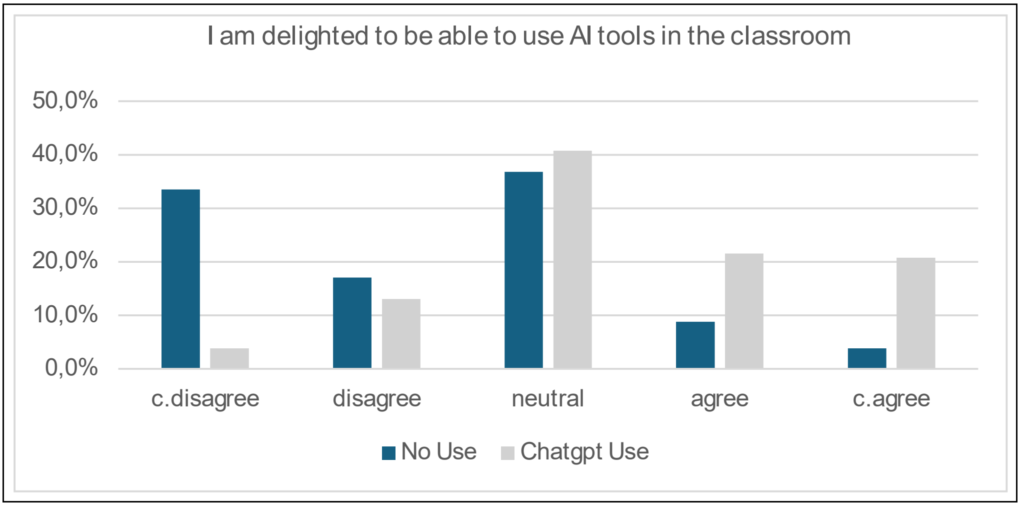

Figure 5.

Source: Authors' analysis

When asked to evaluate the statement 'Among the first in my teaching activities, I accept the new challenges of AI in education', 43.1 percent of users agreed with it, as opposed to 10.4 percent of non-users (Chi-Square = 55.525, $p < 0.001$; Figure 6). The percentage of neutral responses is almost identical for both cohorts at close to 28 percent.

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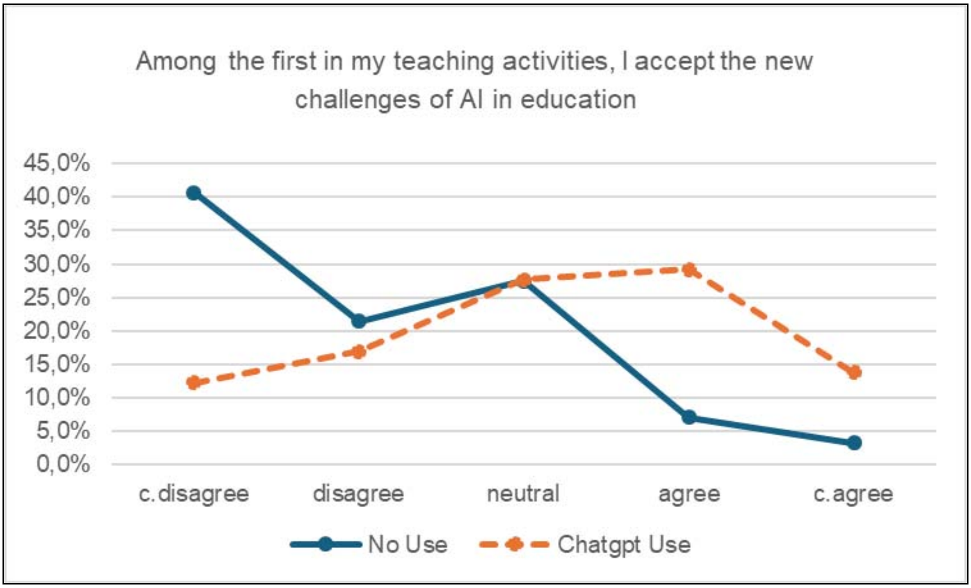

Figure 6.

Source: Authors' analysis

Figure 7 comprises the last statement in this category, 'I am satisfied with the results I achieve with the application of AI in teaching and other pedagogical activities'. ChatGPT users are 40 per cent in agreement to varying degrees with it, but most of them are neutral at 41.5 per cent. Non-users disagree at 54.4 percent (Chi-Square = 66.47, $p < 0.001$).

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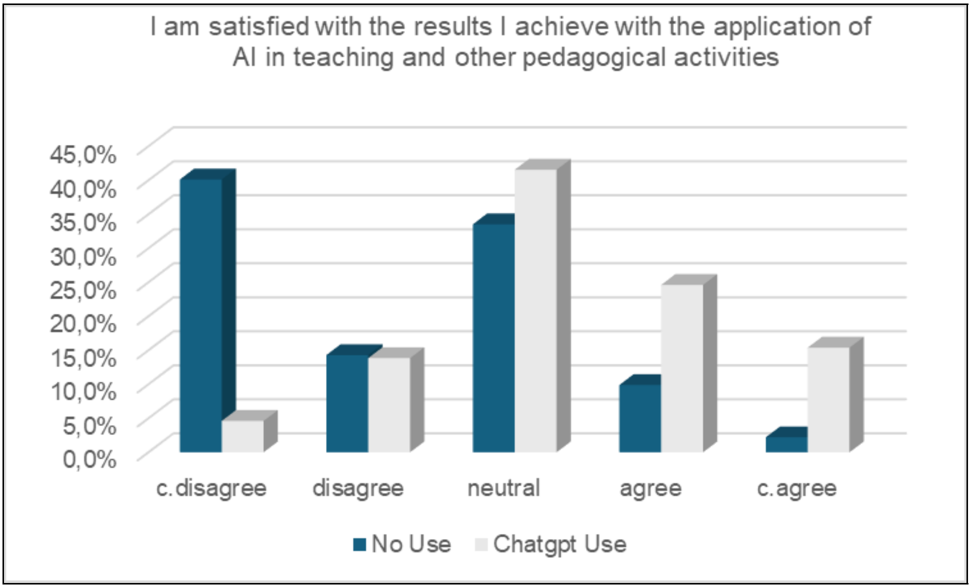

Figure 7.

Source: Authors' analysis

Behavioral Intention

When examining whether 'I want to improve my knowledge in the field of applying AI in education', apart from a single respondent, all ChatGPT users are either neutral at 8.5 percent or agreed at 90.8 (Chi-Square = 43.216, $p < 0.001$; Figure 8). Colleagues not using ChatGPT are also willing to improve their knowledge, but still, 15.9 percent expressed a lack of interest, which could be an obstacle in disseminating AI knowledge at higher educational institutions.

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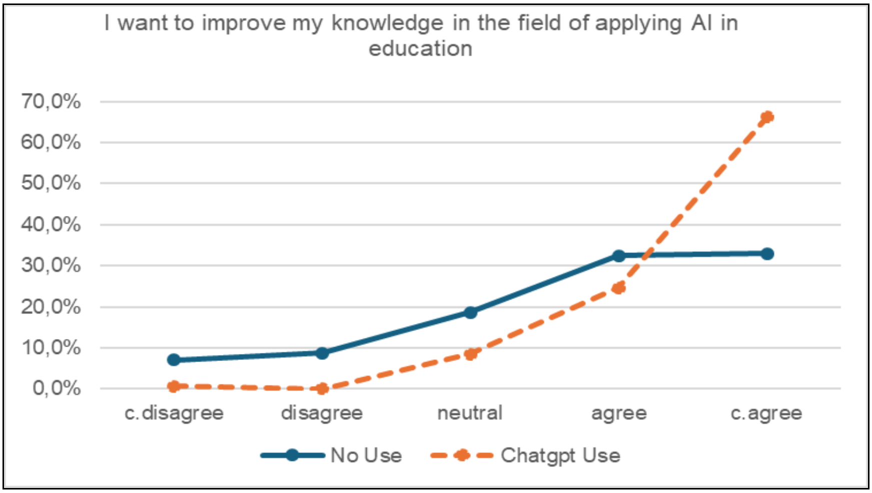

Figure 8

Source: Authors' analysis

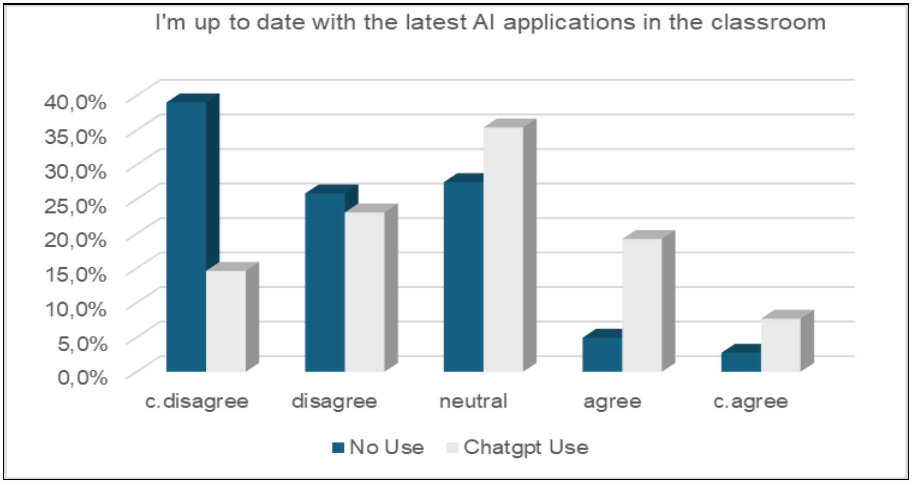

Figure 9

Source: Authors' analysis

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Responses to 'I'm up to date with the latest AI applications in the classroom' indicate that ChatGPT users are comparatively better informed about AI applications to be used in the classroom (Chi-Square = 35.479, $p<0.001$; Figure 9). However, even in their cohort, those who disagree with the statement, as opposed to those who agree, represent a majority with 37.7 vs. 26.9 percent. Employers and the Ministry of Education must refocus their attention on the organization and dissemination of seminars, conferences and workshops in order to reduce this bias.

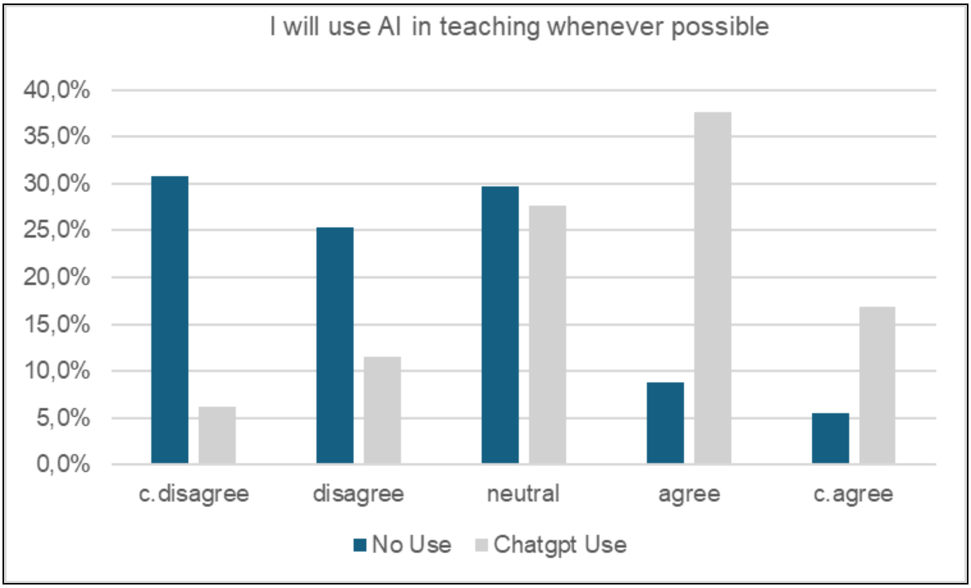

Figure 10

Source: Authors' analysis

'I will use AI in teaching whenever possible' is supported by 54.6 percent of users as opposed to only 14.3 percent of non-users (Chi-Square = 69.882, $p<0.001$; Figure 10). The conspicuous dichotomy is rather puzzling, because it indicates that those who do not use ChatGPT or any other AI product are a priori ready to relegate AI to non-extent, lower or more moderate application levels.

The final statement in this analysis relates to 'I will often use AI in my classes because I have the support of the Faculty and the students for that', and there is the

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same percentage (3.8%) across both groups who strongly agree, with this enthusiasm dropping to more moderate levels for non-users (6 vs. 16.8 percent) when comparing groups that agree with the statement (Chi-Square = 22.119, p<0.001; Figure 11). Non-users dominate in the ‘completely disagree’ category (47.3 vs. 23.1 percent), implying a much stronger sentiment about the lack of support by employers, which could be one of the justifications for their inappropriate AI adoption.

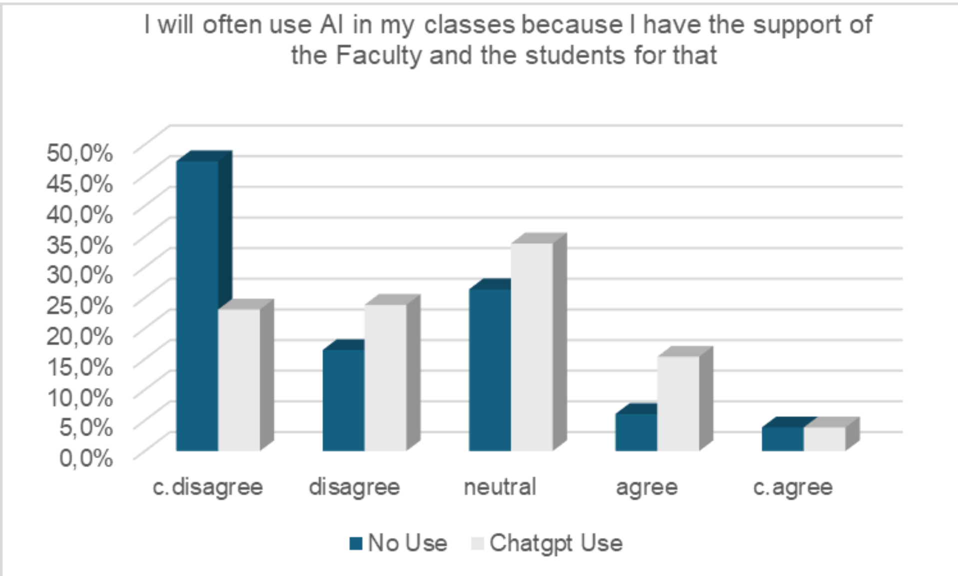

Figure 11

Source: Authors’ analysis

Discussion

Analysis of behavioral differences between users and non-users of ChatGPT shows statistically significant variations in their views on ethical aspects as well as their openness and willingness to integrate ChatGPT into higher education curricula. Users believe that applying ChatGPT improves teaching quality by making task management more efficient and maximizing time use. Non-users remain hesitant, citing risks related to data protection, ethics and academic

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consistency. Similar polarization was identified in earlier studies (Karkoulian et al., 2024; Espinoza Vidaurre et al., 2024), highlighting the ongoing need for clear ethical and regulatory frameworks to balance the benefits and opportunities with the limitations and risks of AI in higher education.

From the users' perspective, ChatGPT fosters critical thinking by supporting personalized learning and the development of analytical skills (Hu et al., 2025; Zafar et al., 2025). In contrast, Gerlich (2025) finds that non-users associate heavy reliance on ChatGPT with weakened independent thinking, consistent with the phenomenon of cognitive offloading. These findings reinforce the argument that AI should complement instruction rather than substitute for knowledge acquisition, reasoning, problem solving and decision making (Walter, 2024).

Digital literacy also shapes academic staff attitudes toward AI. Teachers with stronger technological competence and confidence are generally more open and satisfied, while those with lower digital literacy show hesitation and resistance. This aligns with findings that correlate digital competence with readiness to integrate AI into teaching (Galindo-Domínguez et al., 2024). However, individual factors alone cannot explain the differences between users and non-users. Institutional support through continuous training, AI improvement initiatives and ethical frameworks is essential for building trust and motivation. Without these mechanisms, earlier studies note, gaps and resistance to AI adoption in education only deepen (McDonald et al., 2024; McGehee, 2024).

The rapid advancement of generative AI and its wide availability to students place an obligation on universities to accelerate adoption and formalize policies on AI integration (Đurđević et al., 2024). A practical solution lies in continuous training programs and workshops that facilitate broader acceptance and informed use of AI in higher education (Filiz et al., 2025).

Findings confirm that the adoption of AI in education is a complex, multi-layered process. It depends not only on the values and competencies of individuals but also on institutional and social contexts, as shown in previous meta-analyses (Bond et al., 2024; Verboom et al., 2025).

Our research conducted in Serbia indicates that most respondents rated their AI knowledge as basic or insufficient. Both users and non-users expressed willingness to improve: users demonstrated openness to innovation and continuous learning, while non-users remained more concerned with privacy, data security and academic integrity.

The study also shows insufficient familiarity and practical experience with AI among teaching staff. A considerable number of neutral responses suggests that

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many educators have not yet formed clear attitudes toward AI integration. To demonstrate how AI can support teaching quality, learning outcomes, feedback, and student motivation, further training and research are required.

Bringing together student perspectives with those of teaching staff could create opportunities for developing strategic educational frameworks and institutional support for AI adoption in higher education.

Concluding Remarks

Based on the sample comprising 312 respondents from state and privately owned higher educational institutions in Serbia, we have compared differences between self-reported ChatGPT users and non-users across the ethics of AI usage, attitude towards artificial intelligence, and behavioral intention to apply AI in the educational process. We find that users, to a lesser degree, view AI as a threat in the classroom setting, but even non-users are quite indecisive regarding this viewpoint. Users are also less concerned about the violation of academic integrity and the erosion of thinking skills among students.

ChatGPT users have fewer prejudices regarding the use of AI in the educational setting, which is then purported by the enthusiasm to apply AI, readiness to face potential challenges, and satisfaction with achievements in respective HEI. From the behavioral perspective, users demonstrate a willingness to acquire AI knowledge and keep it updated as much as possible. While this group, when compared to non-users, has stated comparatively better readiness to apply AI whenever possible, this impression is not uniform. Those who disagree outweigh respondents who agreed with the statement, and it may be linked to the fact that school support, as far as AI is concerned, is reported as rather limited.

The limitations of our study include the single-country analysis and the challenges that are being examined for HEI, only. Given the rapid evolution of AI technologies, longitudinal studies would provide deeper insight into how teacher attitudes and behaviors evolve over time. In addition, qualitative methods could capture subjective experiences related to the ethical and safety dimensions of AI in education. Finally, student-focused research would clarify how AI shapes teacher–student relationships, offering a broader picture and supporting the design of educational policy.

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LEVERAGING BLOCKCHAIN TECHNOLOGY FOR OPTIMIZED SUPPLY CHAIN MANAGEMENT

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Abstract

The incorporation of decentralized technology into supply chain management is potentially constrained by sustainability-related obstacles, mostly those related to environmental and social responsibilities. The operational processes of authenticating transactions and preserving decentralized digital records necessitate considerable energy consumption, which in turn heightens carbon dioxide emissions. Intensive energy demand

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and emission levels may oppose the environmental stewardship objectives of breweries that aim to advance ecological practices, thereby rendering technology adoption uncertain. This research aims to explore the influence of digital ledger systems on supply chain management in selected brewery companies, with particular attention on the extent to which block chain-enabled transparency, and internet-based applications, enhances real-time monitoring and traceability within supply networks. This research applied a correlational survey approach, employing a questionnaire as the principal tool for data collection from a population of 2,100 staff members. Utilizing the Taro Yamane sampling technique, a sample size of 336 participants was established. The distribution of the survey followed a proportionate allocation procedure across Rivers State, Bayelsa, Akwa Ibom, Delta, and Edo State in Nigeria. From the 336 questionnaires administered, 321 were successfully retrieved and considered valid for analysis, while 15 were excluded due to non-response or incomplete data. The hypotheses were tested statistically through bivariate linear regression and Pearson correlation; both conducted at a 5% level of significance. The study found that decentralized nature technology significantly improves real-time goods traceability ($p = .016 < 0.05$). Similarly, internet bases system showed a significant positive impact on traceability ($p = .000 < 0.05$). The researchers recommend that managers leverage collaborative technologies to strengthen supplier relationships, enhance coordination, and reduce supply chain disruption risks. They also advise regular reviews of technological performance to ensure ongoing alignment with strategic priorities and market needs. This research advances scholarly discourse by highlighting critical challenges and advocating investment in staff training across all organizational levels to enhance understanding of blockchain technology and its capacity to create immutable, transparent records of transactions within supply chain operations. Furthermore, the study adds value to existing literature by offering a novel perspective that integrates both contextual insights and methodological rigor to address existing knowledge gaps. Implementing distributed ledger technology within supply chain management frameworks could significantly improve transparency and foster stronger trust-based relationships between Nigerian brewery firms, their stakeholders, and end users across the supply chain network.

Keywords: *decentralize ledger systems, internet-based systems, supply chain management, traceability, and unified theory of acceptance*.

JEL Classification: L81; L97

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1. Introduction and Background

Blockchain technology is evolving as a beneficial tool for industries striving for sustainability. This is characterized by their decentralized, transparent ledger system which permits companies and customers to track products from their origin to the end consumer, promoting environmental responsibility and social accountability (Nash, 2024). Subsequently, blockchain technology enhances supply chain traceability by allowing businesses to verify the sources of their materials, which supports sustainable sourcing and ensures that products align with environmental and social standards (Chen & Zhao, 2022; Moosavi, Naeni, Fathollahi-Fard, & Fiore, 2021).

Consequently, automating processes such as payments, inventory management, and compliance helps breweries reduce manual interventions, minimize human errors, labor costs, and enhance operational efficiency (Smith, Brown & Davis, 2023; Whitten, 2024; Chapman, 2024). Smart contract records data on resource usage and environmental impact, aiding breweries in monitoring and improving their sustainability efforts.

In addition, assure technology correspondingly enhances coordination in breweries by providing data-driven insights and automating processes, which improve overall efficiency and communication between the network of producers and consumers. It helps monitor and maintain reliable quality through automated tracking of manufacturing processes like fermentation, bottling, and packaging to ensure high-quality standards are met. Consequently, integrating inventory tracking into the brewing process using applications with the aid of Vin Assurance provides real-time data on raw materials, finished products, and supplies. This technology streamlines, reduces errors, and enhances workflow coordination in breweries (Civitillo, Langmoen, & Slavens, 2021).

A recent McKinsey survey (2018) identified blockchain capability to boost business solutions by automating manufacturing facilities and managing inventory across multiple facilities. The study additionally stresses that decentralized ledge systems enhance fundamental operational effectiveness and expedite repetitive procedures. The implementation of innovative technology improves the financial services, government, and healthcare sectors which leads to overall cost savings through enhanced efficiencies, according to a study of ninety organizations.

Nash (2024) defines supply chain traceability as the systematic tracking and documentation of material and product flows throughout the entire supply chain, beginning with raw material procurement and concluding with the delivery of finished goods to customers. The author explains that traceability enables firms to monitor product movement from origin to destination, verify authenticity, and ensure adherence to legal and ethical standards. Hasan (2024) asserts that supply chain traceability aids companies in risk management, efficiency enhancement, and regulatory compliance. Modern businesses must invest in traceability systems that promote ethical and sustainable operations in response to the growing expectations for transparency from consumers and the government.

According to Matrix (2023), supply chain traceability allows companies to monitor and understand every facet of their supply networks. This entails obtaining data and assessing risks at various supply chain stages to resolve or pinpoint problems about certain suppliers or product batches. The significance of gathering the data required for efficient supply chain monitoring is explained by the author. According to Jansen, De Vries, and Van den Berg (2024) and Fernandez-Carames, Blanco-Novoa, Froiz-Miguez, and Fraga-Lamas (2024), real-time traceability allows supply chain actors to access in-depth production, distribution, and research data, while enabling them to oversee and direct the movement of goods. This functionality is critically important in industries where product safety, quality assurance, and brand integrity are non-negotiable, such as the food, pharmaceutical, and high-end consumer goods sectors. By integrating real-time monitoring mechanisms, organizations can quickly detect and address potential threats—like defective batches or contamination—thus safeguarding public health and minimizing economic repercussions.

Previous studies by Chukwu, Igwe, Anichebe, Alinno, Oparah, and Obodoagu (2024) demonstrated a strong association between the use of blockchain in materials management and improved profitability as well as sustainable supply chain practices using the Ama Brewery in Enugu, Nigeria. Khan, Parvaiz, Dedahanov, Abdurazzakov, and Rakhmonov (2022) observe that the adoption of technology enhances both traceability and transparency within Pakistan's supply chain systems. Similarly, Al-Khasawneh (2022) reports that the application of blockchain technology streamlines business transactions, improves operational efficiency, and lowers service costs across various economic sectors in Jordan.

Research by Ugwu and Balogun (2024) indicates that artificial intelligence plays a vital role in boosting supply chain visibility in Nigeria's brewery sector. Supporting evidence from Morocco, provided by Elijaouuhari et al. (2022), shows that implementing Internet-based IMS platforms in combination with historical datasets can significantly refine demand forecasting accuracy. Building on this understanding, the current investigation explores how transparency derived from

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distributed ledger technology and internet-based platform IoT can drive real-time traceability in brewery supply chains.

1.1 Problem Statement

The efficiency and traceability of the brewing business might be greatly enhanced by blockchain technology, but there are several obstacles to overcome before it can be put into reality. Many breweries still use outdated technology that might not be readily compatible with blockchain; it might be difficult and time-consuming to integrate the blockchain with existing systems. Furthermore, blockchain-based systems may have sustainability challenges, especially when handling large transaction volumes.

Again, decentralized ledger maintenance and financial transaction verification have significant computational and energy requirements, which may raise the release of carbon dioxide. Breweries may be unwilling to implement the technology due to high energy usage, which could discourage their green programs that prioritize sustainability. Once more, as blockchain platforms advance toward more energy-efficient consensus mechanisms, breweries dedicated to lowering their emissions rate might be hesitant to embrace blockchain technology that still uses resource-intensive techniques, particularly if more environmentally friendly alternatives appear. The following research goals were coordinated by these issues.

1.2 Research Questions

I. What is the influence of the transparent ledger system in improving the real-time traceability of goods?

II. To what extent does integration of internet-based systems improve the accuracy of demand forecasting of goods?

1.3 Research Objectives

This study seeks to evaluate the application of block chain technology in optimizing supply chain management processes in selected brewery firms located in South-East Nigeria. Its specific objectives include:

I. Investigating the extent to which block chain-enabled transparency contributes to improving real-time tracking of goods.

II. Exploring whether IoT integration leads to greater accuracy in goods demand prediction.

1.4 Research Hypotheses

I. H_{A1}: The transparent nature of blockchain technology adoption significantly improves real-time traceability of goods.

II. H_{A2}: Integration of the internet-based systems significantly improves the accuracy of demand forecasting of goods.

2. Literature Review

2.1 Blockchain Technology

Hayes, Clemon, and Kvilhaug (2024) characterize block chain as a decentralized and cryptographically connected ledger system that stores transaction data across a distributed network of computers. While predominantly recognized for powering crypto currencies by maintaining secure and independent transaction records, block chain technology also offers benefits in supply chain operations, including cost reduction and faster processing through the removal of intermediaries. Similarly, Algorithm-driven contracts, self-operating agreements encoded with specific terms, reduce the likelihood of human error and speed up operational procedures (Emrouznejad, Chowdhury, & Dey, 2023; Moosavi, Naeni, Fathollahi-Fard, & Fiore, 2021). Furthermore, blockchain solutions can be leveraged to uphold environmental and social compliance, fostering more sustainable supply chain management.

2.2 The Concept of Internet Based Systems

The Internet based system has revolutionized brewery businesses by enabling real-time tracking and monitoring, boosting fleet management, facilitating predictive maintenance, and improving inventory management (Chaaban, 2023; Choi & Park, 2021). Drinks can be continuously monitored as they travel through the supply chain because of technological advancements, which provide important information about the location, state, and status of shipments at any given time (Chaaban, 2023; Choi & Park, 2021). IoT sensors, for instance, are used by businesses like DHL and FedEx to track the temperature and humidity of perishable items while they are in transit, making sure they never become rotten.

Breweries might achieve unmatched visibility by utilizing real-time digital tracking technology, which greatly improves the effectiveness of logistics procedures. By employing sensors to continuously check stock levels, IoT also simplifies inventory management by lowering the likelihood of stockouts and overstocking and guaranteeing that inventory data is correct (Choi & Park, 2021). In addition to breweries, IoT is being used by retail behemoths like Walmart and Amazon to automate their inventory systems. When stock levels are low, smart shelves with weight sensors alert the system, which in turn triggers automatic replenishment of supplies.

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2.3 The Concept of Supply Chain Traceability

According to Daniel (2024), traceability is the capacity to recognize, monitor, and follow a product or material as it progresses from raw ingredients to final goods. The author lists several advantages of supply chain traceability, such as enhanced sourcing assistance, quicker troubleshooting, and better business decision-making.

Additionally, traceability enables breweries to investigate and address problems about materials or components. By educating customers about source options, traceability contributes significantly to raising brand recognition and, ultimately, customer satisfaction. Businesses can also improve supply chain management and planning by using the data produced by traceability initiatives. It is essential to manage hazards, maintain security, ensure supply chain sustainability, and uphold corporate social responsibility (Daniel, 2024).

According to Saenz, Hinkel, and Bysong (2021), traceability boosts a company's competitiveness, resilience, and efficiency. The authors posit that traceability gives businesses the capacity to follow products and things through the value chain and gives them accurate information about the sources of input, supplier sourcing procedures, and conversion processes.

2.4 The Concept of Demand Forecasting

Demand forecasting is the process by which supply chain experts and demand planners calculate consumer demand using internal or previous sales data to guarantee sufficient supply (Joiner, 2023). The author claims that demand forecasting aids businesses in managing the product lifecycle within an industry, understanding and predicting consumer demand, and maintaining ideal inventory levels. According to a recent study by Ul-Husna, Amin, and Ghasempoor (2023), which used the retail industry, Long Short-Term Memory (LSTM) networks greatly increase demand forecasting accuracy. These techniques are excellent at forecasting future demand by learning from past sales data, which eventually improves inventory control and lowers expenses.

2.5 Theoretical Framework

The Unified Theory of Acceptance and Use of Technology (UTAUT), introduced in 2003 by Venkatesh, Morris, Davis, and Davis, was designed to predict user acceptance and the adoption of technology. Drawing from eight pre-existing models of technology acceptance and use, the framework identifies four primary determinants of technology adoption: performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). The author claims that performance expectancy characterizes how beneficial technology is thought to be for accomplishing work-related objectives. The ease of use of a system is reflected in effort expectancy, which shows how easy it is to pick up and use the technology for work-related tasks. People may feel pressured to use the system to satisfy complex wants and demands because social influence highlights the pressure others put on them to accept technology.

The UTAUT model is connected to improving transparency, data security, and trust in the breweries. Again, real-time traceability offers immediate visibility into the movement of materials from the point of production to end users.

2.6 Empirical Review

Research on the application of blockchain technology in improving supply chain management across selected breweries in Southeast Nigeria has produced varied outcomes, including both beneficial and adverse effects. The main points emerging from this body of work are summarized below.

Dinesh Kanna and Vasim Akram (2025) investigated the influence of blockchain technology on supply chain transparency and efficiency in India through a mixed-methods design, integrating quantitative and qualitative analyses. Data were collected via surveys and case studies from a sample of fifty organizations across manufacturing, agriculture, and healthcare sectors. Using regression, correlation, and descriptive statistics, the study found that decentralized ledger system substantially enhanced both transparency and operational efficiency in supply chains.

Divinah (2024) examined the application of decentralized ledger systems in improving supply chain management in South Africa through a qualitative approach based on industry case studies. Data were collected via interviews and documentary analysis from companies implementing shared digital ledger in their supply chains. The results indicated that peer-to-peer ledger system greatly enhanced transparency, minimized fraud, and improved traceability.

Musthakeen (2025) explored the influence of the Internet of Things (IoT) on supply chain integration and logistics within Sri Lanka’s tea sector. The study targeted manufacturers, distributors, retailers, and logistics service providers as the population. A survey encompassing 300 respondents was administered, with Partial Least Squares (PLS) and Structural Equation Modeling (SEM) applied for data analysis and hypothesis validation. Results demonstrated that IoT adoption substantially improved logistics operations, enhancing both efficiency and effectiveness. Furthermore, the findings confirmed a significant and positive association between IoT and supply chain integration, ultimately contributing to better sustainability outcomes.

Nath, Khayer, Majumder, and Baruna (2022) examined determinants of decentralize ledger adoption in the Bangladeshi apparel supply chain, with a specific focus on the moderating influence of sustainability-oriented supplier development. The study engaged 412 respondents from the apparel sector. Hypotheses were evaluated using correlation analysis and Partial Least Squares Structural Equation Modeling (PLS-SEM). Results revealed that supplier development strategies centred on sustainability significantly moderate the association between variables such as relative advantage, compatibility, top management support, and trading partner influence in enhancing blockchain adoption effectiveness.

Alshurafat, Al-Mawali, and Al-Shbail (2023) investigated how technostress influences auditors' acceptance of decentralized ledger technology within the Jordanian context. Their proposed model integrated constructs from both techno stress and technology acceptance frameworks. Survey data were collected from 142 auditors working in Big-4 and non-Big-4 audit firms. Findings indicated that perceived ease of use and perceived usefulness significantly predicted auditors' attitudes toward adopting decentralized ledger system.

Ferri, Spano, Ginesti, and Theodosopoulos (2021) investigated determinants of auditors' intentions to implement decentralized ledger technology in Italian accounting firms. The authors combined the Unified Theory of Acceptance and Use of Technology (UTAUT) with the Technology Acceptance Model (TAM) to construct an integrated analytical framework. Data were gathered using a five-point Likert scale questionnaire, and hypotheses were evaluated through Structural Equation Modeling (SEM) and Partial Least Squares (PLS). The results demonstrated that performance expectancy and social influence were the most influential factors in shaping adoption intentions, while effort expectancy and perceived ease of use also exerted significant predictive effects.

Majeed and Taha (2024) investigated determinants of blockchain adoption among auditors in Iraq's government banks. The study expanded the Unified Theory of Acceptance and Use of Technology (UTAUT) by integrating five external factors: system trust, cost, transparency, security, and auditors' skill. Using a quantitative, exploratory design, data were collected from 300 auditors via a five-point Likert scale questionnaire. Structural Equation Modeling (SEM) and Partial Least Squares (PLS) analyses indicated that auditors' skills and social influence were the most significant predictors of immutable digital ledger in the banking context.

The research by Alkhwaldi et al. (2024) assessed both the antecedents and implications of blockchain adoption in Jordan's accounting and auditing profession. By extending the UTAUT model, the study surveyed 329 practitioners using a structured questionnaire. SEM-AMOS 25.0 analysis revealed that adoption decisions were strongly influenced by performance expectancy, social influence, blockchain transparency, and behavioral intention.

Qing and Jantan (2024) examined comprehensive control and traceability management within Malaysia's food cold chain transportation sector using a systematic literature review. The study proposed strategic measures for strengthening cold chain systems, including the formulation of a unified standard framework, the structured advancement of traceability systems, and the enhancement of traceability supervision platforms aimed at improving transparency and ensuring food cold chain safety.

Isakov and Kalieva (2025) analyzed Fliki AI, a text-to-video and text-to-speech platform, highlighting its role as a prominent AI tool in Turkey's digital marketing landscape. Their findings reveal its potential to streamline content production, boost user engagement, and support cross-cultural communication.

Jamiu, Segun (2025) explored the topic *"Digitalization and Youth Consumer Behavior: Economic Implications of Online Drug Markets and the Role of Regulatory Frameworks in Nigeria."* Employing a mixed-methods framework, the study blended quantitative survey results with qualitative interview findings. The central focus was to investigate the economic impact of online drug markets alongside the effectiveness of existing regulatory responses. By merging outcomes from both approaches, the study generated a comprehensive perspective on the social and economic forces shaping online drug markets in Nigeria.

Vazquez Melendez, Bergey, and Smith (2024) examined the application of centralized ledger system in improving supply chain provenance, with particular attention to enhancing operational efficiency and strengthening consumer trust. Utilizing a systematic literature review, the study identified primary adoption drivers, classified applicable product categories, and assessed the business gains achieved by early adopters. The findings indicated that decentralized ledger system substantially increases customer satisfaction, especially for brands that emphasize transparency.

The study by Tuladhar et al. (2024) assessed how transparent ledger system can support compliance with conflict mineral transparency mandates in Berlin. Using a mixed-method approach that incorporated qualitative case study evidence and secondary data, along with system cost analysis, the authors concluded that transparent ledger system strengthens stakeholder equality, facilitates compliance, increases efficiency, and reduces informational uncertainty and ambiguity in regulatory contexts.

Essien, Chukwukelu, Kazantsev, and Subramanian (2023) examined the determinants of transparency and traceability within Nigeria's agri-food supply chains using an interconnected analytical framework. Adopting a qualitative methodology, the researchers conducted interviews with 25 participants and applied content analysis to code and classify the findings. The results indicated that obstacles at the individual, organizational, and supply chain levels substantially impede the achievement of transparency and traceability in the agri-food sector.

Staal (2022) examined the influence of the Internet of Things (IoT) on cloud resource demand in the Netherlands, employing a dynamic modelling approach to forecast future requirements. The study projected that IoT-driven demand for cloud services will increase substantially between 2018 and 2032, with storage demand anticipated to grow at a compound annual growth rate (CAGR) of 33.6% and traffic demand at a CAGR of 37.8% over the same period.

Suvi (2021) explored the role of the Internet of Things in demand planning in Finland. The study employed a qualitative research approach, using action research design to achieve its objectives. The findings suggested that IoT and related platforms significantly reduced human effort and the need for numerous IT solutions.

This study identifies important contextual and methodological research gaps. Previous research on blockchain technology and supply chain management has focused on different regions, industries, and analytical tools. This study addresses these gaps by examining the impact of blockchain transparency, along with the role of IoT, on real-time traceability and demand forecasting in selected brewery firms in South-East Nigeria. While earlier studies have been conducted in other parts of the country and across various industries, this research contributes a unique perspective by focusing on this specific sector and utilizing distinct data analysis methods.

3. Research Methodology

3.1 Research Design

The research employed a correlational survey approach, utilizing a questionnaire structured on a Likert scale for data collection. It allows collection of data from a wide respondent base efficiently, which improves generalizability.

3.2 The Population of the Study

The study used a total of 2,100 employees from Nigerian Breweries, representing the Southeast states of Enugu and Abia, constitute the study population.

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3.3 Sample Size and Sampling Technique

The study's sample size was derived using Taro Yamane's (1968) formula, resulting in a calculated sample of 336 participants, drawn from Enugu and Abia States in Southeast Nigeria. The formula is expressed as:

$$n = \frac{N}{1 + N(e)^2}$$

where:#

n = required sample size
N = population size
e = margin of error, set at 5% (0.05)

Applying the formula:

$$n = \frac{21001}{1 + 21001 * (0.05)^2}$$

$$n = 336$$

To ensure fair representation of each stratum, Bowley's proportional allocation technique was applied for questionnaire distribution across the two states and selected firms. The computation followed the formula:

$$n_h = \frac{n * N_h}{N}$$

Where n_h represents the allocated sample for each stratum, N_h is the population of the stratum, n denotes the overall sample size, and N is the total population.

Applying the formula, we have:

i). Enugu State -Ama Brewery Office

$$nh = \frac{336 * 1200}{2100} = 192$$

ii). Abia State – Aba Brewery Office

$$nh = \frac{336 * 900}{2100} = 144$$

3.4: Method of Data Collection

The study employed a survey questionnaire as the primary data collection instrument, structured on a five-point Likert scale. The scale was defined as

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follows: *Strongly Agree (SA)* = 5, *Agree (AG)* = 4, *Undecided (UN)* = 3, *Disagree (DA)* = 2, and *Strongly Disagree (SD)* = 1.

3.5 Validity and Reliability of the Instrument

To establish face and content validity, the questionnaires were carefully constructed using expert, containing twenty-one items with a proportionate distribution of positively and negatively phrased statements on both variables. The choice of analytical techniques was aligned with the study's objectives and data characteristics. A pilot study, involving five respondents, was conducted to detect and correct any instrument deficiencies. Reliability was assessed through Cronbach's alpha using SPSS version 25, yielding a value of 0.9251, which surpasses the recommended benchmark of 0.70, indicating strong internal consistency. The results of this reliability test are presented below.

Table 1: Reliability Statistics Result

Cronbach's Alpha	N of Items
.998	5

Source: (SPSS Version 25).

3.6 Method of Data Analysis

The study employed simple regression analysis to assess how transparent ledger system adoption contributes to the enhancement of supply chain management in selected breweries located in the South-East.

3.6.1 Calculation of Simple Regression

According to Montgomery et al. (2021), the simple linear regression equation is expressed as:

$$Y=\beta 0+\beta 1X_1+\beta 2X_2+\beta nXn+\epsilon \quad (3.6.1)$$

$$Y_{(TRA)}=\beta 0+\beta 1X(_{TLS)}+\beta 1X(_{IBS)}\ \beta nXn+\epsilon\ . \quad (3.6.2)$$

Where:

Y = Dependent Variable-Real-time Traceability (TRA).

X1= Independent Variable-Transparent Ledger System (TLS)

X2 = Independent Internet Bases System,

β0 = the intercept, β1 = the slope of the regression line.

ϵ = (epsilon) or the error term.

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4. Result

4.1 Presentation of Result

The research explores how the adoption of transparent ledger system affects supply chain processes in selected breweries located in South-East Nigeria. Data were systematically arranged according to the study's questions to facilitate analysis. The Statistical Package for the Social Sciences (SPSS, version 25) was employed for statistical evaluation. A total of 321 questionnaires were completed and returned from the 336 distributed, with 15 responses omitted due to non-return.

Table 2: Schedule of Field Survey

S/N	Offices	Population	Copies Distributed	Copies Filled and returned
1.	Enugu State (Ama)	1200	192	185
2.	Abia State	900	144	136
	Total	2100	336	321

Source: (Field Survey, 2025).

To support the analysis, the research questions and hypotheses are also restated below:

Research Question

- What is the influence of the transparent ledger system in improving the real-time traceability of goods?
- To what extent does integration of internet-based systems improve the accuracy of demand forecasting of goods?

Research Hypotheses

- H_{A1}: The transparent ledger system adoption significantly improves transparency and real-time traceability of goods.
- H_{A2}: Adoption of the internet based system significantly improves the accuracy of demand forecasting of goods.

Table 3: Investigative questions on the adoption of blockchain technology and supply chain traceability

S/N	Items	SA	AG	UN	DA	SD	Total
A	Transparency Ledger System						
1	Transparent ledger system provides our firm with an immutable ledger, safeguarding transparency in transactions at every step of the brewing process among users.	130	132	28	21	10	321
2	Real-time traceability allows brewery firms to monitor every stage of production and distribution, ensuring consistent quality and quickly addressing any issues.	137	133	15	20	16	321
3	My firm utilizes blockchain to reduce delays, minimize errors, and lower costs through improved coordination and automated processes in the supply chains.	136	126	23	24	12	321
4	Our consumers can track information about the origin and location of their beer, increasing their confidence in the product's authenticity and quality.	130	131	24	21	14	321
5	Higher transaction volumes can cause decentralized ledger system platforms to face scalability limitations, leading to slower processing and greater costs.	125	129	31	19	17	321
6	Employees and management may resist adopting new technologies, preferring traditional methods due to their technical complexity.	128	124	33	23	13	321
7	Implementing and maintaining blockchain systems requires specialized knowledge and expertise, which may be lacking in traditional brewery operations.	124	128	30	21	18	321
B	Internet Based System						
8	My company has improved operational efficiency in brewery firms by automating processes such as brewing, packaging, and distribution, reducing manual errors and downtime.	137	133	20	17	14	321
9	Real-time data are obtained from various sources, such as sales channels, weather patterns, and social media trends, through the utilization of internet platform.	126	127	26	23	19	321
10	The use of innovative technology has helped us to be more accurate in demand forecasting and inventory management.	132	139	27	18	5	321
11	The implementation of IoT technology has helped us to reduce operational costs and make brewery firms more competitive in the market.	131	133	26	21	10	321

S/N	Items	SA	AG	UN	DA	SD	Total
12	The adoption of IoT technology requires an initial investment in hardware, software, and infrastructure, which can be a barrier for smaller brewery firms with limited budgets.	137	134	33	12	5	321
13	Cyber security vulnerabilities are common in the use of internet devices, and the significant data volumes they generate are difficult to safeguard, resulting in potential risks to both brewery operations and customer privacy.	143	138	20	17	3	321
14	Over-dependence on IoT technology can lead to a loss of traditional brewing skills and knowledge, making the firm vulnerable to technology failures or malfunctions.	130	136	28	18	9	321
C	Supply Chain Traceability						
15	My firm has streamlined automation processes with the aid of blockchain to lower the time and cost associated with supply chain management.	136	143	25	19	2	321
16	Automation processes allow us the opportunity to be more efficient in operations and improve the speed of product delivery times to clients.	139	126	27	23	6	321
17	Both the company and consumers are shielded from fraudulent practices as a result of the immutable properties of the innovative technology.	122	134	33	21	11	321
18	The adoption of blockchain technology into existing supply chain systems is costly for small to medium-sized brewery firms.	138	126	30	19	8	321
19	The adoption of new technology may be resisted by workers and stakeholders due to unfamiliarity or concerns about job displacement.	127	130	32	23	9	321
20	Changes in legal or regulatory policies could act as barriers to the implementation and use of shared digital ledger in the brewery industry.	135	137	24	18	7	321
21	Most often, innovative technology may face scalability issues, struggling to handle the high volume of transactions typical in large brewery supply chains without sacrificing performance.	133	141	29	16	2	321

(Survey Trip, 2025)

4.2 Test of Research Hypothesis

I. H_{o1}: The transparent ledger system adoption do not significantly improves transparency and real-time traceability of goods.

II. H_{o2}: Adoption of the internet based system do not significantly improves the accuracy of demand forecasting of goods.

4.2.1: Rule of Decision

Table 6 shows the outcomes of the bivariate linear regression analysis used in this study. The null hypothesis (H_0)—which claims that transparency ledger system does not meaningfully enhance real-time traceability of goods in selected brewery supply chains—was rejected, given the p-value of 0.016, which is below the conventional alpha level of 0.05. This supports the acceptance of the alternative hypothesis (H_1), confirming a statistically significant positive relationship between transparency ledger system (TLS) and real-time traceability (TRA) within the supply chain ($p < 0.05$).

Similarly, the null hypothesis that internet based system does not significantly affect real-time traceability of goods was rejected. The alternative hypothesis, which posits a significant improvement in traceability due to internet based system, was accepted. The p-value (0.000) being less than 0.05 confirms the statistical significance of the relationship between the independent variable (IBS) and the dependent variable (TRA).

Table 4: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.990	.989	5.94551	1.882

Source: (SPSS Version 25)
a. Predictors: (Constant), IBS, TRN
b. Dependent Variable: TRA

Table 5: Analysis of Variance ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	112536.374	2	56268.187	1591.788	.000[b]
	Residual	1131.169	319	35.349		
	Total	113667.543	321			

Source: (SPSS Version 25)
a. Dependent Variable: TRA
b. Predictors: (Constant), IBS, TRN

Table 6: Simple Regression (Coefficients[a]) Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.904	1.674		-.540	.593
	TRN	.401	.157	.378	2.554	.016
	IBS	.615	.147	.619	4.187	.000

Source: (SPSS Version 25)
a. Dependent Variable: TRA

The regression equation is stated as:

$$Y_{(TRA)} = \beta0+\beta1X(_{TRN}) + \beta1X(_{IBS})\ \beta nXn + \epsilon \quad (4.1.5)$$

Where:

$$Y_{(TRA)} = .904- .401(_{TRN}) + .615(_{IBS}) \quad (4.1.6)$$

5 Discussion of Findings

This study seeks to evaluate the impact of transparency ledger system and the internet-based system on real-time tracking of goods in the brewery plant. Hypotheses were tested using bivariate linear regression, which yielded a p-value of 0.016, below the 0.05 significance threshold. Consequently, the null hypothesis that transparent ledger system does not significantly enhance real-time tracking of goods in the brewery was rejected, while the alternative hypothesis asserting a significant positive effect was accepted. These results demonstrate a statistically significant relationship between them.

The analysis of regression data when the critical value of 0.000 produced is below the conventional alpha level of 0.05. Thus, the null hypothesis, which claimed that internet web system does not substantially improve real-time tracing of brewery products, was rejected. Instead, the alternative hypothesis asserting a significant positive influence of internet web on tracking of brewery products was accepted. This outcome confirms a statistically significant link between them.

The adjusted coefficient of determination (R^2) of 0.989, as presented in the model summary (Table 4), implies that the combined influence of transparency ledger system (TLS) and the internet web system accounts for 98.9% of the variability in real-time tracking of brewery products (TRA). Only 1.1% of the variation is due to factors excluded from the regression model, reflecting a very good model fit and robust analytical results. The Durbin-Watson statistic of 1.882 further indicates no autocorrelation among residuals, ensuring the independence of errors. The positive values of the simple regression coefficients (β_1 and β_2) shown in Table 6 denote that increases in the independent variables correspond with increases in real-time tracking of drinks. The ANOVA table (4.4) displays high F-statistics (1591.788) and a statistically significant p-value (0.000), supporting the conclusion that the regression model reliably explains variation in the dependent variable (Y).

In a nutshell, findings from this study show that transparent ledger system has a statistically significant positive effect on the real-time tracking of brewery products, as evidenced by a p-value of 0.016, below the critical value of 0.05. These results are consistent with the conclusions drawn by Dinesh Kanna and Vasim Akram (2025), who found that transparent ledger system enhanced supply chain transparency and operational efficiency in India. Similarly, Divinah (2024) documented technology's effectiveness in improving transparency, mitigating fraud, and strengthening traceability in South Africa's supply chains.

Additionally, the result also showed that the adoption of the internet-based system significantly improves the real-time tracking of products, with a p-value of 0.000 that is below the critical level. This result contrasts the findings of Suvi (2021), who reported that IoT platforms had an insignificant impact on demand planning in Finland. However, it aligns with the work of Musthakeen (2025), which identified that the implementation of internet bases applications significantly improves supply chain logistics processes in terms of effectiveness and efficiency. Additionally, the study found that IoT, along with supply chain integration practices, plays a significant role in enhancing sustainability performance in Sri Lanka's tea industry. Overall, the study suggests that IoT has both positive and negative influences on supply chain management.

5.1 Suggestion for Future Research

It is recommended that future investigations explore the impact of block chain adoption on sustainable operational practices in procurement. Researchers should also consider evaluating block chain's contribution to effective resource management within construction projects.

5.2 Contribution to Knowledge

This research explored the influence of digital ledger systems on supply chain management in selected brewery companies. Specifically, the study focuses on the extent to which transparency ledger systems and internet-based applications enhance real-time monitoring and tracking of products within supply networks.

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The study contributes to the body of knowledge by recognizing key challenges and proffering solutions by suggesting that investment in staff training at all levels to understand the use of blockchain to create a transparent system where online transactions in Nigerian breweries can be safe. Additionally, the study enriches existing literature by providing a fresh perspective, utilizing both contextual and methodological approaches to address knowledge gaps. Furthermore, it introduces novelty by developing a regression model equation linking the transparent ledger system, the internet-based system, and tracking of food and drinks in Nigerian breweries.

6. Conclusion

The result indicate that the implementation of decentralized ledger system significantly enhances the real-time tracking of drinks or products within selected Nigerian breweries in the South-East zone. This finding is aligns with earlier research of Khalil and Ahmed (2024), who highlighted the potential of blockchain adoption to substantially improve supply chain performance. These findings are further supported by Al-Khasawneh (2022), who identified the application of decentralized ledger system in tracking business transactions, operational performance, and reducing service-related business costs in Jordan's economic sectors. Moreover, the results align with the research of Vazquez Melendez, Bergey, and Smith (2024), which demonstrated that blockchain technology enhances brand transparency and customer satisfaction.

This study therefore concludes that transparent ledger system and real-time tracking of products have become transformative tools in Nigerian breweries. By leveraging immutable digital ledgers accessible to all parties, blockchain ensures transparency, data security, and trust. Meanwhile, real-time traceability offers immediate visibility into the movement and condition of products.

7. Recommendations

This study offers the following recommendations:

- Brewery firms should integrate block chain technology in tracking the flow of raw materials and finished products along the supply chain ecosystem. This ensures data security and prevents fraud, providing stakeholders (suppliers, distributors, customers) with a trustworthy system for monitoring product movement and conditions.

- Brewery firms should use real-time tracking systems supported by transparent ledger system to track movement of materials. This will help in monitoring the movement, quality, and storage conditions of products, ensuring prompt identification of any issues and reducing the risk of supply chain disruptions.
- To fully leverage blockchain's potential, breweries should collaborate closely with suppliers and distributors, ensuring they also adopt compatible traceability systems. This promotes end-to-end visibility and reduces inefficiencies caused by miscommunication or lack of information.
- The use of blockchain technology can help breweries comply with regulatory requirements by providing an auditable and transparent record of all transactions. Brewery firms should ensure that their blockchain systems are designed to capture all necessary data to meet food safety and regulatory standards, helping to avoid fines or product recalls.
- Brewery firms should invest in training staff at all levels to understand and effectively use blockchain technology. Building internal capacity will ensure that the technology is implemented and maintained correctly, enhancing its effectiveness in improving supply chain management.
- Brewery firms should conduct regular assessments to evaluate the performance and impact of blockchain and real-time traceability systems. This will help identify areas for improvement, ensure the systems remain aligned with business goals, and ensure they adapt to changes in market conditions or regulatory requirements.

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INFLUENCE OF TALENT MANAGEMENT PRACTICES ON EMPLOYEE ENGAGEMENT

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Abstract

This study examined the influence of talent management practices on employee engagement within Nigeria Bottling Company, Asejire, Ibadan, Oyo State. Specifically, the research focuses on talent management practices, including talent retention and talent attraction, and their impact on employee engagement. The research design employed was a descriptive survey research design. The target population comprises male and female employees working in Nigeria Bottling Company Asejire, with a total of 285 employees. A sample size of 166 respondents was determined using the Taro Yamane formula for simple random sampling. Data collection involved the use of a questionnaire. Data analysis incorporated descriptive and inferential statistics, with multiple

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*regression analysis used to test research hypotheses. The study's findings reveal that talent retention significantly influences employee engagement in Nigeria Bottling Company [r^2 (159) =.592**, p<.05]; and talent attraction significantly influences employee engagement in Nigeria Bottling Company [r^2 (159) =.413**, p<.05]. The study concluded that talent management practices play a significant role in fostering a highly engaged and committed workforce in Nigeria Bottling Company as engaged employees exhibit increased job engagement. Based on the study's findings, it was recommended that Nigeria Bottling Company should enhance talent management practices, implement effective talent retention strategies, strengthen talent attraction efforts, and continuously monitor and evaluate engagement.*

Keywords: *talent management, employee engagement, retention, attraction, compensation*

JEL Classification: M12, J50, J53

Introduction

Talent management emerged in the late 1990s following McKinsey's "War of Talent" study, which emphasized the importance of retaining qualified and talented people for business success (Berger, 2019). The concept can be understood through three different perspectives as defined by Billsberry (2018): as traditional HR functions like selection and training; as procedures to ensure a sufficient flow of qualified employees; and as a focus on high-performing individuals with developed skills. As organizations face increasing competition due to globalization, talent management has become essential for maintaining competitive advantage and sustaining organizational performance (Berger, 2019; Best, 2018).

The evolution of talent management practices has been driven by several factors including globalization, workplace reforms, and demographic changes in the workforce (Nankervis, Compton & Baird, 2015). These forces have pressured organizations to utilize human capital more effectively and productively (Hiles & Bunnell, 2016). Companies with effective talent management deliver better results for shareholders (Huselid, 2015), as managing the right people with the right skills at the right time becomes critical for growth potential. Human capital, unlike other organizational assets, cannot be easily replicated and requires significant time to develop (Chuai, 2018). Talent management gained prominence in the 1980s and 1990s when HR departments transitioned from routine administration to more

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complex planning and configuration duties (Ackland, 2015). During this period, organizations recognized HR's expanded role in recruiting and training suitable candidates, developing competitive compensation packages, and serving as a central point for employee wellbeing (Bersin, 2016). This evolution positioned talent management as one of the primary management tools for 21st century human assets management (Cappelli & Yakubovich, 2019; Cappelli, 2018).

The process of talent management encompasses various activities including selection, development, succession planning, and career management (Wellins, Smith & Erker, 2019). These practices have become vital in addressing talent shortages, which according to global surveys conducted by Stavrou-Costea and Morley (2017), undermine productivity across organizations worldwide. This issue is particularly complex in Africa, which paradoxically experiences high unemployment rates while managers struggle to find talented employees (Piansoongnern & Anurit, 2018). The deliberate approach to attract, develop, and retain people with appropriate aptitudes has become a key management and productivity issue globally (Cappelli & Yakubovich, 2019; Drucker, 2018; Guthridge, Komm & Lawson, 2018).

In the context of increasing global competition, organizations have recognized that recruiting, developing, and retaining talented individuals is critical for success and longevity in complex economic systems (Ingham, 2016; Ashton & Morton, 2015; McGee, 2016). Talent has become a critical resource that requires proper management to achieve optimal results (Maali & Tajaddin, 2018). However, despite widespread knowledge of talent management strategies, many organizations fail to implement effective human capital development and retention practices (Cappelli, 2019). This gap in implementation represents a significant challenge for organizations competing in the global labor market for talent. Therefore, the study seeks to determine the influence of talent retention on employee engagement and investigate the influence of talent attraction on employee engagement.

Literature Review
Conceptual Clarifications
Talent Management

Talent management has evolved significantly since the late 1990s, yet lacks a single consistent definition (Aston and Morton, 2015). Lewis and Heckman (2016) identified three key perspectives: as rebranded human resource management, as procedures ensuring qualified employee flow, and as focus on high-performing

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individuals. Stockley (2017) defines talent management as "the conscious, deliberate approach undertaken to attract, develop and retain people with the aptitude and abilities to meet current and future organisational needs." This approach deals with recruitment, selection, identification, retention, management, and development of personnel with high productivity potential. Collings and Mellahi (2019) expand this definition to include "activities and processes that involve the systematic identification of key positions which differentially contribute to the organisation's sustainable competitive advantage, the development of a talent pool of high potential and high performing incumbents to fill these roles, and the development of a differentiated human resource architecture to facilitate filling these positions with competent incumbents and to ensure their continued productivity to the organisation." The purpose of talent management, according to Howard (2018), is ensuring supply of talent to align the right people with the right jobs using measurable, predictable skills that drive organizational success (Tjale et al., 2025).

Talent Attraction

Talent attraction stands as a paramount aspect of organizational success in today's competitive global market, where drawing and retaining top talent has become a strategic priority for companies seeking competitive advantages (Jones & Brown, 2021). At the heart of effective talent attraction lies the cultivation of a compelling employer brand. Smith and Johnson (2020) note that companies with strong, positive employer brands gain significant advantages by attracting higher caliber candidates who seek organizations aligned with their values. By showcasing distinct company culture, dedication to employee welfare, and commitment to creating fulfilling work environments, businesses can allure potential candidates and establish themselves as desirable workplaces (Gonzalez et al., 2019). The digital revolution has transformed talent attraction methodologies, with social media becoming an indispensable tool for reaching broader audiences of job seekers (Pew Research Center, 2020). Organizations now connect with both active and passive candidates, engaging in meaningful conversations that cultivate relationships leading to future talent acquisition (Miller & White, 2018). Additionally, competitive compensation packages remain integral to talent attraction, with prospective employees weighing not only salary considerations but comprehensive benefits packages (Mercer, 2019).

Talent Retention

Talent retention refers to an organization's ability to retain employees within the organization long-term, measurable through statistics like retention percentage or

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through employer efforts to keep employees (Hall, 2015). This aspect of talent management has become increasingly critical in competitive economic environments where competitors frequently poach employees from each other. When talented employees leave in large numbers, it directly affects cumulative productivity and organizational profitability. From an organizational perspective, employee turnover leads to service disruption for clients, extra time and money spent on recruitment and training replacements, and added stress for remaining staff during transition periods (Ngo, Lau & Foley, 2018). Organizations benefit when they retain employees for extended periods, as these employees focus on long-term organizational goals rather than seeking new opportunities elsewhere, becoming more focused and performing better in their roles (Hall, 2015). As organizations pursue high productivity through talent management, they increasingly take holistic approaches. Agrela (2018) and Tjale, et al. (2025) emphasizes the need to focus on retention factors that lead to organizational growth and success, as long-term employees develop greater productivity through familiarity with organizational culture and processes. Effective talent retention strategies include succession planning, career development, and motivation, with Morton (2015) noting that organizations increasingly implement varied HR strategies to retain top talent while Lanre-Babalola et al. (2024) posited that it is only positive relationship between superior and subordinate that can influence their decision to remain with the organisation over a long period of time. In the views of Habibullayeva (2025) posited that there is need for organizations to encourage learning and development in order to enhance their long-term success, adaptability, and sustainable growth in today's dynamic business environment which is a good avenue for talent development.

Employee Engagement

Employee engagement has been regarded as a valuable resource for enhancing competitive advantage in recent decades (Megha, 2016). Despite being a popular research topic, it lacks universal definition, manifesting variously as a trait (like assertive personality), psychological state (such as contentment or commitment), or behavioral pattern (like personal initiative) (Chanana, 2021; Macey & Schneider, 2008; Schuck & Wollard, 2013). Employees with proactive personalities, hope, resilience, and self-efficacy resources experience lower work stress and higher motivation and engagement (Bakker & de Vries, 2021). In modern workplaces, engagement demonstrably improves personal performance (Wang et al., 2021), which subsequently enhances organizational performance (Wijayati et al., 2022). Research identifies remuneration and performance management as the top predictors of employee engagement (Alam et al., 2022), with engagement leading to increased productivity and profitability (Chanana, 2021). Conversely, employee disengagement negatively impacts business performance (Heikkeri, 2010), driving many organizations to focus on increasing engagement through various initiatives including training, communication, and compensation strategies (Risley, 2020; Dela-Calle-Durán et al., 2021). This growing emphasis on engagement reflects recognition of its central role in organizational success and competitive positioning in contemporary business environments. In the opinion of Lanre-Babalola et al. (2024) the relationship between superior and subordinate requires strong attention for meaningful engagement.

Theoretical Review

Human Relations Theory

The Human Relations Theory, developed by Elton Mayo during the Hawthorne experiments (1927-1932), represents a shift from classical management thinking by recognizing employees as social beings influenced by psychological and emotional factors rather than just rational economic actors (Diamond, Allcorn, & Stein, 2014). This theory emphasizes that when employees feel valued, recognized, and involved in decision-making, they develop stronger organizational commitment, leading to increased motivation and improved performance (Nicotera, 2019). Human Relations Theory highlights the importance of effective communication, teamwork, and positive social relationships in creating productive work environments (Osborn, Sides, & Brown, 2017). When applied to talent management, this theory suggests organizations should focus on creating supportive environments where human connections are prioritized. For talent attraction, companies should emphasize their supportive culture and recognition systems. For retention, organizations must implement programs that make employees feel valued and provide opportunities for meaningful participation, as these social factors significantly influence an employee's decision to remain with an organization (Shelton, 2016).

Empirical Review

Ngozi (2022) carryout this study that examined employee engagement and talent retention. The objective of the study is to examine the influence of employee engagement on talent retention. The study revealed that engaged employees often experience positive emotions (e.g., happiness, joy and enthusiasm). Engaged employees experience better health, create their own job and personal resources which enhance their competence and thus enhance talent retention. The study thus concluded that there is a practical and literal relationship between employee

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engagement and talent retention. The study thus, recommended that organisations should from time to time investigate employee behavior in other to manage it properly and adequately. Organisation ‘s plan of action should be intentional towards employee engagement for business success. While applying adequate retention strategies, organisations should be proactive and rational in other to identify and classify talented employees for retention (Ngozi, 2022). Premovic (2025) posited that knowledge, skills and abilities (KSA) have important role in improving the service activities and the business success which explains why talent management is essential to overall engament.

Li Qi and Jia Qi (2021) assessed talent management practices and employee engagement- in Malaysian GLCs**.** This study aims to understand the influence of talent management and investigate how talent management affects employee engagement in GLCs Malaysia. It is also to determine the relationship between talent management and employee engagement as well as to analyze strategies used to increase employee engagement in GLCs Malaysia. In order to achieve the objectives of case study, a literature review was conducted to provide a better understanding of talent management and employee engagement and identify the issues of talent management that affect employee engagement. Moreover, the findings indicate that the talent management issues such as bureaucratic meddling, ineffective performance management system (PMS), talent retention and talent shortage have positive relationship with employee engagement.

Byrne and Manning (2021) examined employee engagement as a talent management imperative. Talent management systems focus on three main processes around filling positions within the organisation that can differentially impact its competitive advantage: attraction, selection, and retention. An attraction-based talent management system works to attract external talent to fitting roles in the organisation. Developing an engaged workforce and talent management go hand-in-hand. The more engaged employees available in the talent pool, the more opportunities the organisation has to fill strategically identified key roles. Although not every employee will possess the competencies necessary for every key position identified that differentially impacts the organisation’s competitive advantage, those who have the right skills, knowledge, and ability can contribute even more to the organisation when they are engaged.

Hongal and Kinang (2020) examined a study on talent management and its impact on organisation performance. The study revealed that Talent Management focuses on how individuals enter; move up across or out of the organisation. Talent Management will succeed with the support of strong organisation structure. As better talent can change the future of business, Talent Management has to be given predominant role in organisation. If organisation implements talent management strategies effectively, that enhances employee's engagement which in turn helps to improve organisation performance. Higher the employee engagement higher the productivity. This present study identified that there is a posiitve relationship between talent management and organisation performance. The work of Premovic (2025) on the application of 4C Model of Human Resource Management in Service Sector buttressed this result.

A study by Kadiri (2017) assessed talent management and employee engagement of Guaranty Trust Bank in Ilorin Metropolis. Survey research method was adopted. Simple random sampling technique was employed to select respondents from the stratums of managers and non-managerial staff from each branch of then Bank. While 178 respondents represent the study sample size. Questionnaire was the main instrument of Data Collection. Data obtained were analyzed with the help of Statistical Package for Social Sciences (SPSS) software. Pearson Product Moment Correlation analysis was used to test the hypotheses at 0.05 level of significance. The findings revealed that there is a positive and significant relationship between talent management and employee engagement and also that employee engagement and labour turnover are significantly related related. The study concludes that talent management has significant effect on employee engagement and invariably labour turnover in GT Bank Ilorin, Nigeria.

Methodology

The study adopts a descriptive research design to examine the influence of talent management on employee engagement in Nigeria Bottling Company, Asejire, Ibadan. The target population consists of 285 employees (150 males and 135 females), and a sample size of 167 was determined using Taro Yamane's formula, with simple random sampling employed. Data was collected using a structured questionnaire divided into sections covering socio-demographics, talent management, and employee engagement, measured on a 5-point Likert scale. Content validity was ensured through expert review, while reliability was assessed using the test-retest method, yielding a Cronbach's Alpha value of 0.753. Questionnaires were administered in person, with assurances of confidentiality. Data analysis involved both descriptive and inferential statistics, with linear regression used to test hypotheses via SPSS version 22.0 at a 0.05 significance level.

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Result

A total of One-hundred and Sixty-Six (166) copies of the questionnaire were randomly administered. However, One-hundred and Fifty-Nine (159) copies of the questionnaire were retrieved and useable fit usable for the study, which amounted to a 95.8% response rate considered sufficient for analysis.

Table 1: Socio Demographic Characteristics

Variable	Category	Frequency	Percent (%)
Gender	Male	96	60.4
	Female	63	39.6
	Total	**159**	**100.0**
Age (years)	20-24	80	50.3
	25-29	52	32.7
	30-34	17	10.7
	35-39	5	3.1
	40-44	5	3.1
	Total	**159**	**100.0**
Religion	Islam	72	45.3
	Christianity	87	54.7
	Total	**159**	**100.0**
Educational Qualification	OND/Diploma/NCE	53	33.3
	HND/First Degree	58	36.5
	Postgraduate Diploma	10	6.3
	MSc/MEd/MA	13	8.2
	Others	25	15.7
	Total	**159**	**100.0**
Work Experience (years)	0-4	117	73.6
	5-9	32	20.1
	10-14	7	4.4
	15-19	3	1.9
	Total	**159**	**100.0**

The gender distribution shows that the majority of the participants were male (60.4%), while females accounted for 39.6%, indicating a higher male representation in the study. In terms of age, most respondents were between 20-29 years (83%), reflecting a youthful workforce largely composed of early-career professionals. Religious affiliation among the respondents shows that 54.7%

identified as Christians, while 45.3% identified as Muslims, demonstrating a relatively balanced representation of the two dominant religious groups. Educational qualifications indicate that most respondents possessed HND/First Degree qualifications (36.5%) and OND/Diploma/NCE (33.3%), while fewer participants had postgraduate qualifications (14.5%). Regarding work experience, the majority of the respondents (73.6%) had 0-4 years of experience, with only a small proportion having 10 years or more. This highlights that most participants were at the early stages of their careers. Overall, the socio-demographic characteristics suggest that the study population is predominantly young, educated, and in the early stages of their professional journey.

Hypothesis Testing

Hypothesis One: Talent retention do not significantly influence employee engagement in Nigeria Bottling Company.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769[a]	.592	.589	.62854

a. Predictors: (Constant), Talent Retention

The results presented in Table 2 provide the model summary for this regression analysis. The R value of 0.769 indicates a positive correlation between Talent Retention and employee engagement. This suggests that as talent retention practices improve, there is a corresponding increase in employee engagement within the company. The R Square value of 0.592 indicates that approximately 59.2% of the variance in employee engagement can be explained by changes in Talent Retention. This suggests that talent retention practices play a significant role in shaping employee engagement levels within the organisation. The adjusted R Square value is very close to R Square, indicating model stability even after considering the number of predictors. The Std. Error of the Estimate represents the average deviation between observed and predicted values, suggesting a reasonably accurate fit of the model to the data.

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Table 3: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.960	1	89.960	227.711	.000[b]
	Residual	62.025	157	.395		
	Total	151.984	158			
a. Dependent Variable: Employee Engagement						
b. Predictors: (Constant), Talent Retention						

Table 3 presents the results of the Analysis of Variance (ANOVA) used to assess the overall significance of the regression model. The table shows that the regression model is statistically significant, with an F-value of 227.711 and a p-value of 0.000 (Sig.), which is less than 0.05. This indicates that the independent variable significantly explains variations in the dependent variable, Employee Engagement.

Table 4: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.902	.337		-2.676	.008
	Talent Retention	1.181	.078	.769	15.090	.000
a. Dependent Variable: Employee Engagement						

Table 4 presents the regression coefficients, which show the relationship between Talent Retention and Employee Engagement. The unstandardized coefficient (B) for Talent Retention is 1.181, indicating that a one-unit increase in talent retention leads to a 1.181 increase in employee engagement. The p-value (Sig.) of 0.000 from the ANOVA confirms that this relationship is statistically significant at the 0.05 level. The constant (-0.902) represents the predicted value of employee engagement when talent retention is zero. These findings suggest that talent retention plays a significant positive role in enhancing employee engagement.

Hypothesis two: Talent attraction does not significantly influence employee engagement in Nigeria Bottling Company.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.643[a]	.413	.408	.70383

a. Predictors: (Constant), Talent Attraction

Table 5 provides the model summary for Hypothesis two, which examines the impact of Talent Attraction (predictor) on employee engagement (dependent variable) in Nigeria Bottling Company. The R value of 0.643 indicates a positive correlation between Talent Attraction and employee engagement. This suggests that as talent attraction strategies improve, there is a corresponding increase in employee engagement within the company. The R Square value of 0.413 indicates that approximately 41.3% of the variance in employee engagement can be explained by changes in Talent Attraction. This suggests that talent attraction practices play a moderate role in shaping employee engagement levels within the organisation. The adjusted R Square value is very close to R Square, indicating model stability even after considering the number of predictors. The Std. Error of the Estimate represents the average deviation between observed and predicted values, suggesting a reasonable fit of the model to the data.

Table 6: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.718	1	37.718	75.891	.000[b]
	Residual	78.073	157	.497		
	Total	115.791	158			

a. Dependent Variable: Employee Engagement

b. Predictors: (Constant), Talent Attraction

Table 6 presents the results of the ANOVA (Analysis of Variance) test, which assesses the statistical significance of the regression model examining the influence of Talent Attraction on Employee Engagement. The regression model shows a Sum of Squares value of 37.718 with 1 degree of freedom (df), indicating the variation explained by the independent variable (Talent Attraction). The Residual Sum of Squares is 78.073 with 157 degrees of freedom, representing the unexplained variation in the model. The F-statistic of 75.891 and the p-value (Sig.) of .000 indicate that the regression model is highly significant at $p < 0.05$. This result confirms that Talent Attraction has a statistically significant influence on Employee Engagement among the respondents.

Table 7: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.099	.433		.229	.819
	Talent Attraction	.946	.108	.643	8.726	.000

a. Dependent Variable: Employee Engagement

Table 7 presents the regression coefficient analysis examining the influence of Talent Attraction on Employee Engagement. The constant value (B = 0.099, p = .819) indicates the predicted level of employee engagement when Talent Attraction is zero, though it is not statistically significant. The Unstandardized Coefficient (B = 0.946) shows that a unit increase in Talent Attraction leads to a 0.946 increase in Employee Engagement, demonstrating a positive relationship. The Standardized Coefficient (Beta = 0.643) further highlights the strength of the relationship, indicating that Talent Attraction explains approximately 64.3% of the variations in Employee Engagement. The t-value of 8.726 and p-value of .000 confirm that the relationship is statistically significant at $p < 0.05$, implying that Talent Attraction significantly influences Employee Engagement among the respondents.

Discussion of Findings

The study investigates the influence of talent management practices on employee engagement in Nigeria Bottling Company (Asejire, Ibadan, Oyo State). Findings from hypothesis one revealed that talent retention influences employee's engagement. The studies by Ngozi (2022) and Pandita and Ray (2018) emphasize the importance of talent retention in enhancing employee engagement. Engaged employees are more likely to stay with the organisation, and talent retention strategies can significantly impact employee satisfaction and commitment.

The second sub-objective investigates the influence of talent attraction on employee engagement. Findings revealed that talent attraction influences employee's engagement. Studies by Li Qi and Jia Qi (2021), Byrne and Manning (2021), and Hongal and Kinang (2020) highlight the positive association between talent attraction strategies and employee engagement. Attracting talented individuals to the organisation can contribute to a highly engaged workforce, leading to improved organisational performance (Tjale et al., 2025; Habibullayeva, 2025).

Conclusion and Recommendations

This study has demonstrated the significant impact of talent retention and talent attraction on employee engagement in Nigeria Bottling Company. The study concluded that talent management practices significantly influences employee engagement. The findings underscore the importance of strategic human resource management practices in fostering a highly engaged and committed workforce. Organizations that invest in effective talent management, implement talent retention strategies, and attract the right talent are more likely to experience higher levels of employee engagement. Engaged employees are known to exhibit increased productivity, job satisfaction, and organizational commitment, leading to improved overall performance and competitive advantage for the company.

Based on the conclusion of the study drawn from the findings, the study recommended that Nigeria Bottling Company should invest in robust talent management practices that encompass talent acquisition, development, and retention strategies. The company should implement effective talent sourcing methods, identify high-potential employees, and provide them with opportunities for career growth and development. Additionally, the study recommended that Nigeria Bottling Company should focus on employee recognition, rewards, and retention programs to retain top talent. Competitive compensation packages, a positive work environment, and opportunities for career progression are essential in maintaining a highly engaged workforce. To attract the right talent, the company should focus on employer branding and promoting its unique culture and values. An attractive employee value proposition (EVP) can be a significant draw for potential candidates. Lastly, regularly measuring and analyzing employee

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engagement levels is crucial. Nigeria Bottling Company should use engagement surveys and feedback mechanisms to assess the effectiveness of its talent management, training, and retention efforts.

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IMPACT OF PAY SATISFACTION ON TALENT RETENTION: A QUALITATIVE STUDY

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Abstract

Employee retention and pay satisfaction in the public sector have become an urgent matter that needs to be explored because of the cost of talent acquisition and disturbance in service delivery. Pay satisfaction is critical in human resource management, as dissatisfaction can negatively impact talent retention. This study explores the impact of pay satisfaction on talent retention with an understanding of the challenges of retaining talented employees in the public sector. A qualitative research approach utilising exploratory research design was employed to explore the employees' perceptions of pay satisfaction on talent retention. Semi-structured interviews were used to collect data from 18 employees, and thematic data analysis was used to analyse data. The perception of fairness and equity was identified as central to pay satisfaction. Most respondents emphasise the importance of equitable compensation practices with transparency in pay. The paper also revealed that the alignment of pay to individual performance contributes to pay satisfaction. Intrinsic and extrinsic rewards further contribute to overall pay satisfaction, while financial security and work-life balance are highlighted as essential outcomes of pay satisfaction as these will enhance the intention to stay in the organisation. Pay satisfaction is a complex and multifaceted concept that significantly impacts talent retention. Employers who prioritise *fair and transparent compensation practices, align pay with performance, and provide opportunities for career growth are more likely to foster satisfaction and a committed workforce, leading to improved organisational performance and reduced turnover intention rates.*

Key words: *pay satisfaction, talent retention, turnover rates, intention to leave.*#

JEL Classification: J28; J51; J52;J63;M52

Introduction

Rewarding employees is one of the most significant organisational expenses and is central to the relationship between employees and the organisation. Employees are the most important assets for organisational sustainability and success (Mabaso & Mathebula, 2024). Maamari and Alameh (2016), Mandhanya (2015) and Taamneh et al. (2018) concur that human capital is among an organisation's most precious assets, with skilled and competent employees being imperative for business success and sustainability. The effectiveness and success of an organisation depend heavily on the quality and performance of its human resources (Jufrizen & Kanditha, 2021). In a tight labour market, retaining this scarce commodity is crucial.

Talented employees are a source of competitive advantage in today's competitive world. However, retaining them has been challenging for most organisations. Talebi et al. (2025) attest that organisations worldwide seek to retain talent because losing talent incurs exorbitant recruitment, selection, and training costs, often equivalent to a full year of compensation. In an era of enormous competition, talented employees have become a powerful source of sustainability and competitive advantage (Johara et al., 2019). High employee turnover significantly impacts organisational performance by lowering productivity and affecting competitiveness, diminishing companies' competitive advantages. Retaining talented employees helps companies financially sustain themselves, improves business performance (Claus, 2019; Huseynov, 2023) and provides a competitive edge (Kurdi et al., 2020). However, retaining talented employees remains a significant challenge in the competitive business environment (Gallardo-Gallardo et al., 2020).

Given the importance of talent retention as a strategic tool to ensure superior performance, it remains an organisation's top priority (Kumar & Arora, 2019; Masibigiri & Nienaber, 2020; Narayanan, Rajithakumar & Menon, 2019).

Developing effective strategies to attract and retain talent is essential for coping with changing roles (Jia et al., 2019). These strategies also address challenges related to unexpected employee departures, such as productivity loss and difficulties in filling vacancies. Compensation is a significant component of employee retention strategies (Khalid, 2020; Sarkar, 2021; Collins et al.). A well-designed compensation system is crucial in human resource practices for retaining talented employees (Ohunakin & Olugbade, 2022). Evidence suggests that compensation significantly influences organisational success through employee motivation and retention (Collins et al., 2021). Alhmoud and Rjoub (2019) affirm that employees' motivation to remain in an organisation is greatly determined by the rewards they receive. Organisations must address pay satisfaction to ensure retention and optimum performance (Milkovich & Newman, 2008).

Pay satisfaction is a critical issue in HRM, as dissatisfaction can negatively impact employee retention, commitment, trust, and performance (Khalid, 2020; Miao et al., 2014; Jung & Yoon, 2015). It refers to employees' positive feelings about their salaries (Williams et al., 2006). Rasmussen et al. (2016) found a link between job and pay satisfaction, showing that satisfied workers exert more effort in accomplishing tasks. Employees who are satisfied with their pay experience less financial stress, allowing them to better appreciate and find meaning in their organisation's activities (Godinic et al., 2020).

Perceptions of compensation enhance intrinsic motivation and job meaningfulness. Pay satisfaction is a motivational tool, increasing job satisfaction and promoting positive behaviours (Killingsworth et al., 2023). As a crucial financial resource, pay satisfaction positively impacts talent retention (Choi et al., 2024) by reducing financial stress, increasing job security, and enhancing psychological well-being (Iannello et al., 2021). Intrinsic motivation and monetary rewards interact in complex ways, sometimes acting as substitutes and others as complements. When employees are satisfied with their pay, they find greater meaning in their roles, strengthening their intention to stay with the organisation (Choi et al., 2024). Therefore, pay helps retain employees by meeting their needs and keeping them productive and connected to their organisation (Wassen et al., 2019).

While previous studies have indicated that pay enhances commitment and retention, there is a lack of research explicitly investigating how pay satisfaction impacts talent retention. Some studies have highlighted the role of need satisfaction in yielding positive organisational outcomes, such as organisational commitment, work engagement, and intention to stay (Kovjanic et al., 2012; Haivas et al., 2014; Jung et al., 2015; Ohunakin & Olugbade, 2022). Therefore, this study aims to understand the challenges of retaining talented employees by reviewing the relevant literature on talent retention. The current study is believed to significantly contribute to talent retention practices and the outcomes of pay satisfaction for South African public institutions. Previous studies have indicated that public institutions have challenges in attracting, developing notational talent and retaining talent (Khilji et al., 2015). In addition, In South Africa, public institutions are struggling to attract and retain talent because of high competition levels, as the private sector can entice potential staff with packages and other benefits that exceed what the government can offer (Khan, 2018). Moreover, budget constraints in public institutions negatively affect the institution's running and harm personnel (Ganyaupfu, 2019). The staff turnover and vacancy rate have been high over the recent financial years, and the institution continually loses talented employees (Ogony & Majola, 2018). A report by Mzezewa (2019) shows that the voluntary turnover rate for public sector employees ranges between 4% and 7%. In addition, public servants were dissatisfied with their jobs, whilst 68% considered quitting their jobs (Barkhuizen & Gumede, 2021). Therefore, a study on pay satisfaction and talent retention is imperative from a research point of view.

Literature review

Theoretical framework

The following theories underpin the current study.

Social Exchange Theory

Social exchange theory, developed by Blau in 1964, explains the interactions and exchanges between managers and employees (Kim & Park, 2017). This theory suggests that every interaction involves a benefit or cost (Nunkooa, 2016) and can elicit positive or negative emotions (Lawler, 2001). According to social exchange theory, employment relationships are based on mutual exchanges where employees who perceive fair compensation are more likely to reciprocate with loyalty and commitment. Research has shown that managers who consistently apply HRM policies foster workplace happiness, a psychological phenomenon that includes job satisfaction, employee engagement, and organisational commitment (Murphy, Sargeant & Cherney, 2015; Kim & Park, 2017; Fisher, 2011). However, Jonathan-Zamir, Mastrofski, and Moyal (2013) found that managers perceived as unfair create conflict, which negatively impacts employee satisfaction and retention. Compensation is a critical need that serves as a substitute for employees' contributions to the company (Reddy, 2023). Employees desire compensation that

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meets their expectations (Khalid, 2020), and when these expectations are met, they feel valued and motivated to enhance their performance (Krishnan et al., 2018). Adequate compensation increases satisfaction and motivation, aligning employees with organisational goals (Redy, 2023). Conversely, inadequate compensation can decrease work performance, motivation, and job satisfaction. Organisations must focus on compensation as a motivator. Social exchange theory posits that when employees are satisfied with their compensation, they feel valued and fairly treated, leading to positive attitudes and behaviours, high engagement levels, and reduced voluntary turnover (Cropanzano et al., 2017; Meira & Hancer, 2021; Edgar et al., 2023). This theory suggests that satisfied employees are less likely to leave the organisation, highlighting the importance of pay satisfaction in talent retention.

Equity Theory

Equity theory, developed by Adams in 1963, focuses on employees comparing their inputs and outcomes with those of others (Robbins, 1983). This theory posits that employees evaluate fairness in their pay by comparing their input-output ratios with others. Perceived inequity can lead to dissatisfaction and turnover, making it relevant to this study, as it is closely linked to organisational justice dimensions, including distributive, procedural, and interactional justice. Robbins and Judge (2011) suggest that employees compare how they are treated and how HRM policies are implemented relative to their peers within the organisation. Employees may become disaffected and disengaged if they feel overlooked for compensation and promotion opportunities or perceive managerial favouritism (Demirkiran, Taskaya & Dinc, 2016; MacGregor et al., 2013). Research by George (2011) and Siziba (2017) in the South African public sector revealed that employees felt disaffected due to disparities in remuneration and promotion based on gender or race. Elsewhere, even when the remuneration policy focused on internal equity, employees on the same job grades performing similar duties earned different salaries. These differences were deemed unfair when management could not provide justified reasons (Dreher & Dougherty, 2001). Employees also expressed dissatisfaction when their salary increments were lower than their peers (Robbins & Judge, 2011). Adams argues that inequity motivates employees to compare their efforts with others in the workplace and the rewards they receive (Deborah, 2021). Equity is likened to a perception of fairness between efforts and rewards among coworkers (Robbins & Judge, 2011). Fairness suggests similar outcomes for similar inputs. If employees perceive that others receive higher rewards for similar work, they may withhold effort (Prieto et al., 2023). If a hard-working employee observes an inefficient colleague receiving the same salary, they may feel demotivated to maintain the same level of effort, and they will leave the organisation. Motivation is challenging without fairness in the appraisal and reward process (Deborah et al., 2021).

Expectancy Theory

Expectancy theory, developed by Vroom and described by Mullins and Christy (2016), comprises three dimensions: valence, instrumentality, and expectancy. This theory suggests that employees' motivation is influenced by their preferences for outcomes compared to other employees. Employees are motivated to stay with an organisation when they believe their efforts will result in valued rewards, with pay satisfaction linked to the valence component. Expectation refers to the probability or likelihood that an employee associates with their effort (Dreher & Dougherty, 2001). If employees believe they will be treated unfairly regardless of their efforts, they may not exert extra effort to enhance performance. Employees with such perceptions are less likely to go beyond their duties and may abuse leave or resign (Robbins & Judge, 2011). Valence pertains to the attractiveness of the outcome. For instance, if employees expect a promotion due to their effort but receive only a salary increase, they may view the performance appraisal outcome as unjust and demotivating (Robbins & Judge, 2011). Instrumentality involves linking actual performance to rewards (Mullins & Christy, 2016). In this study, if managers objectively rate employees during performance appraisals, employees will likely feel motivated and satisfied.

Pay satisfaction

Pay is the remuneration for an employee's contribution to the organisation, encompassing effort, wisdom, skill, experience, and job performance. According to Zheng et al. (2014), pay is crucial for employees and employers. It serves as a double-edged sword: organisations can use pay to attract, retain, and motivate talented employees, thereby benefiting from their contributions (Adriaans et al., 2023). Conversely, inadequate pay may lead to a brain drain, resulting in a talent crisis for organisations (Alhmoud & Rjoub, 2019).

Pay satisfaction is defined as the overall positive feelings an employee has towards their Pay (Danish et al., 2015) and the strength of these feelings regarding the monetary rewards received from their workplace (Campbell & Im, 2019). It concerns the discrepancy between the level of payment received and the amount employees believe they deserve rather than the actual amount paid (Williams et al., 2006). Zheng et al. (2014) note that pay satisfaction is vital for assessing the effectiveness of an organisation's pay system reform.

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Higher pay satisfaction can motivate employees to work harder, increasing the organisation's revenue and resources. In turn, employers recognise and appreciate these employees, encouraging them to provide higher pay, thus attracting and retaining more productive employees. Pay satisfaction has been positively linked to job satisfaction, organisational commitment, organisational citizenship behaviour, and talent retention (Chan & Ao, 2018; Johnson & Lake, 2019). Additionally, it is negatively related to job burnout and turnover intention (Chan & Ao, 2018; Wang et al., 2019). Scheller and Harrison (2019) state that research has generally confirmed the value employees place on pay, and satisfaction with pay has been associated with increased organisational performance, decreased intentions to quit (Vandenberghe & Tremblayand, 2008), job satisfaction and motivation. Organisations value these outcomes, and understanding antecedents of pay satisfaction is essential to further the methods organisations can use to reach their desired outcomes (Scheller & Harrison, 2019).

Luna-Arocas and Tang (2015) emphasise the importance of studying money attitudes and pay satisfaction as they reflect justice perceptions. Feelings of pay satisfaction can enhance work performance, and individual salary satisfaction generates a sense of fair treatment. As a result, satisfied employees are likely to stay longer, indicating that pay satisfaction negatively affects turnover intention and the likelihood of leaving the organisation (Hung et al., 2018). Pay satisfaction measures workers' contentment with their wages or salary (Ozumba & Alabere, 2021). It is a core component of overall job satisfaction and is multidimensional. Employees value reasonable salary mechanisms, proper and consistent reward systems, and accessible communication channels (Achchuthan & Umanakenan, 2014).

Talent retention

Employee retention has become a critical issue for organisations in recent years, as high turnover rates can significantly impact a company's productivity and overall success. In today's competitive job market, retaining top talent is essential for maintaining consistent productivity and ensuring that employees understand the company's vision and fulfil their role expectations. The importance of talented employees in the service performance of public sector institutions is well documented (Kravariti, Tasoulis, Scullion, & Alali, 2022; Masindi et al., 2024). Various factors contribute to employee turnover, such as poor compensation and incentives (Mabaso & Dlamini, 2017). Retaining high-performing talent is a crucial business imperative. Makhubela and Ngoepe (2018) state that the departure of highly skilled and fully trained employees is the most significant cost associated with employee turnover. Al Mamun and Hasan (2017) further note that both visible and invisible costs related to turnover are sometimes underestimated. These include recruitment costs and expenses to ensure a replacement employee is fully integrated and developed. There are also costs linked to the departure of high-calibre employees, such as finding temporary or replacement staff, reduced morale as employees work overtime, and decreased productivity, which can lead to customer dissatisfaction.

Employee retention is defined by Das and Baruah (2013) as encouraging employees to remain in the organisation for an extended period. It involves efforts by employers to create a work environment that encourages employees to stay (Kumar & Mathimaran, 2017). Sishuwa and Phiri (2020) describe retention as a process in which employees are encouraged to remain with an organisation for the maximum period. Amushila and Bussin (2021) conceptualise employee retention as all activities and practices organisations use to prevent the departure of talent. Singh (2019) emphasises that employee retention involves various measures an organisation takes to encourage its workforce to remain longer. Employee retention is beneficial for both the organisation and its employees. Employees gain experience and opportunities for personal growth, while organisations retain talented and experienced staff who contribute to overall productivity (Algotsson et al., 2016). Balakrishnan and Vijayalakshmi (2014) and Hong et al. (2012) describe employee retention as an organisation's policies and practices to prevent valuable employees from leaving. Retention strategies such as improving compensation packages, introducing flexible working environments, providing challenging jobs, and offering career development and training opportunities are critical in a global market facing a shortage of skilled workers, especially in the South African economy, where public sector organisations are grappling with significant employee turnover (Chabault et al., 2012; Deas, 2017; Snyman, 2021; Terera & Ngirande, 2014).

Employees are more likely to stay with a company if they feel valued by their workplace and leaders, which includes providing benefits that meet their needs (Workable, 2023). Al-Suraihi et al. (2021) identify various reasons people quit their jobs, such as job stress, job satisfaction, job security, work environment, motivation, wages, and rewards. Organisations must adopt effective strategies to improve employee performance and reduce turnover. One such strategy is implementing competitive compensation packages. Employee retention and satisfaction are significantly influenced by compensation. Offering competitive base salaries or hourly wages is crucial in retaining employees, as it shows that the organisation values their time and effort (Forbes, 2023, Sixpence et al., 2023). However, research indicates that other factors, such as a sense of purpose, community, and growth opportunities, are vital in retaining talent (Harvard Business Review, 2021).

Research Methodology

A qualitative, exploratory research design was employed to explore the employees' perception of pay satisfaction and talent retention in the public sector. Salvador (2016) defines qualitative research as an inductive method of reliving individuals' experiences towards social phenomena to ascertain the essence of such experiences. Moser and Korstjens (2017) further define qualitative research as the exploration of phenomena, usually in an in-depth and rounded manner, through the attainment of rich data utilising flexible research designs. Saunders et al. (2019) explain that exploratory research design is a valuable approach for posing open-ended inquiries aimed at uncovering the intricacies of a particular subject and obtaining insights about it. Qualitative researchers are enabled to understand issues by examining how they are contextualised by individuals and by considering the meanings that they attach to them (Creswell & Miller, 2000). The purposive sampling study was used to target fifteen public sector organisation participants who have been employed for three years or more to participate in the study. Due to their exposure to the work environment, their responses to research may be more accurate and reliable.

Semi-structured interviews were conducted both in-person and virtually using Ms Teams. DeJonckheere and Vaughn (2019) highlight that a semi-structured interview is an effective tool for collecting data from participants with personal experiences, attitudes, and beliefs about the phenomena under study. The respondents duly signed informed consent forms. Consent was sought after explaining the study's objectives to the participants and assuring them of confidentiality and anonymity. The informed consent form included a summary of the study objectives and permission to record the discussion. During the interviews, the researcher consistently asked questions sequentially, reflected in the interview schedule until data saturation was reached (Merriam & Tisdell, 2016). The researcher interviewed workers who responded to the invitation e-mail, which was emblematic of their willingness to be involved in the study until the data saturation point was reached during the 15th interview. Thematic data analysis was used to point out themes and patterns across the dataset to answer research questions, as Braun and Clarke (2013) recommended. The researcher used thematic analysis to analyse data manually to achieve the research questions. According to Kiger and Varpio (2020), thematic analysis is a process that uses

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qualitative data collected from various sources to identify common themes and ideas in a set of texts. It involves closely examining the data to identify the patterns and themes of meaning that emerge repeatedly. The six steps of thematic analysis were used as a guideline (Peel, 2020).

Trustworthiness is the ability to be honest, dependable and reliable (Kaur et al., 2022). The concept is measured by implementing credibility, transferability, confirmability, and dependability. Credibility was achieved through probing to ensure sufficient data and prolonged engagement with participants. The researcher carried out some member checks to ensure no prejudices or errors. Dependability was achieved as the data were recorded, and the transcripts were kept and available upon enquiry. Confirmability was achieved in this study as member reflections were used to support the analysis's credibility, which means that participants were asked to comment and elaborate on early findings. In addition to saturation, data sufficiency was also used to indicate trustworthiness, implying that the study was adequately designed to identify all the key attributes needed to answer the study question. To ensure transferability, participants were chosen for the study carefully, they were cited directly from the data, and the research context and participants were thoroughly described.

Findings

Six themes emerged from the data analyses: perceptions of fairness and equity, competitive compensation, intrinsic vs. extrinsic reward, organisational loyalty and commitment, work-life balance, financial security and career development opportunities. Themes are also illustrated in Table 1 below:

Table 1: **Themes and sub-themes identified through thematic data analysis of interview transcripts.**

Theme	Sub-theme
. Perception of fairness and equity	Comparative pay analysis Transparency in pay practices
2. Competitive Pay	Alignment with performance Industry benchmarking
. Intrinsic and extrinsic pay	
4. Organisational loyalty and commitment	
. Financial security	
6. Career development opportunity	

Theme 1: Perception of fairness and equity

The theme was developed when the participants were asked if pay would allow them to remain with the organisation longer. The majority of participants indicated that they would remain with the organisation longer if they were paid effectively. The participants indicated that they would stay with the organisation if the pay was fair and equal in terms of grades. P1 and P8 commented and said:

> *"When I see that my colleagues and I are paid fairly based on our experience and contribution, it makes me feel respected and motivates me to stay with the company, P1, Female, 28years)."*

In addition, the other participant attests that they are likely to leave the organisation if pay is unfair. P8 commented,

> *"If I believe that my pay is not equitable compared to others doing similar work, it breeds dissatisfaction and makes me consider looking for other opportunities, P8, Male 32 years."*

Sub-theme 1: Comparative Pay Analysis

In order to attain pay satisfaction, it is essential to conduct a pay analysis. The participants have indicated that comparing their salaries in similar positions will determine whether to stay or leave the organisation. P2 and P3 commented and said:

> *"I often compare my salary with what I know others in similar positions at different companies are earning. It's important to me to know that I'm being paid a competitive rate for my skills and experience P2, Male 43 years."*

> *"When I found out that people in the same role at other companies were making significantly more, it made me question whether I should stay here. It's crucial for me to feel that my compensation is on par with industry standards, P3 Male, 38 years."*

In addition, some participants indicated their stay will be determined by industry benchmark to remain with the organisation. P5 indicated that

> *"I feel more confident in my decision to stay with this company because I know they regularly review market data to ensure our salaries are competitive. It reassures me that my pay reflects what I could get elsewhere P5 Female 44years."*

Sub-Theme 2: Transparency in Pay Practices

The sub-theme emerged when participants were asked if they know how their pay was determined and how that would determine their intention to stay in the organisation. Most participants indicated that they were aware of how their pay was determined and that transparency would allow them to remain in the organisation.

> *"The company is very open about how they determine salaries and raises, which makes me feel more secure and less anxious about my pay. Knowing the criteria used helps me understand what I need to do to earn more, P9 Male 41 years."*

> *"I appreciate that our employer shares information about pay scales and how decisions are made. It eliminates any guesswork and helps me trust that the process is fair, P10 Female 34 years."*

However, some participants indicated that they are unaware of how the organisation determines their pay. This makes it difficult for them to understand if they are paid fairly and will not allow them to stay longer in the organisation. Participant 3 indicated

> *"I wish there were more transparency about how pay raises are decided. Sometimes it feels like the process is a mystery, and that lack of information makes it hard to know if I'm being paid fairly P3 Male, 38 years."*

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Theme 2: Competitive Pay

The theme emerged when participants were asked if the pay is competitive enough to remain with the organisation. Most participants attest that they will only stay in the organisation if they are satisfied with pay; they have mentioned that competitive compensation is the key to their stay in the organisation. Participants 14 and 15 stated that:

> *"I've stayed here because the pay is competitive with what other companies offer. Knowing that I'm receiving a fair market rate is reassuring P14 Male 47 years."*

> *"Despite other offers, I feel my salary here reflects what I'm worth in the industry, which is a key reason for my loyalty P15 Female 37years."*

Sub-theme 1: Alignment with performance

This theme emerged from data analysis when participants were asked if aligning pay with performance would result in pay satisfaction and encourage employee retention. The majority of participants indicated that aligning pay to performance will allow them to remain with the organisation. Participant 7 and 12 attest that:

> *"Knowing that my pay is directly linked to my performance is a huge motivator for me. When I see my efforts resulting in a pay increase, it makes me feel valued and encourages me to continue working hard P7 Female 31 years."*

However, some participants indicated that if pay is not aligned to their performance, it might create pay dissatisfaction and encourage the intention to leave. Participant 12 indicated that:

> *"It's frustrating when I exceed my goals but don't see any reflection of that in my salary. If my performance doesn't impact my pay, it feels like my contributions aren't really being acknowledged P12 Male 33 years."*

Theme 3: Intrinsic and extrinsic pay

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The theme emerged when participants were asked if intrinsic and extrinsic pay would contribute to pay satisfaction and talent retention. The participant indicated that both intrinsic and extrinsic pay will contribute to pay satisfaction and them staying longer in the organisation. The participants stated that:

> *"I love the work I do and find it really fulfilling, but if my salary didn't reflect my contributions, I'd probably start looking elsewhere. Both intrinsic satisfaction and fair pay are important to me P3 Male, 38 years."*

> *"While the passion I have for my job keeps me motivated, it's the extrinsic rewards, like a good salary and bonuses, that make me feel truly valued by the company. Without them, my engagement might wane P1, Female, 28years."*

> *"The work itself is interesting and challenging, which is great, but knowing that my efforts are financially rewarded keeps me invested in the long term. Intrinsic satisfaction alone wouldn't be enough to keep me here P6 Male 52 years ."*

> *"I feel fortunate to have a job that I'm passionate about, but at the end of the day, also need to know that my hard work is recognised through competitive pay and other tangible rewards P11 Female 45 years."*

Some participants indicated extrinsic pay will contribute to pay satisfaction and talent retention. Participants 9 and 8 indicated that:

> *"While I really enjoy the creative freedom my job offers, I stay because the compensation package is competitive. Without the extrinsic rewards, I might not feel as motivated to continue putting in the extra effort P8, Male 32 years."*

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"The intrinsic rewards of my job, like working on meaningful projects, are what drew me here initially, but it's the extrinsic rewards that have kept me loyal to the company over the years P9 Male 41 years."

Theme 4: Organisational loyalty and commitment

This theme emerged as the participants were asked if pay satisfaction would encourage them to remain with the organisation. The majority of participants indicated that if pay reviews are conducted regularly, that might result in pay satisfaction and talent retention. Participants 9 and 14 indicated that:

"The way the company handles pay reviews and ensures we're compensated fairly has built my trust and loyalty over the years P9 Male 41 years."

"I've developed a strong commitment to the organisation because I feel my efforts are recognised and rewarded through fair compensation P14 Male 47 years."

Theme 5: Work-life balance and financial security

Participants frequently highlighted that financial security, enabled by competitive salaries, is a significant factor in their decision to stay with their current employer. Employees expressed that adequate compensation alleviates financial stress, allowing them to focus on their work and personal lives without constant worry about financial stability. Many employees reported that their salary level directly impacts their ability to achieve a satisfactory work-life balance. The ability to afford necessities and leisure activities contributes to a sense of balance and well-being. Participants 13, 14 and 15 stated that:

"Having a good salary allows me to maintain a healthy work-life balance. I can take care of my family's needs and still have time for myself, which is crucial for my overall well-being and satisfaction with my job, P13."

Participants frequently highlighted that financial security, enabled by competitive salaries, is a significant factor in their decision to stay with their current employer. Employees expressed that adequate compensation alleviates financial stress, allowing them to focus on their work and personal lives without constant worry about financial stability.

> *"Financial security from my salary means I don't have to worry about money, which allows me to focus more on my work. Knowing that my family is provided for keeps me committed to the company, P14."*

The combination of work-life balance and financial security was a powerful motivator for employees to remain with their current employer. Employees appreciated that their compensation supported their lifestyle and personal goals, enhancing their loyalty to the organisation.

> *"The company supports my need for work-life balance, and the financial security from my paycheck allows me to enjoy my time outside of work without stress. This balance is a key reason why I choose to stay, P15."*

Theme 6: Career development opportunities

This theme examines how the availability of career development opportunities affects employees' perceptions of pay satisfaction and their decisions to stay with an organisation. The findings indicate that employees view career growth as a crucial component of their overall job satisfaction and a significant factor in their retention. Participants frequently expressed that career advancement and professional development opportunities are key motivators for staying with their current employer. Employees want to see a clear path for growth that aligns with their career aspirations and compensation expectations. Participant 3, 7, 10 and 11 stated this

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> *"I see a clear path for growth here, with my pay reflecting my progress and future potential. This encourages me to continue building my career with the company, P3 Male, 38 years."*

Employees highlighted that competitive pay tied to career advancement milestones reinforces their commitment to the organisation. They appreciate when salary increases accompany promotions and skill development, as it validates their efforts and achievements.

> *"Knowing that there are opportunities for advancement that come with pay increases motivates me to stay and develop my skills within the organisation, P7 Female 31 years,"*

Participants noted the importance of employer support for continuous learning and skill enhancement. Access to training programs, mentorship, and educational resources is valued, as it contributes to both personal and professional growth.

> *"The company invests in my development through training and mentorship, which makes me feel valued and encourages me to stay. It's not just about the salary, but also about growing as a professional, P11 Female 45 years."*

Employees are more likely to remain with organisations that offer career paths aligned with their personal goals and aspirations. When career development is integrated with compensation strategies, it leads to higher job satisfaction and retention.

> *"I stay because I see a future here that matches my career ambitions. The opportunities for advancement and the pay that comes with it make me feel like my goals are achievable with this company, P10 Female 34 years."*

Discussion of findings

The current study mainly aimed to understand the challenges of retaining talented employees in the public sector. The majority of participants expressed that a fair and equitable pay structure is crucial for their long-term commitment. They emphasised that equitable pay relative to their peers' experience and contributions fosters a sense of respect and motivation to remain with the company. Various factors support this finding contribute to employee turnover, such as poor compensation and incentives (Mabaso & Dlamini, 2017). Employees are more likely to stay with a company if they feel valued by their workplace and leaders, which includes providing benefits that meet their needs (Workable, 2023). Al-Suraihi et al. (2021) identify various reasons people quit their jobs, such as job stress, job satisfaction, job security, work environment, motivation, wages, and rewards. Participants who were aware of how their pay was determined felt more secure and trusted the organisation. Conversely, a lack of transparency was seen as a negative factor affecting retention. The risk of pay transparency for employers is that upon learning about pay inequalities, employees may become less motivated (Hill et al.,2017), less willing to put in effort and perform (Bellé,2015; Cullen & Perez-Truglia, 2018; Frey, Schaffner, Schmidt, & Torgler, 2013; Nosenzo, 2013) and less satisfied with their pay (Card, Mas, Moretti, & Saez, 2012; Lawler, 1966). Competitive pay is identified as a key determinant of employee retention. Participants emphasised that competitive salaries compared to industry standards are essential for their continued employment. A significant sub-theme is Alignment with Performance. Participants indicated that linking pay with performance increases their motivation and commitment. Participants indicated that both intrinsic rewards, such as meaningful work, and extrinsic rewards, like competitive salaries, are essential for their retention. Participants also acknowledged that without competitive pay, their engagement might decline. Organisational Loyalty and Commitment were found to be strongly influenced by how pay reviews are conducted. Participants expressed that fair and regular pay reviews build trust and reinforce their loyalty. Work-Life Balance and Financial Security were identified as critical factors affecting employee retention. Participants highlighted that competitive salaries provide financial stability, which in turn supports a healthy work-life balance. Career Development Opportunities were perceived as essential for long-term employee retention. Participants valued

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opportunities for professional growth and saw them as integral to their satisfaction and commitment to the organisation.

Recommendations

Based on the findings, it is recommended that the organisation strengthen its approach to performance management and compensation. A dual-focus strategy should be developed that aligns pay with performance. Organisations must implement a structured performance-based pay system that is transparent and regularly communicated to employees. This system should link financial rewards to individual and team performance and integrate intrinsic rewards by recognising and valuing meaningful organisational contributions. In addition, establish a clear schedule for pay reviews and adhere to it consistently. These reviews should be conducted fairly and consider market trends, individual performance, and cost of living adjustments to ensure competitive salaries. This process must be transparent to build trust and reinforce organisational loyalty. The organisation must enhance its programs to promote career development opportunities. This should include more training programs, mentorship opportunities, and clear pathways for progression within the company. Employees should feel that their growth is a priority for the organisation, which will enhance their engagement and loyalty. Lastly, the organisation should support work-life balance initiatives that continuously evaluate and adopt policies that support a healthy work-life balance. This includes flexible working arrangements, mental health days, and support programs that help employees manage their personal and professional responsibilities effectively.

Main Contributions

The study contributes to both theory and practice in several ways. Theoretically, it extends the application of Social Exchange Theory, Equity Theory, and Expectancy Theory in the public-sector context, illustrating how perceptions of fairness and reciprocity directly influence retention. It also provides empirical evidence from a South African perspective, where limited qualitative research has been conducted on the link between pay satisfaction and retention in government institutions. This strengthens the global body of knowledge by contextualising pay satisfaction in resource-constrained environments where public institutions compete with private-sector employers.

Practical Implications

For practice, the study provides actionable insights for HR managers and policymakers. Ensuring transparent and fair pay practices, regularly benchmarking compensation against industry standards, and aligning rewards with measurable performance outcomes are critical levers for fostering loyalty and commitment. Furthermore, embedding career development opportunities into compensation strategies and supporting work-life balance initiatives will enhance employees' sense of value, reduce turnover, and improve public service delivery. These strategies are particularly vital for the public sector, where budgetary constraints and talent competition pose ongoing challenges.

Theoretical Implications

From a theoretical standpoint, the research underscores the interplay between extrinsic rewards (such as pay and benefits) and intrinsic factors (such as meaningful work and professional growth). This reinforces the argument that employee retention must be understood through an integrative lens that combines economic, psychological, and social exchange perspectives. The findings demonstrate that pay satisfaction is not a static outcome but a dynamic process shaped by expectations, comparisons, and career aspirations.

Conclusion

This study explored the impact of pay satisfaction on talent retention within the South African public sector. The findings confirm that pay satisfaction is a multifaceted construct influenced by perceptions of fairness, transparency, competitiveness, alignment with performance, and the balance between intrinsic and extrinsic rewards. Financial security, work-life balance, and opportunities for career development were also identified as critical components that shape employees' decisions to remain within the organisation. These findings highlight that employee retention cannot be achieved through pay alone but requires a holistic approach that integrates equitable compensation practices with broader organisational support mechanisms. In conclusion, pay satisfaction is a pivotal driver of talent retention in the public sector. Still, it operates most effectively when embedded within a comprehensive retention strategy that values fairness, performance alignment, career growth, and work-life balance. Organisations can enhance employee motivation and commitment by prioritising these elements and strengthening their long-term sustainability and competitiveness.

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RELATIONSHIP OF COMPENSATION MANAGEMENT WITH JOB SATISFACTION

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Abstract

The study examined the relationship of compensation management with job satisfaction. The specific objective of this study was to examine the impact of financial compensation management on job satisfaction and to examine the impact of non-financial compensation management on employee's well-being. The research population consisted of Guaranty Trust Holding Company staff and the sample size consisted of 130 staff. Stratified Random Sampling technique was adopted for the study. A total of 130 copies of the questionnaire were administered while a total of 120 copies of the questionnaire were received from respondents and 115 copies were valid for data analysis. The 20-items measuring instruments were tested using test-retest reliability by administering the test once and then administering the same test again three weeks after the first administration. Two hypotheses formulated for the study were analysed using Pearson Correlation Analysis. The findings revealed that financial compensation had significant relationship with job satisfaction (r – statistics 0.530), P – values (0.000). Furthermore, the findings also revealed that, there was significant relationship between non-financial compensation and employee's well-being (r –statistics 0.822), P – values (0.000). The study recommended management of organisation should make use of both financial and non-financial reward to motivate its employees so that both individual and organizational objectives can be achieved.it was also recommended that management must fashion out an effective compensation packages that commensurate with the contributions of employees towards the achievement of the organization goals.

Keywords: *compensation management, job satisfaction, employee's well-being.*

JEL Classification: M10, M14, M19

Introduction

Zulfikar and Nanang (2021) opined that organisation needs employees who have competence and integrity in their work. Several factors are required to improve employee performance, including training, compensation, and work discipline factors associated with job satisfaction factors. According to Egbewole, Olusesi and Abdulazeez, (2021), compensation plays a vital role in attracting, motivating and retaining talented employees. Compensation also encourages effective employees to remain in employment for longer periods. They further asserted that generous rewards retain employees and ultimately lead to job satisfaction, commitment and loyalty. Compensation management is a fundamental function of human resource managers in an organization as they deal with assessment of job values, the design and management of payments (expenditures), job satisfaction, pay system, employees' benefit and pensions.

Compensation is the segment of transition between the employee and the owner of the organization that the employee contract with. As the potential of employee pay is the necessity of life, the payment which is received from work done on the behalf of people getting the employment (Mohammed & Mohammed, 2022).

Employee performance has been a concern of every firm, whether public or private, and thus its importance cannot be over emphasised. Though traditionally the importance of performance was viewed as a concern for the private sector only, there has been a notable change to this view over the last couple of decades, where both the private and the public sectors have embraced the value of performance (Tursunbayeva, 2019).

The intention of any compensation management system is to attract, retain and maintain a satisfied workforce that will always stay focused on producing quality products or services in an efficient manner. Consequently, a substantial number of literature have been developed, to advance the understanding of compensation management system and the extent to which it influences the level of employees' work related factors such as job satisfaction, commitment, performance, motivation. This is because compensation management system remains a controversial and difficult issue for both human resource managers and employees in the work place. Failure in designing appropriate compensation management has continued to have a negative effect on employees' job satisfaction and overall

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effectiveness of many organizations (Egbewole et al., 2021). According to Leseiyo and Ngui (2019) employee performance is low in most organisations due to factors such as poor remuneration and lack of training.

In the view of Adeoye and Omosanya (2018), in most developing countries like Nigeria, Ethiopia, Kenya, there have been several studies of which very few of them focused on employee's job satisfaction in relation to their compensation packages. Organizations that have goals to achieve would require satisfied and happy staff in her workforce. It is a well-known fact that human resource is the backbone of most organizations and other corporate entities due to their enormous strides and accomplishment within the organization. It is however baffling to note that productivity of the organizations have not seen major improvements. These are evident in the poor quality products and delayed service – delivery and the incessant organizational conflicts such as boycotts and strike actions. Some organizations over the years see employee as additional cost as well as liability to their operations, hence do not remunerate them appropriately, the compensation is not commensurate with the efforts and skills that workers put into the organizational activities, instead of paying attention on how employees will be compensated appropriately, some organizations concentrated more on other resources, such as materials, machines and money.

The main objective of this study is to examine the relationship of compensation management with job satisfaction. In line with the main objective, the specific objectives are to:

1. Examine the impact of financial compensation management on job satisfaction
2. Examine the impact of non-financial compensation management on employees' well-being.

The following research question was formulated:

1. Is there a significant relationship between financial compensation management and job satisfaction?
2. Is there a significant relationship between non-financial compensation management and employee's well-being?

In order to test the above relationship, the following hypotheses were developed for the study:

H_{01}: There is no significant relationship between financial compensation management and job satisfaction.

H_{o2}: There is no significant relationship between non-financial compensation management and employee's well-being.

Literature Review

Compensation Management

Compensation describes all forms of financial returns and tangible services and benefits employees receive as part of an employment relationship. Financial returns refer to the base salary of an employee, as well as short- and long-term incentives. Tangible services and benefits are incentives such as insurance, paid vacation and sick days, pension plans and employee discounts (Mugizi, Rwothumio & Amwine, 2021).

Chiekezi, Emejulu and Nwanneka (2017) asserted that compensation management is not only about money, but also related to non-financial compensation that shares intrinsic or extrinsic motivation. Some research shows that compensation has an effect on increasing employee job satisfaction. If organizational management fails to formulate, manage and practice compensation policies, then the best human resources of an organization will leave their jobs because they get better compensation offers elsewhere.

Financial Compensation Management

Financial compensation is all forms of rewards, financial rewards given by the company to its employees that consisted of financial compensation forms such as basic salary, incentives, and other benefits. Basically, a person works to get a reward in the form of money in an effort to meet the needs of his daily life. Because of this need, an employee will work diligently, and show his dedication to the company so that the company will provide compensation in the form of compensation. If the financial compensation obtained by the employee is high, the performance of the employee will increase and be good (Kadek & Sagung,2021).

Non-Financial Compensation Management

Compensation of an employee can also be in the form of non-financial compensation management practices, example of such is a conducive working environment. Work environment factors can be in the form of office physical conditions which include lighting, air temperature, and others that are able to increase a conducive atmosphere and work spirit and affect employee performance. This work environment is related to the atmosphere or conditions around the work location, so that employee performance will be good if the environment is good. If the company's work environment is good and comfortable, the performance of employees in carrying out their daily duties and work will increase and the enthusiasm of employees will also increase (Hustia, 2020).

Job Satisfaction

Lesmana, Indradewa, Yanuar and Syah (2021) opined that sources of job satisfaction among employees are also the main focus of investigation, so they can be used to strengthen perceived job satisfaction and thereby increase employee effectiveness and commitment and decrease motivation to quit work.

Fuad and Rhian (2021) listed some factors that influence job satisfaction, they are: (1) salary which is an aspect of fulfilling the life desires of employees which is considered appropriate or not; (2) the work itself, because each job requires a special skill that suits each of its aspects; (3) co-workers who are aspects related to the bond between employees and their superiors as well as with other employees, whether similar or with different types of work; (4) superiors, because a good leader means they want to respect the work of their subordinates; (5) promotion and work area, because each job requires a special skill that fits each aspect.

Byremo (2015) concurred that job satisfaction is significant because an employee's attitude and beliefs may affect his or her behavior and his or her dealings with the organization. Job satisfaction can also be seen within the broader context of the range of issues that affect an employee's work experience, or quality of working life.

Employees' Well Being

Employee well-being is the state of an individual's mental, physical and general health as well as experiences of satisfaction both at work and outside of work (Nielsen et al., 2017). Simply put, subjective well-being is the extent to which a person believes or feels that her life is going well. Employee well-being is associated with traits of optimism, confidence, sociability and other dispositions that encourage goal orientation and active involvement in an organization (Nima, Cloninger, Persson, Sikstrom & Garcia, 2020).

Theoretical Framework

The study made use of Organizational Justice theory in dissecting the key concepts attached to this work. The theory was propounded by Greenberg (1990). Greenberg (1990) as cited in (Pan, Chen, Hao & Bi, 2018) referred to organisational justice as the just and fair manner in which organisations treat their employees. The idea of organisational justice derived from the Equity Theory by Adams (1963) which suggested that people compare the ratios of their own perceived work outcomes to their own perceived work inputs with the corresponding ratios of their colleagues. If returns are equal to those of other employees proportionate to effort expended, a state of distributive justice exists. Otherwise, the worker develops cognitive dissonance, inconsistency and out of balance. Consequently, the worker feels uncomfortable and discontented, and his or her effort and motivation may diminish (Pan, et al. 2018). Hence, Organisational Theory can be used as a framework of understanding how to know when an employee is satisfied or not satisfied.

Empirical Review

Mohammed and Mohammed (2022) examined the effect of compensation management on employee performance in public sector North Gas Company in Iraq. The population of the study consisted of 3000 employees. The study made used of descriptive statistics and regression analysis in analysing the data with the aid of SPSS version 22.0. The findings of the study revealed that compensation management has direct effect on employees' performance. The study was carried in a volatile country such as Iraq. Hence, the result of the study cannot be generalised in a relatively calmed country.

Mugizi, et al. (2021) examined compensation management and employee wellbeing of Academic Staff in Uganda Private Universities during COVID-19 lockdown. The study adopted a cross-sectional research design and factor analysis was used to identify key items of compensation management and employee well-being the data was analysed using descriptive, correlation and multiple regression analyses. The study concluded that compensation determination and administration are important in enhancing the academic staff's well-being in private universities in contingent situations such as COVID-19 lockdown. The result of the findings cannot be generalized, because the study was carried out during a global pandemic period of COVID-19 which wreaks havoc on many countries of the world.

Egbewole, et al. (2021) investigated compensation management and employees' job satisfaction among staff of the Central Bank of Nigeria, Lagos. The study adopted descriptive survey research design. The population of the study consisted of 140 staff and the sample size was determined through Taro Yamane while the data was analysed with regression analysis. The results of the study indicated a linkage between total compensation management and employees' job satisfaction. The result of the study cannot be generalized in private corporate organization because the study was carried out in a public sector.

Research Methods

The study was carried out using survey research design. The population of consisted of staff of Guaranty Trust Holding Company PLC (GTCO PLC), which presently employs a total of 10,000 plus employees (Wikipedia). A sample size of one hundred and thirty staff was (130) was chosen from the senior and junior staff at Lasu, Alaba and Egbeda, Agbara and Festac branch respectively. Purposive sampling design was used for management staff. The purposive sampling design will enable the researcher to use the skill and prior knowledge in choosing the respondents based on the purpose of the study (Odusanya & Sodeke, 2024). Therefore, a stratified random sampling was used in this study. In addition, the numbers of staff were stratified into senior and junior staff and each staff were given equal opportunity of being selected.

Questionnaire Administration

Data collection was done using the questionnaire. The questionnaire was divided into two sections. Section A solicited for information on respondent's bio-data, while section B focused on while section B focused on Relationship of Compensation Management with Job Satisfaction with six (6) point Likert -type rating scale for measuring data. The items had six-point scale of strongly agree, agree, partially agree, partially disagree, disagree and strongly disagree with corresponding value of 6, 5, 4, 3, 2 and 1 respectively. The instrument for data collection was 20 items questionnaires which were adapted. Instruments on financial compensation made up of 5 items was adapted from Mohammed and Mohammed (2022), while instruments on non-financial compensation made up of 5 items was adapted from Mugizi, et al. (2021), furthermore instruments on job satisfaction made up of 5 items was adapted from Fuad and Rhian (2021). In addition instruments on employee's well-being made up of 5 items was adapted from Mugizi, et al. (2021). This study adopted test-retest reliability survey, which was administered to the respondents twice between two to three weeks interval in order to determine reliability of the measuring instruments. For the purpose of this study, the face and content validity of the instrument was carried out by presenting a copy of the intended instrument to some experts before the actual administration. Moreover, Cronbach Alpha coefficient test was used to determine the mean reliability coefficient, with the aid of Statistical Package for Social Science (SPSS), version 23, the Cronbach Alpha test showed a figure approximately 0.76, which is shown in table 3.1.

Table 3.1: Reliability Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.760	.762	20

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Analysis of Demographic Information of Respondents

Personal information of the respondents were analysed in this section and they contain information on the gender, age, marital status, educational qualification and working experience. The analysis of the demographic was done using percentages. This is shown in table 3.3.

Table 3.3: Demographic Information

		Frequency	Percentage
Gender	Male	64	55.6 %
	Female	52	44.4 %
Marital Status	Single	54	46.9 %
	Married	59	51.4 %
	Divorced	2	1.7 %
Age	0-30 years	61	53.0 %
	31-50 years	44	38.2 %
	51 years above	10	8.8 %
Education	OND/NCE	22	19.1 %
	HND/B.Sc/B.Ed	58	50.4 %
	PGDE/M.Sc/M.Ed	35	30.4%
Working Experience	0-5 years	26	22.6 %
	6-10 years	31	27.0 %
	11-15 years	38	33.0 %
	16 years above	20	17.4 %

Source: Field survey, 2021

From the frequency distribution table, 55.6% of the respondents were males while 44.4% of the respondents were females, and hence, majority of the respondents were male. Also, 51.4% of the staff was married, while 46.9% were single and 1.7% was divorced, therefore majority of the respondents were married. In analysing the age of the respondents, 53.0% falls within the age range of 0-30 years, while 38.2% falls between 31-50 years and 8.8% falls above 51 years.

In analyzing the level of education, 19.1% of the respondents were OND/NCE holders, 50.4% were HND/ B.Sc/B.Ed holders, while 30.4% were PGDE/M.Sc/M.Ed holders, and hence, there is high literacy rate among the respondents. As regards the working experience, 22.6% of the staff had less than 5 years working experience, 27.0% falls between 6-10 years working experience, 33.0% ranged between 11-15 years and 17.4% falls between 16 years and above.

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Test of Hypothesis

Pearson Correlation analysis was used to test the two stated hypothesis at 0.05 level of significance and 95% confidence level.

Hypothesis One

There is no significant relationship between financial compensation management and job satisfaction.

Table 4.1 : Correlations Analysis Table for Hypothesis One

		Financial Compensation Management	Job Satisfaction
Financial Compensation Management	Pearson Correlation	1	.530**
	Sig. (2-tailed)		.000
	N	115	115
Job Satisfaction	Pearson Correlation	.530**	1
	Sig. (2-tailed)	.000	
	N	115	115

** Correlation is significant at the 0.01 level (2-tailed).

Source:* *Researchers' Computattion, 2021

The Correlation analysis showed 53.0% strength and direction of the linear relationship between Financial Compensation Management and Job satisfaction. From the table above, the Pearson correlation coefficient between financial compensation and job satisfaction is 0.530, indicating a Positive and strong correlations financial compensation and job satisfaction. The correlation value is statistically significant at $p<0.01$. Therefore we reject the null hypothesis and accept the alternate. Thus, there is significant relationship between financial compensation management and job satisfaction.

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Hypothesis Two

There is no significant relationship between non-financial compensation management and employee's well-being.

Table 4.2 : Correlations Analysis Table for Hypothesis Two

		Non-Financial Compensation Management	Employee's Productivity
Non-Financial Compensation management	Pearson Correlation	1	.822**
	Sig. (2-tailed)		.000
	N	115	115
Employee's well-being	Pearson Correlation	.822**	1
	Sig. (2-tailed)	.000	
	N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Researchers' Computattion, 2021

Discussion of Results

Having analysed the data and testing the hypothesis using Pearson Correlation analysis, the following findings were made; the result of the first hypothesis revealed that there is significant relationship between financial compensation management and job satisfaction, this in conformity with the findings of Eka (2021) who investigated the effect of financial compensation on employee's performance and found out that there was a significant effect of finanacial compensation variable and employee's performance.

The result of the second hypothesis that there is significant relationship between non-financial compensation management and employee's well-being, the result of the study is in agreement with the findings of Mugizi, et al. (2021) who examined compensation management and employee wellbeing of Academic Staff in Uganda Private Universities during COVID-19 lockdown. They found out that compensation is important towards the enhancement of staff well-being. In addition to this, the result of the findings of this study is also in conformity with the findings of Muhtazib and Niartiningsih (2022) who examined the effects of non-financial compensation on employee's performance, using Kentucky Fried Chicken as a case study and found out that there is a strong relationship between non-financial compensation and employee's performance.

Conclusions

Having reviewed different literatures and carried out series of findings, the study concluded that there was a significant relationship between financial compensation and job satisfaction and there was a significant relationship between non-financial compensation and employee's well-being.

Recommendations

In view of the above study, the following recommendations were suggested; management of organisation should make use of both financial and non-financial compensation reward to motivate its employees so that both employees and organizational objectives can be achieved. Therefore, it is further recommended that the organisations should ensure to introduce a satisfactory motivational package to the employee, increases in salary bonus, health scheme packages, recreational facilities etc, so has to enhance the employee's well-being. This is important because job satisfaction and improved well-being can stimulate employee's performance.

It was also recommended that, organizations should provide a compensation package that provides a competitive edge required to attract the best skills in the labor market, retain and motivate them. To have a satisfactory and productive workforce, the management of organisations should design and fashion out an effective compensation that is commensurate with the contribution of its employee as well as in agreement with what is obtainable by other employee in the country.

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APPENDIX 1

Dear Respondent,

COVER LETTER

I am a researcher carrying out a study on “Relationship of Compensation Management with Job Satisfaction”. Your assistance in completing this questionnaire is solicited.
I promise that the information realized will be treated with utmost confidence and used only for academic purpose.
Thanks in anticipation of your cooperation.
Yours faithfully,
…………………….
Researcher

PART A
INSTRUCTION: Please indicate appropriate information with (√)
1. Sex: Male [ ] Female [ ]
2. Marital Status: Married [ ] Single [ ] Divorced [ ] widow [ ]
3. Age of Respondent: Below 30yrs [ ] 31-50yrs [ ] 51yrs and above [ ]
4. Educational qualification: OND/NCE [ ] HND/ B.Ed. / B.Sc. [ ]
   +PGDE/ M.Sc. / M.Ed. [ ] others (please specify) ………………
5. Working Experience: 5years and below [ ] 6-10years [ ] 11-15years [ ]
   16 years and above [ ]

SECTION B

NOTE SA = Strongly Agree
A = Agree
PA = Partially Agree
PD = Partially Disagree
D = Disagree
SD = Strongly Disagree

APPENDIX 2: QUESTIONNAIRE

	Compensation Management						
	Financial Compensation	**SA**	**A**	**PA**	**PD**	**D**	**SD**
1	Employee's pay received in your organization commensurate with what is obtainable in other organization						
2	Highly competent staff should be paid more than less competent staff						
3	Employee's pay is reflected in his or her performance						
4	Rate of pay within this organization is consistent with level of responsibilities						
5	Pay received by me in this organisation, adequately reward me for my contribution						
	Non-Financial Compensation	**SA**	**A**	**PA**	**PD**	**D**	**SD**
6	This organization continuously offer me basic benefits (health care, accommodation, internet services, etc.)						
7	The current non-monetary compensation package scheme cater for my interest						
8	The incentives provided by the organization fulfill my expectations						
9	The non-financial compensation of this organisation is effective						

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10	The non-monetary packages are timely and consistent						
	Job Satisfaction						
	Job Satisfaction	**SA**	**A**	**PA**	**PD**	**D**	**SD**
11	I am quite satisfied with my organization compensation management schemes						
12	I attached a lot of value to my job						
13	Information received on the organization compensation plan is satisfactory						
14	Non-monetary compensation of this organization is fair						
15	I am happy with the payment arrangement of this organisation						
	Employee's Well-Being	**SA**	**A**	**PA**	**PD**	**D**	**SD**
16	I feel important as a member of this organization because of my organization compensation packages						
17	My day to day efforts in the organization contribute towards the growth of the organization						
18	Compensation scheme of my company makes me happy						
19	Non-financial compensation of this organization constitute a great source of social support						
20	Working for this organization, is a great source of motivatioN						

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FACTORS TRIGGERING EMPLOYEE THEFT IN THE WORKPLACE: NARRATIVES OF EMPLOYEES

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Abstract

This research explored factors triggering employee theft at a manufacturing firm in Zimbabwe. Nine research participants, who were purposively sampled, participated in this qualitative research. Face-to-face, semi-structured interviews were conducted to gather data from the nine research participants. The study found a range of factors that trigger employee theft at the case manufacturing firm in Zimbabwe. Research participants cited perceived injustice, economic hardships, a lack of control systems, and revenge as the four main factors that trigger employee theft. The current study recommends that managers at the case firm should understand the identified factors that trigger employee theft and implement specific measures to curb it. The study also recommends that the case manufacturing firm in Zimbabwe should pay competitive salaries, perform multiple background checks on new hires, improve security and control systems, and conduct regular audits to lower employee theft incidents. Lastly, the study recommends that workers should refrain from engaging in deviant behaviour because employee theft is considered to be serious misconduct that amounts to direct dismissal and can harm a worker's reputation once exposed.

Keywords: *employee theft, embezzlement, internal theft, stealing, theft.*

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JEL Classification: J50; J53

1. Introduction

Employee theft is a serious threat to businesses and is becoming more prevalent in enterprises across the globe (Al-Harrasi et al., 2023; Fatima et al., 2022; Peters & Maniam, 2021; Hu & Koopman, 2022; Othman & Ameer, 2022). A recent study by Anderson (2024) shows that employee theft costs firms billions of US dollars per year, which is a cause of concern. Similarly, a survey conducted by Laswad and Berkahn (2023) found that employee theft has contributed significantly to business losses, insolvency and closures. In line with this, Mukhalipi (2021) claims that employee theft is becoming more prevalent and is a significant contributor to company losses and closures. From an organisational standpoint, employee theft is any act of stealing anything of value from the organization such as time, money, inventory, information and trade secrets for one's own benefit (Hu & Koopman, 2022). Furthermore, Yao and Xiong (2023) assert that employee theft includes a variety of actions, including embezzlement, time sheet manipulation, trade secret theft, physical asset theft, and misappropriation of company data for private benefit. Because of the aforementioned, employee theft should be regarded as a significant problem that requires firms' attention. A study by Othman et al. (2023) shows that employee theft can result in both direct and indirect financial losses as well as firm closures if it is not controlled adequately. Correspondingly, a study by Raghunandan (2021) shows that employee theft reduces a firm's profit margins and may result in less money being invested in growth and innovation. Given the direct and indirect financial effects of employee theft on organisations, managers are utilizing several theft detection and prevention techniques in an effort to reduce employee theft cases (Rosslyn-Smith et al., 2020). Mukhalipi's (2021) study shows that organisations are using a variety of strategies to prevent employee theft, including cash controls, surveillance systems, multiple employee background checks, inventory tracking, access controls, and audits. Despite the fact that many organisations are using various preventive measures to reduce employee theft, numerous researchers have shown that employee theft is on the rise worldwide (Fatima et al., 2022; Peters & Maniam, 2021; Hu & Koopman, 2022; Ameer, 2022). Lee and Lee (2021) reveals that most workers have admitted to stealing from their employer on several occasions and, if given a chance, they plan to steal again to strengthen their financial situation. The afore-mentioned data shows that employee theft is far from being eradicated. Heedless of the fact that employee

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theft is a serious transgression that can result in direct dismissal and can harm a worker's reputation if exposed, internal theft is on the rise and authors believe that research studies on factors that trigger employee theft should be conducted. Researchers believe that understanding factors that trigger employee theft is crucial as it assists managers to develop targeted preventative techniques to curb employee theft. Although there have been numerous studies on employee theft, most of them have focused on businesses in the global north. Thus, the purpose of this qualitative study was to explore factors that trigger employee theft at the case manufacturing firm in Zimbabwe.

2. Review of related literature

This section presents theories which guided the research study, as well as types of employee theft, and factors that trigger employee theft.

2.1. Organizational justice theory

According to the organizational justice theory, internal theft might be triggered by perceived unfairness. Rae and Subramaniam (2018) posit that employees who sense injustice, whether distributive, interactional or procedural, are more likely to retaliate by engaging in counterproductive activities such as stealing from the employer. Similarly, a study by Tomlinson and Greenberg (2017) shows that employee theft is a manifestation of negative emotions and attitudes triggered by perceived unfairness. Likewise, Çıpran and Bajwa (2022) claim that workers may perceive theft as a means of exacting revenge on the company for perceived injustice. In general, organisational justice theory assumes that workers assess justice and fairness based on distributive justice, procedural justice, and interactional justice. In addition, the organisational justice theory provides that absence of the afore-mentioned forms of justice for employee theft becomes the order of the day.

2.2. Social learning theory

The social learning hypothesis assumes that workers learn behaviors by watching and copying others who occupy powerful positions. Social learning theory highlights how workers learn by observing the actions and results of others. Leasure and Zhang (2018) contend that supervisors who engage in counterproductive work behaviours serve as strong role models who influence their workers to follow suit. Furthermore, the social learning theory suggests that theft is worsened by workplace cultures that condone unethical behavior. In general, social learning theory provides that employee theft rises in the absence of social consequences and reinforcement. Lastly, the social learning theory suggests that employee theft can be reduced by promoting positive role models, creating a culture of integrity, and promoting social awareness.

2.3. Equity theory

According to the equity theory, workers may steal to make up for what they believe to be an unfair reward and effort-balance. Employees who feel under-appreciated or underpaid in relation to their contributions may turn to theft as a means of re-establishing equity and balance, according to Sieh (2023). In summary, the equity theory states that workers feel unfairly treated if the ratio of inputs to outcomes is unfavorable. According to the theory, a sense of injustice can also cause anguish and a desire to bring things back into balance. Similarly, Greenberg (2018) asserts that employees attempt to lessen perceived unfairness by stealing to raise their perceived pay.

2.4. Defining employee theft

Employee theft has no universally accepted definition. Some researchers describe employee theft as a form of interpersonal deviance (Mackey et al., 2021; Ashraf & Shahzadi, 2022). However, other scholars characterize employee stealing as a modest form of counterproductive conduct at work (Chinwuba, 2023; Shaffer & Darnold, 2020; Adeoti et al., 2020). Employee theft is defined by Kennedy (2018) as taking anything of value such as time, money, inventory, knowledge, and trade secrets from the employer to benefit oneself. Correspondingly, Carson (2021) characterizes employee theft and any other illegal actions that take place at work as abnormal. Employee theft ranges from taking low-value items like office supplies and petty cash to stealing valuable items like trade secrets (Korgaonkar et al., 2021; Alcobary, 2022; Chinwuba, 2023; Shaffer & Darnold, 2020; Oluremi & Samuel, 2020).

2.5. Types of employee theft

Researchers have uncovered various forms of employee theft, including inventory theft, embezzlement, property theft, time theft, and cash theft (Yao & Xiong, 2023; Muhammad & Sarwar, 2021; Koopman, 2022; Pierce & Snow, 2021). Alcobary (2022) argues that managers must be aware of various forms of theft to establish preventative measures to reduce employee theft. The next section presents forms of employee theft.

2.5.1. Cash theft

Pivarski et al. (2021) maintain that cash theft, which includes petty cash theft, cash register theft, and skimming, is most common in industries like retail. Similarly, Mangleburg and Bilgihan (2021) argue that cash theft includes embezzlement, petty cash theft, sales cancellations, fake refunds, and forging cheques to steal money. A study by Alcobary (2022) reveals that cash theft includes skimming by failing to record a sale or transaction in the accounting books and stealing money, as well as overcharging clients and keeping the difference for oneself. To prevent employee cash theft, a different study by Vasić (2021) suggests that businesses should install visible security cameras. Likewise, Evans (2023) contends that businesses should establish explicit procedures and inform staff members that stealing cash is a serious offense that carries severe penalties.

2.5.2. Inventory theft

According to Rungtusanatham and Linderman (2023), inventory theft entails stealing goods, materials, or machinery from the business and using them for one's own benefit or reselling them. Alcobary (2022) argues that inventory shrinkage is caused by inventory theft, which can take the form of damage and theft. To deter thieves, Guenther (2020) suggests that businesses should use security cameras and control systems like locking up pricey things. Similarly, Chanda and Mwanza (2023) recommend that companies should offer fair and competitive wages, and create a positive, moral workplace culture to deter potential theft.

2.5.3. Time theft

According to Hu and Koopman (2022), time theft occurs when an employee receives compensation for time they did not work or for a job they did not complete. Time theft is the simplest and least obvious type of employee theft, according to researchers (Harold et al., 2022; Yao & Xiong, 2023; Muhammad & Sarwar, 2021). Kim (2023) states that taking lengthy breaks, arriving late, leaving early, buddy punching, and interacting with coworkers during working hours are all examples of time theft. Mohammad (2021) contends that time theft entails fabricating timesheets and, purposefully or inadvertently, misrepresenting work hours through prolonged breaks. According to Abdul Ghaffar and Zakariya (2021), time theft lowers morale and production and can cost an organization a lot of money.

2.5.4. Accounting and expenses theft

Accounting theft, according to Treadwell (2021), is when staff members falsify financial documents to conceal theft or to siphon off monies for their own benefit. Workers can steal from the firm by inflating expenses, issuing fake reimbursements, and using company funds for unlawful reasons, according to Knott (2021). Submitting expense reports with exaggerated or faked charges for meals, travel, or other work-related expenses, is known as inflating expenses (Laswad & Berkahn, 2023). False reimbursement, according to Drobac (2022), is the practice of requesting payment for costs that were never incurred. According to

Othman et al. (2023), companies should run background checks on all employees who handle cash and should establish internal procedures that can stop accounting crime. Billings and Crumbley (2021) aver that to guarantee the integrity of the accounting books, businesses should limit access to financial account data, implement multi-person sign-off procedures, and conduct routine audits.

2.5.5. Data theft

According to Al-Harrasi et al. (2023), data theft entails taking proprietary information or trade secrets from the employer. Similarly, Chang et al. (2020) claim that among the most concerning forms of employee theft, data theft has far-reaching consequences. Data theft includes stealing of customer and private company information such as trade secrets and other proprietary data (Xu et al., 2023). Fatima et al. (2021) state that enforcing stringent guidelines for data access and safeguarding data with secure passwords can help to avoid data theft, while Hummer and Rebovich argue that limiting employee access to a company's intellectual information and destroying and deleting critical digital data can help to reduce data theft. Furthermore, Damp (2022) advises businesses to keep their private data out of reach of would-be thieves.

2.6. Factors that trigger employee theft

Researchers have identified several factors that trigger workers to steal from their employers (Alcobary, 2022; Trigg, 2020; Kibet et al., 2020). Experts from a variety of disciplines such as sociologists, psychologists, economists, accountants, and criminologists have identified factors that trigger employee theft, which relate to their area of specialization. Employee theft, according to Omar et al. (2016), can be caused by both organizational and personal factors. Economic pressure, opportunity, attitude, and social norms are some of the elements that trigger employee theft behavior (Tarkan and Tepeci, 2016). Accordingly, Rickman and Witt (2020) identified perceived injustice, opportunity, and insufficient security and control mechanisms as contributing factors to employee theft. The next section presents some of the factors that trigger employee theft.

2.6.1. Economic hardships

Hollinger and Davis (2019) postulate that workers' stealing habits are triggered by financial difficulties. Kennedy and Benson (2020) state that employees who are unable to pay their debts turn to stealing from their employers in an effort to lessen their financial instability. Niehoff and Paul (2020) mention that economic challenges like wage inflation make it more probable for workers to steal from their employers as a coping strategy. Accordingly, Mishra and Prasad (2021) claim that workers are forced to steal from their companies to make ends meet owing to

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stagnant earnings and rising costs of living. Similar conclusions were echoed by Benson (2020), who discovered that employee theft and other deviant work practices are triggered by rising costs of living.

2.6.2. Perceived injustice

Khattak et al. (2021) point out that employee theft behavior might be triggered by perceived injustices like unjust treatment and unequal resource allocation. According to the equity theory, employees feel unfairly treated when their salary and effort levels are not equal to that of others. Similarly, the organizational justice theory provides that workers use distributive justice, procedural justice, and interactional justice to assess the fairness of their workplace. Furthermore, the organizational justice theory suggests that workers steal from the company to even the scores when they witness unfair practices in the previously listed forms of justice. According to Chaudhary et al. (2022), workers who believe that they are not treated fairly at work are more inclined to steal to make up for the perceived unfairness. Similarly, Ogungbamila and Ojogo (2020) posit that employee theft may be a reflexive mechanism for perceived unfairness, as resentful workers seek methods to balance inputs and outputs. Furthermore, Islam et al. (2025) reveal that employees steal to vent their frustration or to level the scores when they witness unfairness.

2.6.3. Lack of control systems and opportunity

One of the main causes of employee theft is the ease with which workers can steal without being caught (Trigg, 2020; Alcobary, 2022; Koomson et al., 2020). According to Othman and Ameer (2022), an environment where theft is more likely to occur can be created when opportunities are combined with lax oversight and controls. Setiawan et al. (2025) mention that employee theft is made possible by inadequate monitoring and lax internal controls. Likewise, Koomson et al. (2020) argue that insufficient oversight and monitoring allow theft to occur undetected. Weak control systems lead to staff embezzlement by voiding transactions, changing financial records, and distorting sales numbers (Taherdoost, 2021). Furthermore, Ameer (2022) claims that when workers perceive that there is little supervision, they engage in counter-productive work practices like theft because they think they can get away with it.

2.6.4. Revenge

According to Akgunduz et al. (2024), workers may steal in retaliation against the business or a particular person. Kazici (2023) reveals that workers may steal to make up for what they believe is owed to them or to level the score if they feel aggrieved by the company owing to improper compensation, lack of promotion, or any other perceived injustice. Kazici's (2023) study also demonstrated how sabotage, time theft, embezzlement, and inventory theft can all be used as forms of retaliation. Similar views are held by Wang et al. (2025), who assert that theft could constitute an outright act of retaliation against the employer, particularly if the worker feels wronged. Furthermore, Alcobary (2022) states that time theft might take the form of vindictive behavior, which includes taking lengthy breaks, fabricating timesheets, spending extra time on personal pursuits, and arriving late or leaving early.

2.6.5. Peer influence

According to the social theory, employee theft might be triggered by peer pressure, opportunities, and low chances of being caught. The social learning hypothesis also assumes that employees steal by observing, learning from, and copying others, especially those whom they consider to be influential. Kibet et al. (2020) assert that workers may experience peer pressure to engage in stealing, either through overt solicitations or covert expectations. Korgaonkar et al. (2021) reveal that employee theft is triggered by observing peers stealing from the employer. In addition, Kurniawan and Hakiki (2023) posit that when theft is common among a group of employees, it can be normalized, making it easier for individuals to justify their own actions.

3. Research methodology

The research methodology that the study's researchers used is summarized in Table 1 below.

Table 1: Study's research methodology

Research method	Technique used
Research philosophy	Interpretivism
Research approach	Qualitative research approach
Research design	Exploratory Descriptive
Sampling technique	Purposive sampling
Sample size	Nine
Data collection method	Semi-structured interviews
Data analysis	Thematic analysis

Source: Researchers' compilation

3.1. Demographic data

Table 2 below shows the research study's participants' demographic data.

Table 2: Demographic data

No.	Pseudonyms	Gender	Age (Years)	Work experience	Highest qualification	Interview length
1	ET1	Male	20	1 year	Advanced level	11 minutes
2	ET2	Male	18	1 year	Ordinary level	12 minutes
3	ET3	Male	23	2 years	Diploma	10 minutes
4	ET4	Male	21	2 years	Diploma	12 minutes
5	ET5	Female	23	3 years	Diploma	10 minutes
6	ET6	Male	24	2 years	Diploma	09 minutes
7	ET7	Male	31	4 years	Master's Degree	11 minutes
8	ET8	Female	28	3 years	Bachelor's degree	10 minutes
9	ET9	Male	29	3 years	Bachelor's degree	13 minutes

Source: Authors' fieldwork

4. Findings of the study

The study explored factors that trigger employee theft at a manufacturing firm in Zimbabwe. Table 3 below presents themes and data frequency that emerged from the study.

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Table 3: Themes and data frequency on factors that trigger employee theft

Themes	Frequency (N=9)
Economic hardships	8
Perceived injustice	7
Lack of control systems	6
Revenge	5

Source: Primary data

4.1. Themes and participants' quote on factors that trigger employee theft

The following section presents themes and participants' quotes on factors that trigger employee theft.

4.1.1. Themes 1: Economic hardships

Eight research participants indicated that economic hardships have forced them to steal from their employer. Table 4 below shows the participants' viewpoints in this respect.

Table 4: Participants' quotes on economic hardships

Pseudonym	Research Participants' Quotes
ET1	*'Financial hardships forced me to engage in counterproductive behaviors, my brother. My net salary is below the poverty datum line and the only way to meet my financial obligation, is to make sure I steal one or two items here and sale (sell) them at the black market'.*
ET3	*'High cost of living is giving me sleepless nights and I am finding it difficult to take care of my family. To cope with high cost of living, sometimes I alter time sheets so that they show more hours that (I) actually worked. More hours worked means my salary for that month will increase'.*
ET4	*'Financial insecurity forced me to steal office stationery'.*

Pseudonym	Research Participants' Quotes
ET5	*'Financial hardship and stagnant wage force us to play around with sales records, alter financial records, and divert company funds for personal use'.*
ET6	*'I am finding it difficult to meet my financial obligations such that when I am going out to do market research, I inflate expenses for travel, meals and accommodation'.*
ET7	*'Economic hardships is the root cause of all theft cases here'.*
ET8	*'Financial insecurity and high cost of living is not good, my brother. Sometimes I liaise with our competitors so that I direct some of our customers to them for a fee'.*
ET9	*'Economic hardships, high cost of living, and wage inflation trigger employee theft behaviors'.*

Source: Authors' fieldwork

4.1.2. Theme 2: Perceived injustice

The study's results show that seven of the nine participants indicated that perceived injustice in the form of distributive procedural and interactional injustice trigger theft behavior among workers. The research participants' related quotes are presented below.

'If company resources like offices and cars are not distributed fairly, workers are likely to respond by engaging in counterproductive work behavior like theft' (ET2).

'Perceive injustice at work triggers employee theft behavior' (ET4).

'Unfair treatment of workers by managers leads to negative emotions like stealing from the employer' (ET5).

'Once workers perceive that pay is not distributed fairly, they are likely to steal from the employer' (ET6).

'Failure to treat workers with respect and dignity triggers employee theft behavior' (ET7).

'Unjust actions by the managers towards workers force them to steal from the company' (ET8).

'Once pay and resources are not distributed fairly among workers, then employee theft becomes common' (ET9).

4.1.3. Theme 3: Lack of control systems

Lack of control systems emerged from the study as one of the factors that trigger employee theft. In this regard, ET1 stated:

'Weak controls make it easy to steal here, my brother'.

Similarly, ET2 said:

'Poor security measures make it easy to steal without getting caught'.

In addition, ET3 remarked:

'Lack of inventory oversight and weak controls trigger employee theft behavior'.

This trend continued with ET5, ET6 and ET7. Their quotes show that weak control systems, lack of oversight, and monitoring and supervision trigger employee theft behavior at the case organization.

4.1.4. Theme 4: Revenge

Apart from the afore-mentioned factors, some of the research participants indicated that they steal from their employer as a form of revenge against the company. The following quotes show research participants' viewpoints in this respect.

'My pay is lower than that of my colleagues in the same department. So, given such a situation, I steal as a way of retaliation' (ET3).

'I steal from my employer to correct the wrong of unfair distribution of resources and injustices' (ET4).

'Sometimes I steal from the employer as revenge against mistreatment' (ET6).

'I steal as a revenge against wrong doings by the employer' (ET7).

'Desire to revenge triggers employee theft' (ET8).

5. Discussion of study's findings

Economic hardships, perceived injustice, revenge, and a lack of control systems emerged from the study as factors that trigger employee theft at the case manufacturing firm in Zimbabwe. These results are analyzed in the next section.

5.1. Economic hardships

Economic hardships emerged as one of the factors that trigger employee theft at the case manufacturing firm in Zimbabwe. Presented below are some of the participants' viewpoints in this regard.

'Financial hardships forced me to engage in counterproductive behaviors, my brother. My net salary is below the poverty datum line and the only way to meet my

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financial obligations is to make sure I steal one or two items here and sale (sell) them at the black market' (ET1).
'High cost of living is giving me sleepless nights, and I am finding it difficult to take care of my family. To cope with high cost of living, sometimes I alter time sheets such that they show more hours worked than (I) actually worked. More hours worked means my salary for that month will increase' (ET3).
'Economic hardships, high cost of living, and wage inflation force workers to steal from their employer' (ET9).
The study's findings are consistent with those of Hollinger and Davis (2019), who argue that workers' stealing habits are triggered by financial difficulties. Correspondingly, Niehoff and Paul (2020) assert that economic challenges like wage inflation make it more probable for workers to steal from their employers as a coping strategy. In addition, Mishra and Prasad (2021) contend that workers are forced to steal from their companies to make ends meet owing to stagnant earnings and rising costs of living.

5.2. Perceived injustice

The study's findings show that seven of the nine participants identified perceived injustice as one of the factors that induce workers to steal from the employer. The participants' quotes in this regard are presented below.
'If resources are not distributed fairly, workers are likely to respond by engaging in counterproductive work behavior like theft' (ET2).
'Once workers perceive that pay is not distributed fairly, they are likely to steal from the employer' (ET6).
'Failure to treat workers with respect and dignity triggers employee theft behavior' (ET7).
'Unjust actions by managers towards workers force them to steal from the company' (ET8).
'Once pay and resources are not distributed fairly among workers, then employee theft becomes common' (ET9).
The organizational justice theory supports the study's results, which assume that workers steal from the company to even the scores when they witness unfair practices at work. Likewise, Khattak et al. (2021) reveal that employee theft behavior might be triggered by perceived injustices like unjust treatment and unequal resource allocation. Furthermore, Islam et al. (2025) mention that employees steal to vent their frustration or to level the scores when they witness unfairness.

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5.3. Lack of control systems

The study reveals lack of control as another factor that triggers employee theft. In this regard, ET1 stated:

'Weak controls make it easy to steal here, my brother'.

Similarly, ET2 said:

'Poor security measures make it easy to steal without getting caught'.

In addition, ET3 remarked:

'Lack of inventory oversight and weak controls trigger employee theft behavior'.

The study's findings are supported by Setiawan et al. (2025), who claim that employee theft is made possible by inadequate monitoring and lax internal controls. Similarly, Koomson et al. (2020) maintain that insufficient oversight and monitoring allow theft to occur undetected. Furthermore, a study by Taherdoost (2021) shows that weak control systems lead to staff embezzlement by voiding transactions, changing financial records, and distorting sales numbers.

5.4. Revenge

Apart from the afore-mentioned factors, some of the research participants indicated that they steal from their employer as a form of revenge against the company. The following quotes show research participants' viewpoints in this respect.

'If my employer wronged me through unfair pay, I steal as a way of retaliation' (ET3).

'Sometimes I steal from the employer as revenge against mistreatment' (ET6).

'Revenge is a factor that can trigger employee theft behavior' (ET7).

The above quotes are supported by Akgunduz et al. (2024), who posit that workers may steal in retaliation against the business or a particular person. Also, a study by Kazici (2023) reveals that workers may steal to make up for what they believe is owed to them or to level the score if they feel aggrieved by the company owing to improper compensation, lack of promotion, or perceived injustice. Furthermore, Wang et al. (2025) state that theft could constitute an outright act of retaliation against the employer, particularly if the worker feels wronged.

6. Contribution of the study

Exploring factors that trigger employee theft has three benefits: theoretical; methodological; and practical. Theoretically, the present study authenticates assumptions of equity theory, the social learning theory, the risk and gain theory, and the organizational justice theory, which provide that personal, social and organizational factors trigger employee theft. Methodologically, this qualitative research offers fresh themes and sub-themes for factors that trigger employee theft, which may be used by academics and future researchers. In practice, the study assists managers to identify causes of employee theft and to implement specific preventative measures to curb employee theft. The study also helps workers to understand that employee theft is a gross misconduct, which amounts to direct dismissal and can damage a worker's reputation if caught.

7. Limitations and recommendations for future research

The present study has its own limitations even though the researchers made every attempt to guarantee the study's credibility. The findings of this study are difficult to generalize because the researchers only considered one manufacturing company in Zimbabwe and excluded other domestic and foreign organizations. Furthermore, a sample size of nine research participants makes it difficult to draw broader inferences. Having identified the afore-mentioned limitations, future studies on the subject matter should consider a research site of two or more organizations. Lastly, future researchers should utilize a large sample size, which makes it easy to draw broader conclusions.

8. Conclusions

This study explored factors that trigger employee theft at the case manufacturing firm in Zimbabwe. Economic hardships, perceived injustice, lack of control systems, and revenge were the four main factors that trigger employee theft, as identified by the study's research participants. The study recommends that managers should understand factors that trigger employee theft, while they should implement specific preventative measures to curb it. In addition, the study recommends that the case organization should offer competitive salaries to their workers, conduct multiple background checks on new employees, and should improve security and control systems through access control, surveillance systems, inventory management systems and audits.

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Author's contributions
All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflicts of interest
The authors declared that they have no conflicts of interest.

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ENTREPRENEURSHIP EDUCATION AND UNEMPLOYMENT REDUCTION AMONG GRADUATES

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Abstract

Nigeria faces a paradox of high graduate unemployment despite being Africa's largest economy, with over 5.2 million unemployed graduates and 2 million new graduates entering a saturated labor market annually. This study examined the relationship between entrepreneurship education and unemployment reduction among Nigerian graduates, specifically investigating how entrepreneurship skill acquisition relates to job creation and business productivity. Using a descriptive research design, the study surveyed 342 National Youth Service Corps (NYSC) members in Osun State, selected through simple random sampling from a target population of 2,353. Data was collected using structured questionnaires measured on a four-point Likert *scale and analyzed using Pearson Product-Moment Correlation. The results revealed significant positive relationships between entrepreneurship skill acquisition and job creation (r = 0.642, p < 0.01) and between entrepreneurial skills development and business productivity (r = 0.711, p < 0.01). Both null hypotheses were rejected, indicating that entrepreneurship skill acquisition and development significantly enhances graduates' job creation capacity and business establishment productivity. The study concludes that entrepreneurship skill acquisition and development is not merely an educational exercise but a practical intervention that yields measurable economic outcomes. The study recommends integrating practical entrepreneurship skills training into higher education curricula, establishing business incubation centers, developing comprehensive national entrepreneurship policies, and creating dedicated funding mechanisms for graduate entrepreneurs.*

Keywords: *entrepreneurship education, unemployment reduction, skill acquisition, job creation, business productivity, Nigerian graduates*

JEL Classification: L26, L31, E24, J64

Introduction

Despite being Africa's largest economy, Nigeria records low entrepreneurial activity, with an entrepreneurship rate of 44%, falling behind countries like Uganda (79%) and Botswana (72%) (GEM, 2019). The Global Entrepreneurship Index ranks Nigeria 101st out of 137 nations, reflecting weak entrepreneurial performance despite the launch of University Entrepreneurship Education (UEE) in 2006 and other government efforts. At the same time, graduate unemployment remains high, with about 5.2 million graduates unemployed and over 2 million new graduates entering a saturated labor market each year (Longe, 2017; NBS, 2019). Many graduates, including those returning from overseas, compete for limited formal jobs, contributing to rising poverty, insecurity, and migration (Sania & Jamilb, 2020).

Entrepreneurship education, designed to equip students with practical business skills and an entrepreneurial mindset, is widely viewed as a solution to youth unemployment. Yet, despite reforms, many Nigerian graduates still prefer salaried jobs and show limited interest in entrepreneurship (Ekienabor & Arilesere, 2018). This mindset, coupled with ineffective instructional methods, limits the success of entrepreneurship education in reducing unemployment (Agbonlahor, 2019). Though entrepreneurship has the potential to create jobs and alleviate poverty (Sidek, 2006), Nigeria's youth remain largely unemployed, worsening social vices such as crime and insurgency (Oginni et al., 2023; Rotimi et al., 2021; Aun et al., 2018).

Entrepreneurship initiatives have developed enterprises in key sectors like agriculture, ICT, and hospitality (Anyadike et al., 2012). Yet, Nigeria remains one of the poorest countries with high graduate unemployment in sub-Saharan Africa. Despite educational reforms, including compulsory entrepreneurship courses in tertiary institutions (Eze & Aroge, 2019), many graduates lack the entrepreneurial skills required by the labor market (Damju, 2017). Consequently, unemployment persists, driven less by qualification gaps and more by systemic failures—political, economic, and social (Oladeji, 2019; Fajana, 2015). This study, therefore, examines the relationship between entrepreneurship skill acquisition and job creation among graduates in Nigeria and the link between entrepreneurial skill development and the productivity of business establishments.

Research Hypotheses

1. There is no significant relationship between entrepreneurship skill acquisition and job creation among graduates in Nigeria.
2. There is no significant relationship between entrepreneurial skills development and the productivity of business establishment.

Literature Review

Entrepreneurship

Entrepreneurship has no universal definition. Many authors and individuals have defined it in different ways (Eze & Aroge, 2019). According to Singal (2011), entrepreneurship is the process that involves all actions an entrepreneur undertakes to establish an enterprise in order to give reality to his ideas. It can be described as a creative and innovative response to environment. To Bob Reiss (2000), entrepreneurship is the recognition and pursuit of opportunity without regard to one's current control resources, with confidence and assurance of success, and with the flexibility to change as necessity and the will to rebound from setback.

Tende (2011) opined that entrepreneurship is simply concerned with what an entrepreneur actually does, the utilization of resources in managing an enterprise and assuming the risks and maximizing profit from the business venture. According to him, it is a very dynamic process of creating incremental wealth for the wellbeing of both the entrepreneur and individuals in society. To Emmanuel (2013), Entrepreneurship is concerned with the identification of existing gaps or business opportunities in someone's environment and gathering together all the

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necessary resources in an innovative and creative way to fill these gaps, with the risks involved to make personal rewards which may or may not be for profit motives (Oginni et al., 2023).

Entrepreneurship can be described as a vehicle of economic development which affects economic growth through job creation, knowledge spillovers, introduction of new innovations and productivity enhancements (Acs, 2006; Van Praag & Versloot, 2007). It also provides individuals with adequate training that enables creativity and skill acquisition which encourages self-employment. In terms of business, society and overall development, entrepreneurship performs numerous roles (Onyeneho and Ezeano, 2011). Without entrepreneurship development, all factors of production (labour, land and capital) would be rendered ineffective and unproductive. Akanwa and Akpanabia (2012) defined entrepreneurship as the willingness and ability of an individual to seek out investment opportunities, establish and run an enterprise successfully. Bakar, Islam and Lee (2015) also stated that entrepreneurship development has the capability of making positive impacts on the economy of a nation and the quality of life of the people.

Entrepreneurship Education

Entrepreneurship education is the guidance provided to groups or individuals to help them improve their natural entrepreneurial abilities and gain the expertise, abilities, behaviors, and values required to begin successful business enterprises in their immediate environment and make a decent living. In his description, Osuala (2004) established entrepreneurship education as "specialized training provided to students for them to learn skills, ideas, and management expertise needed for self-reliance." While entrepreneurship is the act of taking on risk in a business enterprise, entrepreneurship education can provide students with the requisite competencies, techniques, and understanding to take on risk in a new business. This is to promote self-employment so that they can have a more stable and meaningful life upon graduation (Ekpoh & Edet, 2018) while Sibiya (2025) opined that it is an avenue to develop mentorship and startup incubator prevalence to make entrepreneurship education meaningful in minimizing unemployment with the BRICS nations and other nations.

The term entrepreneurship education is used interchangeably with entrepreneurship training and skill acquisition. Conceptually, entrepreneurship education refers to a specialised knowledge that inculcates in learners the traits of risk-taking, innovation, arbitrage and co-ordination of factors of production for the purpose of creating new products or services for new and existing users within human communities (Naudé 2007, Kanothi, 2009). Mauchi1 et al., (2011) assert that entrepreneurship education can be defined "as the process of providing individuals with the ability to recognize commercial opportunities and the knowledge, skills and attitudes to act on them."

Entrepreneurship education has also been described as a formal or informal structured learning that inculcates in students/trainees the ability to identify, screen and seize available opportunities in the environment in addition to skill acquisition (Jones & English, 2004). In the words of Shane and Venkataraman (2000) the thrust of entrepreneurship training entails identifying "the sources of opportunities, the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate and exploit them." The deliverables of entrepreneurship education when properly imbibed by students and learners are: ability to identify something happening in the environment (resources); and (b) ability to impart something new to trainees, so that that their creativity, innovative abilities, beliefs and recombination skills would be enhanced ((Oginni et al., 2025; Sofoluwe, 2007).

Entrepreneurship Education in Nigeria and Challenges

Nigeria's entrepreneurship education faces significant developmental challenges, partly attributed to its relatively recent introduction. While the United States initiated formal entrepreneurship instruction in tertiary institutions in 1947 (Aliu, 2007), Nigeria only began implementing such programs in 2006 (Yahya, 2011), creating natural growing pains for this educational innovation. Poor curriculum execution across tertiary institutions represents a fundamental obstacle, rendering entrepreneurship education goals difficult to achieve (Garba, 2004). This reflects a broader pattern within Nigeria's educational system where specialized program objectives frequently fail to materialize during implementation phases (Okebukola, 2004; Onyeachu, 2008). Current pedagogical approaches prove particularly problematic, with excessive emphasis on business plan development in large groups of 10-15 students (Ifedili & Ofoegbu, 2011). Effective entrepreneurship education requires more practical approaches including industry visits, presentations by successful entrepreneurs, and authentic business project implementation during academic study. Instead, current methods prioritize theoretical instruction and mentoring (Gabadeen & Raimi, 2012).

The absence of appropriate textbooks and learning materials compounds these challenges (Oginni et al., 2025; Ifedili & Ofoegbu, 2011). Available resources often prove inadequate and fail to address Nigeria's unique business environment characteristics. Additionally, insufficient funding hampers curriculum implementation, as acknowledged by key regulatory bodies including the National Universities Commission (NUC), National Board for Technical Education (NBTE), and related supervisory agencies (Gabadeen & Raimi, 2012). Student perceptions present another significant barrier, with many viewing entrepreneurship education as government-imposed elective coursework designed to increase academic burden rather than provide valuable skills (Ifedili & Ofoegbu, 2011; Gabadeen & Raimi, 2012). This mindset diminishes engagement in both classroom and extracurricular entrepreneurial activities. Furthermore, graduates who pursue self-employment encounter harsh business realities including excessive taxation, limited government support, complex registration processes, restricted access to funding, stringent regulations, high inflation, official harassment, inadequate infrastructure, and elevated raw material costs (Mambula, 2002; Ariyo, 2005; Chu et al., 2008; Gabadeen & Raimi, 2012, (Oginni et al., 2025). These negative experiences create indirect challenges for entrepreneurship education by discouraging future entrepreneurial pursuits.

Unemployment

Graduate unemployment in Nigeria is a critical issue where over 75% of the 200,000+ graduates entering the labor market annually cannot find employment despite being mentally and physically capable of working (Agi & Arikawei, 2011). This situation affects over 2.5 million tertiary institution graduates currently seeking non-existent jobs (Ihugba et al., 2013), creating both individual consequences such as increased poverty and reduced social status, and national implications including economic stagnation, social unrest, rising crime rates, and security challenges. The frustration and desperation from unemployment often drives educated individuals toward sophisticated criminal activities as they seek illegal ways to utilize their skills when legitimate opportunities are unavailable (Arogundade, 2011; Ajufo, 2013). While graduate unemployment is a global phenomenon (Salihu et al., 2016), Nigeria's particularly high magnitude threatens the country's socio-economic stability and has captured the attention of policymakers, educators, and media commentators as it contributes to youth unrest and national security concerns through the fundamental mismatch between educated workforce supply and available employment opportunities.

Causes of Youth Unemployment in Nigeria

Research conducted by Adebayo (2017) and Alanana (2016) has revealed several interconnected factors contributing to Nigeria's unemployment crisis. A primary driver is the substantial migration from rural to urban areas, creating an oversupplied urban labor market. This movement stems from both push and pull dynamics: rural areas face challenges including high population-to-land ratios, seasonal underemployment due to climate patterns, and inadequate infrastructure that diminishes rural living standards (Ogunyomi & Oginni, 2013).

Nigeria's demographic trends present another significant challenge. The 2006 census recorded a population of 140,431,790, with projections suggesting growth to over 180 million by 2020. This population explosion creates a supply-demand imbalance where the labor force expands faster than the economy's capacity to absorb new workers. Educational factors compound this issue through two mechanisms: curricula that fail to align with modern employment requirements and skills gaps, alongside rapid educational system expansion that produces graduates at rates exceeding available positions.

Despite Nigeria's considerable economic potential rooted in abundant human capital and natural resources, systemic corruption has undermined development efforts. Ewhrudjakpor (2008) notes how corruption has infiltrated Nigeria's social fabric, with development funds being misallocated or stolen. This financial mismanagement weakens the economic foundation, perpetuating unemployment cycles that foster poverty, hunger, and frustration among youth (Ogunyomi & Oginni, 2013). Consequently, these conditions erode both the motivation and resources necessary for entrepreneurial development, creating a self-reinforcing cycle that limits economic opportunities for Nigeria's young population.

Theoretical Review

Resource Based Theory

The theoretical foundation for this research draws from Barney's (1991) Resource-Based Theory, which argues that organizational heterogeneity stems from diverse resource portfolios, enabling firms to pursue distinct strategic approaches based on their unique resource combinations. This framework directs management focus toward internal organizational assets, capabilities, and competencies that possess the potential for generating superior competitive positioning. According to Barney (1991), sustainable competitive advantages emerge from resources that exhibit four critical characteristics: rarity, value, imperfect imitability, and non-substitutability. The resource-based perspective emphasizes that organizations must cultivate distinctive, firm-specific core competencies to outperform rivals through differentiated approaches. These distinguishing characteristics form the cornerstone of successful entrepreneurial ventures. Since the emergence of this theoretical lens, entrepreneurship has gained recognition as a fundamental organizational driving force, facilitating resource combination, identifying alternative resource applications, and enhancing resource diversity.

This theoretical approach conceptualizes entrepreneurship as the identification and exploitation of profit-generating opportunities, with resource heterogeneity serving as a fundamental principle. While the resource-based view concentrates on resource diversity, entrepreneurial theory emphasizes the varied perceptions regarding resource value among different actors. The resource-based framework rests on two foundational elements. The first recognizes entrepreneurs as primary agents in opportunity identification, while the second emphasizes the entrepreneur's social capital—encompassing their network of connections, relationship management approaches with competitors, and the broader social environment for new venture creation. As Fuentes et al. (2010) observe, entrepreneurial social networks provide competitive advantages, making the understanding of network development, maintenance, and enhancement processes crucial for entrepreneurial success.

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Human Capital Theory

Human Capital Theory, proposed by economists Gary Becker (1964) and Theodore Schultz (1960), posits that investing in education, training, and skill development enhances individual productivity. These acquired attributes function as a form of "capital" that increases one's value in the labor market. Human capital theorists advocate for investment in the nation's workforce, encompassing individuals employed in both public and private sector organisations, as expenditures on training and development constitute a productive investment similar to investments in physical assets (Olaniyan & Okemakinde 2008). Moreover, the increase of human capital via quality education is a pivotal element that drives economic growth and sustainable development in East Africa, Hong Kong, and Korea (Jacobs et al., 2021). For entrepreneurs, this means that those with better education, relevant experience, and specialised skills are more likely to succeed. Such investments in human capital help them identify opportunities, manage businesses effectively, and adapt to change, leading to improved performance. Ultimately, the theory underscores that by equipping graduates with entrepreneurial education and skills, they are empowered to become job creators, thereby reducing unemployment.

Empirical Review

Odike et al. (2023) assessed entrepreneurship education as a correlation to job creation and unemployment reduction in Cross River State, Nigeria. The study adopted a correlation research design with 75 undergraduate students from three universities. Using the Entrepreneurship Education as correlate to Job Creation and unemployment reduction Questionnaire (EECJCURQ), data was analyzed through Pearson Product Moment Correlation Analysis and simple linear regression. Results revealed a high positive relationship between skills students acquire after entrepreneurship education and their self-productivity, as well as a moderate positive relationship between entrepreneurship education skills and self-productivity. Additionally, a high positive relationship existed between entrepreneurship education skills and poverty alleviation. The study concluded that entrepreneurship education skills significantly influence students' entrepreneurial career intentions and poverty alleviation, though not necessarily their self-productivity.

Adeoye et al. (2020) assessed the impact of entrepreneurial education on unemployment among Nigerian graduates serving in Lagos State. The study employed a survey research design with 250 youth corpers selected through simple random sampling. Data collection utilized the Demographic Data Inventory (DDI) and "Reducing Unemployment among Nigerian Graduates through Entrepreneurial Education Questionnaire" (RUNGEEQ). Statistical analysis included descriptive statistics and simple linear regression at .05 significance level. Key findings showed that entrepreneurship education significantly contributes to unemployment

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reduction (β = .228, t = 10.105, p < .05), graduate entrepreneurs' skills significantly influence unemployment reduction (β = .273, t = 13.186, p < .05), while entrepreneurship skills training curriculum had no significant impact on critical thinking and business idea generation (β = .074, t = 1.492, p > .05). The study also found that entrepreneurship pedagogy significantly affects graduate shared-vision and business opportunity identification (β = .214, t = 9.052, p < .05). The work of Adesanya et al. (2025) on leadership agility and entrepreneurial resilience among Nigerian small and medium-sized enterprises (SMES) attested to the position of Adeoye et al that leadership agility serves as impetus to create enabling environment towards path clearing, challenge framing, commitment building, and uncertainty absorbing collectively which were critical determinants of organizational adaptability and survival in volatile business environments.

Okoye et al. (2021) examined the effect of entrepreneurship education on unemployment reduction in Anambra State, Nigeria. The study focused on four specific objectives: examining innovation's effect on unemployment reduction, determining skill acquisition's impact, evaluating access to finance effects, and assessing infrastructural development's influence. Using Kirzner's Theory of Entrepreneurship, the research targeted 4,177,828 inhabitants with a sample size of 399 determined through Taro Yamane formula and purposive sampling technique. Data collection employed questionnaires distributed to unemployed youths from selected local government areas. Analysis revealed that innovation, entrepreneurship development, bank credit access, and infrastructural development all have significant positive effects on unemployment reduction in Anambra State.

Rotimi et al. (2021) assessed entrepreneurship education and graduate unemployment in Kogi State. The study concentrated on students as the primary focus, determining a sample size of 385 participants. Both descriptive and inferential statistics were employed for data analysis, with multiple regression analysis used to examine the impact of independent variables on the dependent variable. Findings demonstrated that entrepreneurship education has a significant effect on graduate unemployment rates in Kogi State. The study concluded that incorporating entrepreneurship into education curricula can effectively reduce graduate unemployment rates and recommended policy reviews to enhance the effectiveness of entrepreneurial education in Kogi State higher institutions.

Okeke et al. (2020) assessed youth entrepreneurship and unemployment in Delta State, Nigeria, investigating entrepreneurship prospects as a solution to youth unemployment and economic development catalyst. The study examined four specific objectives: technical innovation's prospects in reducing unemployment, creativity's influence on unemployment reduction, entrepreneurship education's potential for unemployment reduction, and opportunity recognition's extent in reducing unemployment. Using survey research design, the study targeted 10,000 population members with a sample of 370 selected through simple random sampling. Hypotheses were tested using Pearson correlation analysis. Findings revealed that youth entrepreneurship positively influences youth lives, with technical innovation and creativity showing positive effects on unemployment reduction. Additionally, opportunity recognition demonstrated positive influence on unemployment reduction, while entrepreneurship education created significant awareness among youth participants.

Eze and Aroge (2019) examined the impact of entrepreneurship education on job creation ability among Bingham University students. The study formulated three hypotheses to assess entrepreneurship educational curriculum, skills, and pedagogy effects on job creation. Using survey research design and Taro Yamane formula, 234 final year students from three faculties (Science and Technology, Humanities, Social and Management Sciences, and College of Health Sciences) comprised the sample. Data collection employed self-administered questionnaires, analyzed through descriptive statistics and multiple regression for hypothesis testing. Pearson Correlation Coefficient tested variable correlations, showing no strong correlations and indicating minimal multicollinearity problems. Major findings revealed that entrepreneurship educational curriculum has low and insignificant effects on job creation, while entrepreneurship skills and pedagogy demonstrate significant positive effects on job creation among university students.

Jacob and Ehijiele (2019) examined unemployment in Nigeria and entrepreneurship education's role in addressing this challenge. The quantitative study focused on entrepreneurship education's potential for reducing unemployment, defining unemployment as situations where willing and capable individuals cannot find suitable paid employment. The main objective investigated entrepreneurship education's possibility in unemployment eradication in Nigeria. Primary data collection utilized questionnaires, with hypotheses formulated, tested, and analyzed using Chi-square tests through SPSS software. Results revealed that entrepreneurship education has significant positive effects on unemployment eradication in Nigeria. The study recommended encouraging students to embrace entrepreneurship education and training to become wealth creators through self-reliance and economic independence.

Oladeji (2019) assessed the skills acquisition programme's impact on youth empowerment and development in Ondo State. Recognizing youth as future leaders requiring strategic government investment, the study addressed concerns about inadequate training and socialization leading to youth contributing negatively rather than positively to society. The research administered 27 questionnaires to trainers at skill acquisition centers and 557 copies to programme beneficiaries in Ondo State. Additionally, thirteen coordinating department members participated in in-depth interviews. Findings revealed that the skills acquisition programme successfully provided employment opportunities for youth beneficiaries and reduced their involvement in social problems, demonstrating the programme's effectiveness in youth empowerment and development.

Methodology

The study adopted a descriptive research design to explore the impact of entrepreneurship education on unemployment reduction among Nigerian graduates. Osogbo, the capital of Osun State, was the area of study, focusing specifically on graduates serving in the National Youth Service Corps (NYSC). The target population consisted of 2,353 NYSC members in Osun State, from which a sample size of 342 was determined using Taro Yamane's formula. A simple random sampling technique was used to select participants. Data collection relied on primary sources, mainly questionnaires. The research instrument, a structured questionnaire, included sections on respondents' demographics and their perspectives on entrepreneurship education and unemployment reduction. Responses were measured on a four-point Likert scale. The questionnaire's validity was assessed by experts, and its reliability tested through a pilot study with 20 graduates outside the study area, using Cronbach Alpha for consistency. The researcher personally administered the questionnaire, utilizing both in-person distribution and an online Google Form shared across NYSC groups with the help of Local Government Inspectors. For data analysis, both descriptive and inferential statistics were employed, with Pearson Product-Moment Correlation (PPMC) used to test the study's hypotheses.

Results

H_1: There is no significant relationship between entrepreneurship skill acquisition and job creation among graduates in Nigeria.

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Table 1: Correlation table

Correlations

		entrepreneurship skill acquisition	job creation
entrepreneurship skill acquisition	Pearson Correlation	1	.642**
	Sig. (2-tailed)		.000
	N	342	342
job creation	Pearson Correlation	.642**	1
	Sig. (2-tailed)	.000	
	N	342	342

**. Correlation is significant at the 0.01 level (2-tailed).

Interpretation:

The Pearson correlation coefficient (r=0.642) shows a strong positive relationship between entrepreneurship skill acquisition and job creation among graduates. The p-value (0.000) is less than 0.05, indicating the relationship is statistically significant. Therefore, H_{01} is rejected, and we conclude that entrepreneurship skill acquisition significantly enhances job creation.

H_2: There is no significant relationship between entrepreneurial skills development and the productivity of business establishment.

Table 2: Correlation table

Correlations

		entrepreneurship skill development	business productivity
entrepreneurship skill development	Pearson Correlation	1	.711**
	Sig. (2-tailed)		.000
	N	342	342
business productivity	Pearson Correlation	.711**	1
	Sig. (2-tailed)	.000	
	N	342	342

**. Correlation is significant at the 0.01 level (2-tailed).

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Interpretation:

The Pearson correlation coefficient (r=0.711) reveals a very strong positive relationship between entrepreneurial skills development and business productivity. The p-value (0.000) confirms statistical significance. Thus, H_{02} is rejected, and we infer that entrepreneurial skills development significantly enhances the productivity of business establishments.

Discussion of Findings

The first hypothesis tested the relationship between entrepreneurship skill acquisition and job creation among graduates in Nigeria. The results revealed a strong positive correlation ($r = 0.642$, $p < 0.01$), leading to the rejection of the null hypothesis. This finding indicates that entrepreneurship skill acquisition significantly enhances graduates' ability to create employment opportunities. The findings strongly align with previous research conducted across various Nigerian states. Adeoye et al. (2020) demonstrated that graduate entrepreneurs' skills significantly influence unemployment reduction ($\beta = .273$, $t = 13.186$, $p < .05$) among youth corpers in Lagos State. Similarly, the current study's correlation coefficient of 0.642 exceeds the threshold typically considered as a strong relationship, suggesting that entrepreneurship skill acquisition is a crucial determinant of job creation capacity among graduates.

Eze and Aroge (2019) and Oginni, et al. (2025) corroborated these findings by showing that entrepreneurship skills demonstrate significant positive effects on job creation among Bingham University students. Their research specifically highlighted that while educational curriculum showed minimal impact, practical skills acquisition remained a critical factor in employment generation. This supports the current study's emphasis on skill acquisition as a primary driver of job creation. The strong correlation aligns with Human Capital Theory, which posits that investments in education and skills enhance individual productivity and economic outcomes. The findings suggest that entrepreneurship skill acquisition serves as a form of human capital that directly translates into employment creation opportunities. This relationship can be understood through the lens of self-efficacy theory, where enhanced skills increase graduates' confidence and capability to initiate business ventures and create employment for themselves and others.

The second hypothesis examined the relationship between entrepreneurial skills development and business establishment productivity. The analysis revealed an even stronger positive correlation ($r = 0.711$, $p < 0.01$), resulting in the rejection of the null hypothesis. This finding demonstrates that entrepreneurial skills development significantly enhances business productivity. The correlation coefficient of 0.711 represents a very strong relationship that surpasses findings from several previous studies. Odike et al. (2023) reported high positive relationships between entrepreneurship education skills and self-productivity, though their study focused on a smaller sample size (n = 75) compared to the current study's 342 participants. The stronger correlation in the current study may reflect the broader geographical scope and more diverse sample composition.

Okoye et al. (2021) provided supporting evidence by demonstrating that innovation, skill acquisition, and entrepreneurship development all have significant positive effects on unemployment reduction in Anambra State. Their findings complement the current study by showing that skilled entrepreneurs not only create businesses but also establish more productive enterprises that contribute to economic development. The very strong correlation (r = 0.711) supports the Resource-Based View of the firm, which suggests that valuable, rare, and inimitable resources—such as entrepreneurial skills—create sustainable competitive advantages. The findings indicate that entrepreneurs with enhanced skills are better positioned to establish and manage productive business ventures. This relationship can also be understood through Innovation Theory, which emphasizes that skilled entrepreneurs are more likely to implement innovative practices that enhance business efficiency and productivity.

Conclusion

This study provides evidence for the positive relationships between entrepreneurship skill acquisition and both job creation and business productivity among Nigerian graduates. The strong correlations observed (r = 0.642 for job creation and r = 0.711 for business productivity) demonstrate that entrepreneurship skill acquisition and development is not merely an educational exercise but a practical intervention that yields measurable economic outcomes. The findings have particular relevance for Nigeria's economic development strategy, given the country's challenges with youth unemployment and the need for sustainable job creation. The research contributes to theoretical understanding by providing empirical support for Human Capital Theory and Resource-Based View in the context of entrepreneurship education.

Recommendations

Educational institutions should integrate entrepreneurship skills training into their curricula across all disciplines, emphasising practical, hands-on training rather than purely theoretical approaches, while establishing business incubation centers and industry partnerships to provide graduates with real-world experience. Policy makers should develop a comprehensive national entrepreneurship education policy that mandates skills training in higher education institutions, establish post-graduation support programs, create standardized skills assessment and certification programs, and develop dedicated funding mechanisms such as graduate entrepreneurship funds and low-interest loans. Graduates and prospective entrepreneurs should engage in continuous entrepreneurship skills development, seek practical application opportunities, build networks with other entrepreneurs and mentors, and develop diverse entrepreneurship skills including technical, business management, and innovation capabilities. Future research should conduct longitudinal studies to track long-term impacts, comparative studies across different Nigerian regions, investigate specific entrepreneurship skills with strongest relationships to outcomes, and explore mediating factors such as access to finance and regulatory environment.

Contribution to Knowledge

This study makes significant contributions to entrepreneurship education and economic development literature through several key areas. Theoretically, it provides strong empirical validation of Human Capital Theory and Resource-Based View in entrepreneurship education contexts, demonstrating quantifiable relationships between skills development and economic outcomes while revealing differential impacts on job creation versus business productivity. Methodologically, the research offers robust statistical evidence through a large sample size (n=342) and clear correlation analysis that enhances reliability and generalizability compared to previous studies. Practically, the findings provide evidence-based support for policy initiatives integrating entrepreneurship education into higher education systems and establish benchmark correlation coefficients for future research and program evaluation. The study's societal contributions include demonstrating how entrepreneurship education can address youth unemployment in Nigeria and similar developing economies, supporting the role of entrepreneurship education in broader economic development strategies, and showing how educational investments in entrepreneurship skills translate into measurable economic returns, thereby strengthening arguments for increased human capital development investment.

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UNLOCKING STUDENT POTENTIAL: STRATEGIES FOR SUCCESS, SUSTAINED MOTIVATION AND ENHANCED WELL-BEING

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Abstract

This study aims to identify and analyse strategies that unlock student potential by examining interventions such as mentorship programs, academic coaching, student engagement initiatives, and mental health resources. It explores how these approaches enhance success, sustain motivation, and promote well-being in higher education. Guided by Expectancy Theory and Constructive Alignment Theory, the study examines how students' beliefs about effort and rewards influence motivation and how well-structured learning environments foster deep engagement and critical thinking. Using a qualitative *constructivist approach, the study analyses student experiences, focusing on factors that drive academic success, long-term motivation, and overall well-being. Findings highlight that motivation and well-being are central to student success. Intrinsic motivation, driven by passion and career goals, fosters sustained engagement, while external influences such as family expectations also play a role. Stress management, mindfulness, and self-regulation improve cognitive performance and resilience, reducing burnout. Effective time management, goal-setting, and organisational skills enhance academic achievement. Students perceive success as more than just grades; they value confidence, personal growth, and real-world application of knowledge. Constructive Alignment Theory supports the need for structured, meaningful learning experiences, while Expectancy Theory highlights the connection between effort, performance, and motivation. The study highlights the need for universities to implement holistic strategies that integrate motivation, well-being, and structured learning. Institutions should adopt evidence-based interventions that enhance student resilience, engagement, and academic performance. This research contributes to the growing discourse on student success by emphasising a multidimensional approach beyond academic performance. It provides actionable insights for educators, policymakers, and institutions to foster an academic and personal environment where students can thrive.*

Keywords*:* *student success, well-being, motivation, student potential.*

JEL Classification: I23

1 INTRODUCTION

The well-being of students in higher education has gained increasing attention due to its significant impact on academic success and overall life outcomes. While academic achievement remains a key goal, it is influenced by various psychological and social factors (Moussa & Ali, 2021). Full-time students, typically aged 17 to 24, navigate critical developmental transitions, often encountering psychological challenges such as anxiety, depression, and burnout (Douwes et al., 2023; Lipson & Eisenberg, 2018). These factors can undermine motivation, engagement, and academic performance, with research linking poor well-being to higher dropout rates (Backhaus et al., 2020; Baik et al., 2019; Dopmeijer, 2021; Todorova, 2022). Addressing student well-being is essential for fostering resilience and academic success (Lipson & Eisenberg, 2018; Douwes et al., 2023).

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Beyond individual academic outcomes, student well-being is increasingly recognised as a critical indicator of societal progress. While economic measures such as GDP have traditionally been used to assess national development, the Organisation for Economic Co-operation and Development (OECD) highlights well-being as a broader measure of societal advancement (OECD, 2018a). This framework considers dimensions such as education, skills, and social connections alongside material conditions like employment and income (OECD, 2018b). Similarly, research on higher education outcomes links earning a bachelor's degree to increased lifetime earnings and career stability (Perna, 2006). However, student success should not be evaluated solely by financial returns but also by personal growth, mental health, and overall quality of life (Trolian et al., 2020).

The relationship between well-being, motivation, and academic success is complex and interdependent. While universities provide student welfare services and mental health programs, rising demand indicates the need for additional interventions. Many students experience academic pressure, financial stress, and social adjustment difficulties, all of which can diminish motivation and persistence (Beatson et al., 2020). The transition from secondary education to university presents particular challenges, often leading to declining motivation as students adjust to new learning environments, increased independence, and higher expectations (Anderman & Anderman, 1999; Bong, 2009). Motivation plays a crucial role in sustaining engagement, guiding students toward their goals, and fostering resilience in the face of obstacles. Without adequate support, students may struggle with declining intrinsic motivation, reduced mastery goals, and diminished academic interest, ultimately hindering their potential.

Given these challenges, it is essential to explore and implement strategies that enhance student well-being, sustain motivation, and support academic success (Wang & Zhang, 2025). Many students struggle with motivation, well-being, and academic performance despite educational reforms and institutional support systems. Addressing these issues requires a holistic approach integrating psychological, social, and institutional support mechanisms. This study aims to identify and analyse strategies that unlock student potential by examining interventions such as mentorship programs, academic coaching, student engagement initiatives, and mental health resources. A comprehensive understanding of these factors will enable higher education institutions to implement proactive, evidence-based strategies that foster academic success and overall student well-being.

2 THEORETICAL FRAMEWORK

The theory underpinning the current study is expectancy theory and constructive alignment theory.

Expectancy theory

Vroom's **Expectancy Theory of Motivation** (1964) explains how individuals make choices by assessing the likelihood that their efforts will lead to successful performance and desirable outcomes (Parijat & Bagga, 2014). Unlike theories focusing on needs or reinforcement, expectancy theory emphasises rational decision-making based on three key components: **valence, expectancy, and instrumentality**.

1. **Valence** refers to how much an individual values a particular outcome. If the outcome is desirable (e.g., high grades or career opportunities), it has **positive valence**; if undesirable (e.g., failing an exam), it has **negative valence**. Higher valence increases motivation.
2. **Expectancy** is the belief that effort will lead to successful performance. Past experiences, self-efficacy, and available resources influence it. High expectancy boosts motivation, while low expectancy (e.g., due to lack of support or difficulty of a task) reduces it.
3. **Instrumentality** is the perceived connection between performance and rewards. Motivation increases if students trust that academic success leads to tangible benefits (e.g., scholarships, job opportunities). If rewards seem uncertain or unfair, motivation declines.

To enhance motivation, educators should therefore emphasise the value of outcomes, provide resources to strengthen expectancy, and ensure transparent reward systems to improve instrumentality (Nwankwo, 2023). These components also explain why motivation may vary both within and between students. For instance, within a single student (intra-individual differences), motivation might arise from recognising the utility value of preparing for a test as beneficial for future goals, even if the student does not find intrinsic enjoyment in studying (Held & Mori, 2024). Conversely, motivational differences can also occur between students (inter-individual differences): some may perceive preparing for a test as instrumental and useful for achieving long-term aspirations, while others may not see the same value.

Constructive Alignment theory

Biggs and Tang's (2011) Constructive Alignment Theory emphasises aligning learning objectives, teaching methods, and assessment tasks to enhance student success. This approach ensures that instructional strategies and evaluations directly support intended learning outcomes, promoting deep learning rather than surface memorisation. High-quality learning involves cognitive and emotional engagement, fostering a deep and broad understanding of the subject (Entwistle, 2018; Entwistle & McCune, 2013). This requires essential cognitive skills such as critical thinking, problem-solving, integrating ideas, and using evidence-based reasoning. Teaching strategies that demand active student engagement are more likely to improve learning quality (Biggs & Tang, 2011). The core principle of constructive alignment is a student-centred approach where learning is shaped by the student's activities rather than passive instruction (Biggs & Tang, 2011; Prosser & Trigwell, 2014). Rooted in constructivist learning theory, it posits that knowledge is created through learners' active participation (Biggs, 1996). The ultimate goal is to design teaching to encourage deep learning, leading to higher-quality educational outcomes (Entwistle, 2018; Trigwell, 2012; Watters & Watters, 2007). Constructive alignment integrates intended learning outcomes, teaching-learning activities, and assessment tasks to ensure coherence in curriculum design. The central step is defining intended learning outcomes, what students should learn and how they will demonstrate their learning (Biggs & Tang, 2011). Constructive alignment fosters active engagement and enhances student motivation, well-being, and long-term academic success.

Student Success

Student success has gained global significance as it directly influences future career opportunities. It serves as a crucial measure of the quality of higher education institutions, encompassing academic performance, engagement, skill development, and post-graduation outcomes (Vugteveen et al., 2025). Key attributes that contribute to student success include clarity of direction, perseverance, and commitment (Caruth, 2018). A student success curriculum adds a necessary support layer for academically underprepared students, helping them develop essential non-academic skills and overcome challenges to complete their education (Otto et al., 2023). According to Hoops and Artrip (2016), higher education institutions offer student success courses as electives to academically underprepared students. These courses provide information about the college and

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emphasise academics, career planning strategies, study habit development, and other nonacademic personal skills (Gardner & Bearfoot, 2011; O'Gara et al., 2009). A standard student success curriculum includes strategies to develop time management, problem-solving, and prioritisation skills, along with fostering personal responsibility and self-affirmation (Pressimone Beckowski & Winfield, 2021; Hoops & Artrip, 2016). It also focuses on shifting students' attitudes and behaviours concerning self-awareness and learning styles (Rutschow et al., 2012). Effective time management skills, in particular, enhance students' focus by reducing distractions and promoting better control over how time is allocated to specific tasks. Maintaining motivation throughout one's academic journey is essential for success. Research highlights that intrinsic motivation—driven by personal goals and passion leads to deeper engagement and resilience, while extrinsic motivation—such as rewards and recognition can provide short-term boosts (Deci & Ryan, 2000). Strategies for sustaining motivation include goal setting and self-reflection, where clearly defined academic and career goals help students stay focused, and regular reflection on progress fosters self-efficacy. Additionally, mentorship and social support from educators, peers, and mentors enhance motivation and persistence. Developing a growth mindset, where challenges are seen as opportunities for learning and improvement, also plays a crucial role in maintaining long-term motivation (Dweck, 2006). Beyond academic performance and motivation, student success is deeply connected to overall well-being. Stress, anxiety, and burnout are common challenges that can hinder performance, making it essential for students to develop strategies for mental, emotional, and physical well-being. Effective stress management techniques, such as mindfulness, relaxation exercises, and cognitive reframing, can help students cope with academic pressures. Maintaining a healthy work-life balance through proper time management, exercise, nutrition, and sleep supports cognitive function and emotional stability. Furthermore, having access to strong support systems, such as counselling services, peer support groups, and well-being programs, equips students with the necessary resources to navigate challenges and maintain resilience. By integrating academic success strategies, sustained motivation techniques, and well-being initiatives, higher education institutions can empower students to unlock their full potential, persist through challenges, and achieve long-term success.

Student well-being

Student well-being has gained increasing attention recently, particularly as mental health concerns become more prevalent among university students (Nuryana et al., 2021, 2023). The rising incidence and severity of mental health issues in higher education institutions highlight the urgent need for intervention (Bladek, 2021). The World Health Organization (WHO) defines health as well-being, and Cooke et al. (2016) categorise approaches to well-being into four main frameworks: hedonic well-being, eudaemonic well-being, wellness, and quality of life. Dodge et al. (2012) further conceptualise well-being as the balance between an individual's resources and their challenges, encompassing psychological, social, and physical aspects. Poor mental health negatively impacts academic performance, leading colleges and universities to implement campus-wide initiatives that promote student well-being (Olung'o et al., 2023). Public and political concerns about student mental health have grown significantly (Brown, 2016; Cuijpers et al., 2019). Globally, 61% of university counselling services reported a surge in demand of at least 25% between 2012 and 2017 (Thorley, 2017). Research estimates that 29% of students experience clinical levels of distress, with anxiety and stress levels often rising upon entry into university and persisting beyond graduation (Bewick et al., 2008, 2010). The relationship between student mental health and academic experiences is bidirectional: learning environments can influence well-being, while students' mental health affects their academic engagement and performance (Houghton & Anderson, 2017; Hughes & Spanner, 2019; Pascoe, Hetrick, & Parker, 2020). University administrators and researchers have observed an alarming increase in psychological distress among students. Counselling centres struggle to meet the rising demand as more students seek support for issues such as depression, anxiety, and suicidal ideation (Baldwin et al., 2017; Brown, 2018; Hunt & Eisenberg, 2012). Additionally, risky health behaviours, including substance abuse, have been on the rise among university students (Castillo & Schwartz, 2013; Baldwin et al., 2017). Some studies suggest that universities are not fully addressing the diverse needs of students, many of whom face stressors related to academic pressure, financial burdens, and a lack of personal connections on campus (Bladek, 2021; Brown, 2018). In response, institutions are adopting a whole-university approach to well-being, embedding mental health initiatives across policies, curricula, and campus culture (Universities UK, 2018). Assessment policies have been identified as an environmental factor that may contribute to student stress, potentially exacerbating mental health challenges. Examination-related stress has been linked to anxiety,

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depression, burnout, and self-harm, as well as physiological effects such as disordered sleep, poor nutrition, and substance misuse (Ribeiro et al., 2018; Pascoe et al., 2020; Stults-Kolehmainen & Sinha, 2014). High anxiety levels negatively impact academic motivation and performance, with students experiencing greater stress often reporting lower productivity and test scores (Reschly et al., 2008; Liu, 2015; Kotter et al., 2017). Studies suggest that shifting from norm-referenced hierarchical grading to a criterion-referenced pass/fail system can significantly reduce student stress and anxiety (Bloodgood et al., 2009; Slavin, Schindler, & Chibnall, 2014). However, some scholars argue that excessive focus on well-being initiatives in assessments may inadvertently undermine resilience and students' ability to cope with academic challenges (Ecclestone & Hayes, 2019).

Given the complex interplay between academic demands and mental health, universities must balance rigorous assessment and student well-being. Promoting holistic support systems, fostering a sense of belonging, and implementing evidence-based interventions can enhance students' overall well-being, ultimately improving academic outcomes and personal growth.

3 METHODOLOGY

Research Philosophy

According to Saunders et al. (2016), research philosophy is characterised as the foundational belief system or worldview that not only shapes the choice of research method but also pertains to ontological and epistemological aspects. Ontology deals with the nature of reality and what exists. Cohen et al. (2018) attest that meanings used by participants to interpret situations are culture and context-bound, and there are multiple realities, not single truths, in interpreting a situation. For the current study, the ontological stance focuses on understanding the nature of student potential and related constructs like success, motivation, and well-being. In addition, since there are multiple realities, as realists posit, these constructs have an objective reality that can be observed and measured. This view assumes that some universal principles or factors define student potential, motivation, and well-being, which can be identified and analysed through research. Epistemology refers to the foundational beliefs that shape how knowledge is perceived as acceptable and valid within a study (Höttecke & Allchin, 2020). For the current study, interpretivist epistemology is adopted as this approach involves understanding students' meanings and experiences to potential, success, motivation, and well-being. The focus was on qualitative methods, such as interviews or focus groups, to gather in-depth insights into students' perceptions.

Research approach and paradigm

The current study adopted an interpretivist qualitative research approach to explore the Student Potential: Strategies for Success, Sustained Motivation, and Enhanced Well-being. Bryman (2008) attest that the qualitative research approach uses words rather than numbers. Burns and Grove (2016), qualitative research focuses on exploring deeper situations and how people understand their knowledge. The qualitative method is concerned with an independent assessment of attitudes, ideas, and behaviour, and this study was qualitative based on the advantage of exploring attitudes and behaviour in-depth, encouraging discussion and flexibility (Hammersely, 2013). Interpretivism acknowledges that studying human beings differs from other phenomena as they create meaning in their world (Saunders et al., 2020). Interpretivism's core principle asserts that research cannot be impartially observed from an external standpoint; instead, it necessitates immersion in the direct experiences of the people involved (Denzin & Lincoln, 2011).

Research design

Sekaran and Bougie (2016) define research design as a structured plan or framework detailing the methods for collecting, measuring, and analysing data to address the research questions posed by the researcher. In this study, an exploratory research design was used. The purpose of exploratory research is to learn more about a phenomenon. It is used when the problem needs to be defined more precisely and more information is needed before a strategy can be established. An exploratory research design allowed the researcher to focus on gathering secondary and primary data in an unstructured format and interpreting it using informal processes (Greenfield & Greener, 2016).

Research strategy

Research strategy is perceived as a general plan of action that specifies how to achieve research objectives (Mertens, 2018). For the purpose of this study, a phenomenology research strategy was adopted. Phenomenology research strategy is based on the view that our knowledge of the world is rooted in our immediate experiences, and the researcher's task is to describe, understand, interpret and explain these experiences (Hammersley, 2013; Denscombe, 2014). Phenomenology is a qualitative research approach that seeks to understand how individuals perceive and make sense of their experiences. By applying phenomenology, the current study provided deep insights into how students experience and make sense of their educational journey, offering valuable perspectives on strategies for success, sustained motivation, and enhanced well-being.

Research method

Research setting

The current study explored the lived experience of understanding students' meanings and experiences of potential, success, motivation, and well-being. The study was conducted at selected University of Technology in Gauteng South, specifically focusing on 2^{nd} and 3^{rd} year students in Chemistry.

Entrée and establishing researcher roles

Before accessing the research setting, the researcher liaised with gatekeepers (senior personnel in the Faculty) to conduct research within the institution. The researcher built trust with the institution and secured permission, ensuring ethical practices were adhered to. In addition, the researcher invited accessible and available participants via email, providing an informed consent letter. Consenting participants signed the consent form and scheduled interviews. In phenomenology, the researcher acted as a facilitator, creating a safe space for participants to share their lived experiences while bracketing personal biases to understand these experiences authentically.

Research participants and sampling methods

The current study population consisted of 25 students who were purposefully selected for interviews to explore their lived experience of understanding students' meanings and experiences of potential, success, motivation, and well-being. Only 2^{nd} and 3^{rd} year students were included in the current study since they have transitioned well to the university life. Pseudonmys were used to safeguard the participants identity. It was essential to provide pseudonmys even thought interviews were face-to-face to provide anonymity. The researcher separated participants identities and responses to ensure unbiased analysis. Non-probability purposive sampling was used in the current study. Purposive sampling, sometimes called judgment sampling, involves selecting a sample based on individuals' familiarity with the research topic (Wolf et al., 2016). Table 1 as illustrated the composition of the participants.

No	Participant	Gender	Year Level
1	S1	Male	2nd
2	S2	Male	3rd
3	S3	Male	3rd
4	S4	Female	3rd
5	S5	Female	3rd
6	S6	Male	2nd
7	S7	Female	2nd
8	S8	Female	3rd
9	S9	Male	3rd
10	S10	Female	3rd
11	S11	Female	2nd
12	S12	Male	3rd
13	S13	Male	2nd
14	S14	Female	2nd
15	S15	Male	2nd
16	S16	Male	3rd
17	S17	Female	3rd
18	S18	Female	2nd
19	S19	Female	3rd
20	S20	Male	2nd

Data collection methods

A data collection instrument is a tool that is used to collect data for research purposes (Saunders et al., 2016). Semi-structured interviews were used to collect data. Interviews were recorded and transcribed ensuring that identities were anonymised.

Data recording

Data recording included taking notes and recording the interviews. To achieve accuracy, interviews were transcribed, corrected, and stored in a secure, password-protected computer.

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Data analysis

Data analysis is a technique that typically involves multiple activities, such as gathering, cleaning, and organising the data (Saunders et al., 2016). These processes, which usually include data analysis software, are necessary to prepare the data for business purposes. The study used thematic analysis. Thematic analysis is a type of qualitative analysis. It is used to analyse classifications and present themes (patterns) that relate to the data. It details the data and deals with diverse subjects via interpretations (Boyatzis, 2018).

Strategies to ensure quality assurance

The study complied with the quality assurance illustrated by Lincoln and Guba (2013), including credibility, confirmability, transferability and dependability. Member checks, also known as participant validation, were used to ensure dependability (Cohen et al., 2018). Currently, exploring student potential, strategies for success, sustained motivation, and enhanced well-being are criteria that ensure that the research accurately captures and faithfully represents students' lived experiences. Credibility is achieved by validating findings with participants; confirmability is achieved by documenting and reflecting on the research process; transferability is achieved by providing rich, detailed accounts of the context; and dependability is achieved by ensuring consistent and transparent research practices.

Ethical considerations

Cooper and Schindler (2016) defined ethics as standards and norms of behaviour that guide moral choices about behaviour and relationships with others. Ethical principles are essential in research to ensure that the study results are accepted as valid and reliable. In this study, the following ethical concerns were addressed. Ensuring participants give informed consent

Informed consent, according to Cooper and Schindler (2016), occurs when the researcher offers enough information and assurances for participants to grasp the ramifications of their participation in the study. letters informing them of the nature of the study, the aim and the research objectives. Participants were also informed that their participation was voluntary, assuring them that all required precautions would be taken to ensure confidentiality. Ensuring that no harm comes to participants in research, any potential harm should be avoided (Lacobucci & Churchill, 2018). Questions were asked so that there would be no physical or mental injuries to the participants. The researcher upheld academic integrity and honesty by not informing participants what to say or how to respond

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when answering questions. The participants needed to express their experiences free of manipulation. Ensuring confidentiality and anonymity, respondents need to be assured that their identities, names, and other personal information will be kept strictly confidential (Malhotra, 2019). Respondents' confidentiality was protected in this study by not using their names in any part of the documents. All participants were given pseudonyms.

4 RESULTS AND DISCUSSIONS

Based on the interview responses from respondents, four themes emerged, i.e. success and potential, motivation and persistence, well-being and balance, and strategies for success. In addition, sub-themes also emerged, including personal growth and fulfilment, resilience and coping strategies, support systems, time management and organisation, and goal setting. Table 2 presents themes and sub-themes derived from thematic analysis.

Theme		Sub-Theme
.	Success and potential	Personal growth and fulfilment
2.	Motivation and persistence	Resilience and coping strategies
.	Well-being and balance	Support systems Time management
4.	Strategies for Success	Goal setting

Theme 1: Success and potential

This theme was formulated when students were asked about academic achievement and potential. The theme collectively underlines the importance of success for students in their respective area of study. Participants indicated that success is not only about achieving good grades but more than that. Participants indicated that:

> *"For me, success isn't just about getting good grades. It's about understanding the material and being able to apply it in real life. If I can do that, I feel like I've truly succeeded. (S10, Female, 3rd Year)"*

> *"Success means pushing myself to the limits, not just settling for what's easy. It's about constantly*

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> *improving and reaching new levels academically and personally. (S1, Male, 2nd Year)"*
>
> *"Academic success is achieving the goals and outcomes one sets for their educational journey, including mastering subjects, developing critical thinking skills and applying knowledge effectively. (S14, Female, 3rd Year)"*

***Sub-theme 1:* Personal growth and fulfilment**

This theme was an extension to the academic success and participants indicated that:

> "*Success also involves personal growth such as increasing confidence, improve problem solving abilities and readiness for the future. (S14, Female, 3rd Year)"*
> *"Achievement of personal goals through consistent efforts enhance personal growth and gaining knowledge that can be used in the real-world situations. (S6, Male, 2nd Year).*
>
> *"It is not about getting high academic grades but developing critical thinking skills, gaining personal growth, and the ability to engage meaningfully with content and application that can be translated to the real world. (S20, Male, 2nd Year).*

In addition, other participants has also indicated this:

> *"I see success as more than just academics. It's about growing as a person, becoming more confident, and finding what really drives me in life. (S4, Female, 3rd Year)"*
>
> *"My potential isn't just about what I can achieve in school; it's about how I grow and evolve as a person. Success to me means feeling fulfilled in what I do, not just meeting expectations. (S9, Male, 3rd Year).*

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Theme 2: Motivation and persistence

This theme was based on the participants' feedback on what motivates them in the university. The majority of participants were motivated as they have indicated that:

> *"What keeps me going is my passion for the subject. I genuinely enjoy what I'm studying, and that drives me to put in the extra effort, even when it's tough. (S7, Female, 2nd Year)"*

> *"I'm motivated by the idea that what I'm learning now will help me make a difference in the future. That thought pushes me through the challenging times. (S8, Female, 3rd Year)"*

In addition, some participants have indicated that motivation is also extrinsic towards them. Participants indicate that:

> *"Honestly, the fear of failure is a big motivator for me. I don't want to disappoint my family, so I keep pushing myself to achieve more. (S2, Male, 3rd Year)"*

> *"Knowing that there's a reward at the end, like a good grade or recognition, really keeps me focused. It's those little incentives that help me stay on track. (S3, Male, 3rd Year)*

Sub-theme 2: Resilience and Coping Strategies

This sub-theme emerged when participants were asked about challenges and barriers they experience during their course of the study. Most participants indicated that they struggle to cope with their studies. Participants indicated that:

> *"When things get really tough, I remind myself why I started this journey in the first place. I've learned to take breaks, reassess, and then come back stronger. (S11, Female, 2nd Year)"*

"I've had setbacks, but I see them as part of the process. Each time I stumble, I figure out what went wrong, adjust my approach, and keep moving forward. (S12, Male, 3rd Year)"

Other participants have indicated that while academic life is difficult but they have developed resilience in their studies, participants stated that:

"academic challenges played a huge role in my academic journey where I failed most of my Chemistry tests but come with strategy to cope with the course by seeking for help from the lecturer and class representatives. (S14, Female, 2nd Year)"

"Persistence is key. There are days when I feel like giving up, but I keep reminding myself that progress takes time and every small step counts. (S15 Male, 2nd Year)"

"Even when I don't see immediate results, I stay motivated by focusing on the bigger picture. I know that the effort I'm putting in now will pay off eventually. (S10, Female, 3rd Year)"

Theme 3: Well-being and balance

The theme emerged when participants were asked about their overall university well-being. The participants indicated their well-being has been compromised due to multiple demands of the course. Participants indicated that:

"There are times when the stress feels overwhelming, but I've learned that taking care of my mental health is just as important as getting good grades. When things get tough, I make time for meditation and talking to friends.(S3, Male, 3rd Year)"

"I used to push myself to the brink, but I realised that if I don't take care of my mental health, everything else falls apart. Now, I make sure to prioritise sleep and take breaks when I need them. (S4, Female, 3rd Year)"

Participants also indicate that maintaining work-life balance is also key to well-being, especially since the course is very demanding.

> *"Balancing school with my personal life is a challenge, but I've found that setting boundaries helps. I dedicate time for studying, but I also make sure to hang out with friends and pursue hobbies to keep myself balanced. (S10, Female, 3rd Year) "*

> *"It's hard to find time for everything, but I've learned that a strict schedule helps me manage my time better. I can't be all about school—I need time for myself too. (S17, Female, 3rd Year)"*

Sub-theme 3.1: Support system

The theme emerged when participants were asked about their coping mechanisms during their university life. Participants revealed that while they have developed individual strategies to manage the stress and challenges of academic life, they also heavily rely on their support systems for additional strength and resilience. Many shared that they have implemented personal measures such as time management techniques, regular exercise, mindfulness practices, and setting boundaries to maintain their mental and emotional well-being. However, they emphasised that a strong support network often supplemented and reinforced these strategies. This network includes family, friends, mentors, and institutional resources like counselling services or student organisations. The participants noted that having people to turn to during difficult times provides practical help and emotional reassurance, which is essential for their persistence and success. This dual approach, combining personal coping mechanisms with external support, was consistently highlighted as crucial for navigating the pressures and demands of university life. Participants indicated this:

> *"Having a strong support system has been crucial for my well-being. My family and friends are always there to listen, and that makes a huge difference when I'm feeling overwhelmed. (S9, Male, 3rd Year) "*

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"I've learned to lean on my support network when things get tough. Whether it's talking to a mentor or just spending time with friends, having people who understand what I'm going through helps me stay grounded. (S12, Male, 2nd Year)"

"I've started practicing self-care regularly, like going for walks, journaling, and just giving myself permission to rest. It's made a big difference in how I handle stress.(S15, Male, 2nd Year)"

"Taking time out for myself isn't just a luxury; it's a necessity. Whether it's exercising, reading, or just relaxing, I make sure to include self-care in my routine to keep myself balanced. (S11, Female, 2nd Year)"

Sub-theme 3.2: Time management

The theme of time management emerged when participants were asked about how they organise their daily routines and balance the demands of university life. Participants consistently highlighted the importance of effective time management as a critical factor in their academic success and overall well-being. They discussed their strategies, such as prioritising tasks, planning their schedules, and setting clear boundaries between study time and personal activities. Participants indicated that:

"I've found that making a to-do list every morning helps me stay on track. I prioritise what's most important and tackle those tasks first, so I don't feel overwhelmed later in the day. (S3, Male, 3rd Year)"

"Planning my week in advance has been a game-changer. I use a planner to block out time for studying, assignments, and even breaks. It keeps me organised and less stressed. (S5, Female, 3rd Year)"

> *"When I catch myself procrastinating, I remind myself of the bigger picture and how important it is to stay on top of my work. Setting mini-deadlines has really helped me stay focused.(S4, Female, 3rd Year) "*

Theme 4: Strategies for Success

This theme emerged after participants were asked about their specific approaches and methods to achieve their academic and personal goals. Participants shared a variety of strategies that they have developed over time to navigate the challenges of university life and maximise their potential. These strategies included setting achievable goals that provide direction and motivation, establishing consistent study habits to reinforce learning, and staying organised to manage deadlines and responsibilities effectively. Many participants also emphasised the importance of seeking help when needed, utilising available resources such as tutoring services and study groups, and maintaining a balanced lifestyle to avoid burnout. Participants indicated that:

> *"I make it a point to study a little bit every day instead of cramming. It helps the material sink in better, and I don't feel as stressed when exams come around.(S1, Male, 2nd Year)"*

> *"I've developed a routine that includes reviewing my notes regularly and doing practice problems. Consistency is key—I've found that it's better to study consistently rather than trying to catch up all at once.(S11, Female, 2nd Year)"*

> *"Staying organised is probably the most important part of my success strategy. I keep track of all my assignments and deadlines in a planner so that nothing falls through the cracks. (S17, Female, 3rd Year)"*

> *"Success isn't just about academics for me. I make sure to balance my studies with hobbies and social activities, which keeps me motivated and prevents burnout.(S12, Male, 3rd Year)"*

> *"Part of my strategy for success is maintaining a balance between work and rest. I make sure to take care of my mental health so I can stay productive and focused. (S14, Female, 2nd Year"*

Sub-theme 4: Goal setting

This theme emerged prominently when participants were asked about their strategies for achieving success in their academic and personal lives. Participants consistently highlighted the importance of setting short-term and long-term goals as foundational elements of their success strategies. They discussed how having clear and specific goals gives them a sense of direction and purpose, helping them stay focused and motivated throughout their studies. Participants also noted that setting realistic and achievable goals helps them manage their time and resources more effectively, reducing stress and enhancing their ability to meet deadlines. Participants indicated that:

> *"I always set clear, achievable goals at the beginning of each semester. It helps me stay focused and gives me something to work towards, whether it's improving my grades or mastering a particular skill. (S8, Female, 3rd Year)"*

> *"Having both short-term and long-term goals is crucial for me. The short-term goals keep me motivated day-to-day, while the long-term goals remind me of the bigger picture. (S13, Male, 2nd Year)"*

The findings highlight that well-being and motivation are critical to student success in higher education. Deep learning and critical thinking theories suggest that students who engage in higher-order thinking perform better in real-world tasks (Biggs & Tang, 2011). Motivation is strongly influenced by students' beliefs in effort and persistence, as those who attribute success to hard work are more likely to stay motivated (Blerkom, 2006; Deci & Ryan, 2000). Well-being also plays a crucial role, as university life can be stressful, making mental health, work-life balance, and support systems essential for success (Hughes & Spanner, 2019; Pascoe, Hetrick, & Parker, 2020). Research on mindfulness and stress management techniques, such as meditation and exercise, suggests they enhance cognitive performance and reduce burnout (Shapiro et al., 2011; Ribeiro et al., 2018). Time management, self-regulation, and goal-setting further contribute to academic success by improving focus and minimising distractions (Zimmerman, 2002; Hoops & Artrip, 2016). The findings reveal that students perceive success beyond academic achievement, emphasising the importance of applying knowledge, developing confidence, and fostering personal growth (Biggs & Tang, 2011; Entwistle, 2018). Constructive Alignment Theory reinforces the need for well-structured learning environments that promote deep learning rather than rote memorisation (Biggs & Tang, 2011). Expectancy Theory similarly highlights how students' belief in the connection between effort, performance, and rewards influences their motivation (Parijat & Bagga, 2014). Ultimately, success in university is a multidimensional experience shaped by persistence, structured learning strategies, and well-being support systems that help students navigate academic and personal challenges effectively (Caruth, 2018; Brown, 2018).

5 CONCLUSION

The study emphasises that student success in higher education is a multidimensional phenomenon influenced by motivation, well-being, deep learning, and structured academic strategies. The findings reinforce that students who engage in higher-order thinking and attribute success to effort demonstrate greater academic resilience and achievement. Motivation, particularly intrinsic motivation driven by passion and career aspirations, plays a significant role in student engagement, while external factors such as family expectations also contribute. Well-being and mental health emerge as critical components, as students must navigate academic pressures alongside personal challenges. The effectiveness of mindfulness, stress management, and self-regulation strategies enhances cognitive performance and reduces burnout. Time management, organisation, and goal-setting are essential for maintaining focus and managing workload efficiently. Students perceive success as more than academic achievement, valuing personal growth, confidence, and the practical application of knowledge. Aligning teaching methods, learning objectives, and assessments fosters deep learning, ensuring meaningful academic engagement. Students' beliefs about the relationship between effort, performance, and rewards significantly impact their motivation and perseverance. A combination of psychological, behavioral, and structural factors shapes student success. A holistic

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approach that integrates motivation, well-being support, and effective learning strategies is essential for enhancing student outcomes. Universities should prioritise interventions that promote deep learning, resilience, and a supportive academic environment, ensuring that students can successfully navigate academic and personal challenges.

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THE EFFECT OF HUMAN CAPACITY TRAINING ON THE PRODUCTIVITY OF HEALTHCARE CENTRES

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Abstract

Human capacity training connotes the process of equipping workers with the pre-requisite skills, knowledge, and resources to effectively perform assigned tasks, deliver top-notch performances, and also aid in the advancement of their careers. Succinctly put, it is the development of the workforce's knowledge, abilities and skills. This research examined the effect of human capacity training on the productivity of healthcare centres in Cross River State, Nigeria. Adopting the descriptive survey research design, the study's sample size was 204, drawn from 420 staff members of the selected healthcare centres across Cross River State. A structured questionnaire was used as an instrument for data collection, which was presented using frequency tables and simple percentages, while hypotheses were tested using *the regression analyses. The findings revealed a significant and positive connection between human capacity training and the productivity of healthcare centres in Cross River State, Nigeria, implying that healthcare centres that prioritise the investment in their workforce through human capacity training programmes are likely to see sustainable impacts and benefits in terms of increased productivity and overall viability. The study therefore recommended that workplaces, especially healthcare centres, must invest in employee development and capacity building schemes to enhance skillsets, knowledge, and competencies of their workforce, since it has been proven to yield positive organisational outcomes.*

Keywords: *capability, healthcare, human capacity training, knowledge, nigeria, productivity*

JEL Classification: D2; H51; L2; M53; M54; O5

1. Introduction

Human capacity training continues to be an intervention strategy for workplaces and workforces alike, while also being a major responsibility of the human resource management team (Monyei, Ukpere & Nnabugwu, 2023; Armstrong, 2020). This is known as a methodical use of formal procedures to assist individuals in gaining the knowledge and abilities required to perform their daily tasks. The key to working efficiently in the organisation is human capacity training. It contributes to raising employee skill levels and an organisation's overall productivity (Ruttledge & Cathcart, 2019). Employees are a company's most valuable resource for enhancing or undermining its productivity and reputation (Elnaga & Imran, 2013). Human capacity training encompasses various activities such as on-the-job training, formal education, coaching, and mentoring designed to enhance individual and organisational productivity (Beardwell, 2019). Healthcare centres in Nigeria are growing very fast, which means the administrative functions, such as their human capacity development schemes, should also be improved. There has been constant recruitment, selection and promotions in healthcare centres across Nigeria, but with little or no human capacity training (Hafeez & Akbar, 2015). Furthermore, the obvious ineptitude in human capacity training has exponentially impacted workplaces' performances, particularly in terms of productivity and service delivery. Due to improper human capacity training, employees lack the pre-requisite capacity, skillset or technical know-how to perform their tasks effectively, which leads to lower productivity, costly errors, and organisational paranoia (Monyei & Ukpere, 2024). A poor performance management system is one of the problems of most organisations, which has a significant impact on organisational performance. Without clear expectations and feedback mechanisms, employees may not understand their roles and responsibilities or how their performance is being evaluated. This can lead to a poor accountability and motivation, resulting in subpar performance and ultimately affecting the quality of service delivery. Extant literature has also indicated that human resource management functions are not given the required attention and that there are problems with its human capacity schemes. As long as there is a need for improving the productivity and efficiency of any workplace, human capacity training remains a crucial aspect to invest in (Garaven et al., 2020). In line with the foregoing, it is worth noting that there is a paucity of research conducted on human capacity training, especially its nexus with the productivity of healthcare centres, thus revealing the gap in empiricism. Hence, this study becomes pertinent, timely and a sine-qua-non to challenges, pitfalls and issues arising with regard to declining productivity, an outcome of inept, biased and cryptic human capacity training.

1.1. Research Objective: Determining the effect of human capacity training on the productivity of healthcare centres in Cross River State, Nigeria.

2. Literature Review

2.1 Dynamic Capabilities Theory, as proposed by David Teece in 1997

The core tenet of dynamic capabilities theory is that a company's competitive advantage and long-term success are significantly influenced by its capacity to continuously integrate, reconfigure, and adapt its resources and capabilities in response to shifting market conditions. According to the hypothesis, businesses that can consistently innovate and adjust to their surroundings will perform better than their rivals. Organisational development provides access to training, seminars, and knowledge that can help firms build the dynamic capacities they need to innovate, stand out from the competition, and maintain long-term success. Among the presumptions of dynamic capabilities theory are the following: that businesses can learn to recognise, grasp, and change opportunities in their surroundings; that resources and capabilities are the main sources of competitive advantage; and that businesses operate in a dynamic and unpredictable environment. Other researchers, such as Winter (2003) and Eisenhardt and Martin (2000), have made significant contributions to the development of dynamic capabilities theory by further exploring the concept of organisational development and their impact on firm

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performance and sustainability. Dynamic capabilities, according to Grant (1996), are the organisational and strategic practices that precede managers' ability to change their resource base. Additionally, they gather resources, distribute them, integrate them, and recombine them to create new methods that create value. The creation of resources with the potential to generate rent is prioritised over possession in the context of the dynamic capabilities approach (Vinayan et al, 2012). Teece et al. (1997), Eisenhardt and Martin (2000), and Zollo and Winter (2012) claim that the dynamic capability approach mimics the ideas of evolutionary economics (Nelson & Winter, 2014) and Schumpeterian theory (Schumpeter, 1934). The Schumpeterian viewpoint places more emphasis on innovation and the development of new games than it does on competing with powerful incumbents who have the advantage of setting the pace in the market and have perfected the methods for doing so (Christensen, 2010; Foster & Kaplan, 2011). The value of the current resources of companies has constantly increased and maintains their dynamic capability potentials through a flexible adaptation method in their environment. The theory has important implications for the present study on human capacity training and its effect on the productivity of workplaces. By emphasising the importance of adaptation and innovation, dynamic capabilities theory provides insights into how firms can nurture, develop and boost their capability to respond to changing market conditions and sustain productivity and competitive edge over time. Additionally, highlighting the pivotal role of effective resource sharing, knowledge transfer, strategy reconfiguration and capability development in the growth and success of organisations. Overall, the above theory is highly relevant to the study of organisational development and the performance of an organisation in order to achieve long-term goals in a competitive environment.

2.2 Human Capacity Training

Training is a crucial aspect of human resource management in organisations, as it plays a vital role in enhancing employee skills, knowledge, and performance. Development, on the other hand, ‘involves activities that prepare employees for future roles and responsibilities within the organisation’. Human capacity training encompasses various activities such as on-the-job training, formal education, coaching, and mentoring designed to enhance individual and organisational performance (Beardwell, 2019). It also involves coaching employees on specific tasks and procedures related to their current role, while development focuses on helping employees acquire new skills and knowledge to prepare them for future responsibilities and challenges (Noe, 2017). In recent times, human capacity training now involves mechanisms and conditions that help relieve stress being experienced in the workplace by employees (Masejane, Ukpere & Monyei, 2025). Both human capacity training and development are very important in improving employee productivity, morale, and job satisfaction (Lingham, 2018). Human capacity training is integral to the success of organisations as it helps in the growth and development of employees, such as enhancing their performance, and ultimately driving organisational success (Akhigbe *et al.,* 2020). By investing in human capacity training programmes, organisations can build a skilled workforce that is adaptable, motivated, and capable of meeting the evolving demands of the business environment (Lingham, 2018). Through it, employees learn new methods on how to carry out their functions and also inculcate best practices, which can lead to greater efficiency and innovation within the organisation (Hingston *et al*., 2022). Human capacity training impacts employee engagement and retention, making employees feel supported and valued by their organisation. They are more likely to be satisfied with their job and remain loyal to their employer. It increases employees' morale, lowers turnover rate, and creates a more stable and productive workforce (Kraiger *et al.,* 2019). Another important benefit of human capacity training is its impact on organisational culture. A culture of continuous learning and improvement can be built at the management level of the organisation, which can increase collaboration, communication, and teamwork among employees, as well as a shared commitment to organisational goals and objectives. In order to implement effective human capacity training programmes, organisations must consider several key factors according to Yuan *et al.* (2023). First, it is important to identify the skills and knowledge lacking in the workers through methods like performance evaluations, skills assessments, and employee feedback. By understanding where the organisational training needs lie, they usually solve the problems through training programs. Secondly, organisations should consider the most appropriate delivery methods for their training programmes, such as traditional classroom training, online courses, on-the-job training, workshops, and seminars. By offering a variety of training options, organisations can accommodate different learning styles and preferences among their employees (Alagaraja & Kesh, 2020). Furthermore, organisations should also consider the role of technology in their human capacity training. With advancements in digital tools, distance and e-learning platforms, organisations can now deliver human capacity training programmes more efficiently and effectively (Nwalia, Arachie, Monyei & Ukpere, 2024). This can help reduce training costs, increase accessibility for remote employees, and provide employees with the ability to learn on their own in their free time. Evaluating effective and efficient training cannot be overemphasised in human capacity training programmes. By collecting feedback from employees, tracking key performance metrics, and conducting post-training assessments, organisations can amend their training needs. Human capacity trainings are an essential component of organisational success (Thomsen et al., 2022). By implementing effective training programmes that address specific skills and knowledge gaps, utilise a variety of delivery methods, leverage technology, and evaluate programme effectiveness, organisations can have a competitive advantage over their competitors.

2.3 Workplace Productivity

The performance of organisations has become a vital concern in the business world, with increasing focus on productivity as a key indicator of success. It is often viewed as a critical factor that influences an organisation's success and sustainability because it directly impacts their ability to compete in the market, generate profits, and create value for stakeholders. Productivity is the ratio of output to input in a production process, and it is commonly used as a measure of efficiency and effectiveness in businesses (Hadi et al., 2021). It pertains to how an organisation utilises its resources to achieve its objectives and goals. Organisational productivity is essential for their capacity to survive and expand in a competitive environment. High productivity levels enable an organisation to produce more outputs with the same input, resulting in higher profitability, competitiveness, and sustainability (Brown & Wilson, 2020). An organisation that aims to enhance productivity can attain better financial results, boost market competitiveness, and ultimately secure long-term sustainability (Llopis et al., 2020). By streamlining their operations and processes, organisations can cut costs, increase output, and improve the quality of their products or services. This can lead to greater customer satisfaction, increased customer loyalty, and a more consistent revenue stream. Moreover, a focus on productivity can assist organisations in adapting to technological advancements and other changes (Johnson & Williams, 2022). By continuously monitoring and improving productivity levels, organisations can better navigate challenging situations in an ever-evolving business environment. Enhancing productivity results in heightened competitiveness, profitability, and overall success. One vital aspect of organisational productivity is the efficient management of human resources. Research indicates that committed employees are more productive and tend to produce quality output (Bakker & Demerouti, 2018). Employee engagement encourages various approaches that foster a positive work environment (Macey & Schneider, 2018). Furthermore, effective communication and collaboration within an organisation are crucial for boosting productivity. When team members communicate effectively, exchange ideas, and work together towards shared goals, productivity is likely to improve (Singh & Deshmukh, 2022). This can be achieved through communication tools, team-building exercises, and regular feedback sessions. Additionally, leveraging technology and automation can significantly enhance organisational productivity. For example, implementing tools that streamline processes, minimise errors, and boost efficiency (Cooper & Patel, 2021). Overall, organisational productivity is a concept influenced by multiple factors such as employee engagement, communication, collaboration, and technology. By managing these elements effectively, organisations can enhance their productivity and ultimately achieve their objectives.

3. Methodology

The research design employed for this study is a descriptive survey with a quantitative component. To gather information from the respondents, cross-sectional methods were employed. Understanding the actual condition of things without any influence is ensured by descriptive research design, which guarantees that the true behaviours of the variables and phenomena under study are captured exactly as they are collected, without any manipulation. By analysing frequencies, percentages, and graphical representations of the data, researchers can gain insights into relationships and trends that may exist within the dataset. Furthermore, it enables researchers to make comparisons between different groups or variables and calculate measures such as proportions and percentages. They can compare the characteristics of different subgroups within the dataset and identify any significant differences. A total of two hundred and four (204) copies of the questionnaire were administered to the staff members of the selected healthcare centre in Cross River State. Upon administration of the instrument or questionnaire, one hundred and eighty-six (186) copies representing 91.2 per cent were appropriately filled and returned. This implied that the workable sample size for the study was one hundred and eighty-six. The data obtained for each of the items contained in the instrument were presented in the tables below, using frequency tables and simple percentages. The study used a structured questionnaire as a primary source of data collection to obtain first-hand information. Questions that were raised in the questionnaire were based on the specifics of the research variables. The data collection method was purely hand delivery; the staff members of the selected healthcare centre were met

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at their various departments as well as offices and duly administered the questionnaire. While in designing the research instrument, a structured questionnaire was chosen consisting of two (2) parts: The First part was centred on respondents' demographic information, and the second part focuses on eliciting information based on related literature and research objectives. The questionnaire items in this section were structured utilizing the 5 points Likert scale for the respondents to indicate the extent of their agreement or disagreement with the statement in the following order: strongly agree (SA) 5, agree (A) 4, undecided (U) 3 disagree (D) 2, and strongly disagree (SD) 1. Lastly, to ensure the appropriateness of the content of the research instrument, expert opinions were solicited for final scrutiny, vetting and corrections, which further validates the instrument. The reliability of the research instrument connotes the consistency and stability of the instrument in measuring what it was intended to measure. Using the test-retest method, a pilot study was conducted in the University of Calabar Teaching Hospital, Calabar. Three weeks later, the same set of instruments was administered to the selected respondents who participated in the first test to ascertain response consistency. The alpha coefficient index (α) was calculated from the pilot test after administration of the research instrument to determine its reliability, and the result ranged from 0.723 to 0.835, indicating a high reliability.

4. Data Analysis

Table 1: ***Respondents' responses to human capacity training***

SN	Items	SA	A	SD	D	U
1	The organisation provides sufficient opportunities for training	86 (46.2%)	59 (31.7%)	30 (16.1%)	10 (5.4%)	1 (.5 %)
2	The organisation's development programmes are effective in preparing employees for leadership roles	74 (39.8%)	85 (45.7%)	18 (7.9%)	8 (4.3%)	1 (.5 %)
3	The organisation encourages all employees to participate in capacity-building activities	93 (50.0%)	58 (31.2%)	17 (9.1%)	17 (9.1%)	1 (.5 %)
4	The organisation recognises and rewards employees who show strong leadership potential	62 (33.3%)	55 (29.6%)	44 (23.7%)	24 (12.9%)	1 (.5 %)
5	The organisation's teaching efforts have positively impacted overall organisational growth and success	46 (24.7%)	79 (42.5%)	35 (18.8%)	25 (13.4%)	1 (.5 %)

Source: Fieldwork, 2025

Table 1 shows responses to the training. The first item reveals that 86 respondents (46.2%) strongly agreed that their organisation provides sufficient opportunities for training. 59 respondents (31.7%) agreed, 30 respondents (16.1%) disagreed, 10 respondents (5.4%) strongly disagreed, and 1 respondent (0.5%) was undecided on this. There was no missing value on this item.

The second item in the table shows that 74 respondents (39.8%) strongly agreed that the organisation's training programs are effective in preparing employees for leadership roles. 85 respondents (45.7%) agreed, 18 respondents (7.9%) disagreed, 8 respondents (4.3%) strongly disagreed, and 1 respondent (0.5%) was undecided on this. There was no missing value on this item.

The third item in the table shows that 93 respondents (50.0%) strongly agreed that their organisation encourages all employees to participate in training development activities. 58 respondents (31.2%) agreed, 17 respondents (9.1%) disagreed, 17 respondents (9.1%) strongly disagreed, and 1 respondent (0.5%) was undecided on this. There was no missing value on this item.

The fourth item in the table reveals that 62 respondents (33.3%) strongly agreed that their organisation recognises and rewards employees who show strong leadership potential. 55 respondents (29.6%) agreed, 444 respondents (23.7%) disagreed, 24 respondents (12.9%) strongly disagreed, and 1 respondent (0.5%) was undecided on this. There was no missing value on this item.

The fifth item in the table reveals that 46 respondents (24.7%) strongly agreed that their organisation's training development efforts have positively impacted overall organisational growth and success. 79 respondents (42.5% cent) agreed, 35 respondents (18.8%) disagreed, 25 respondents (13.4%) strongly disagreed, and 1 respondent (0.5%) was undecided on this. There was no missing value on this item.

Table 2: ***Respondents' responses to productivity***

S/N	Item	SA	A	D	SD	U
1	The organisation effectively uses resources to achieve goals	68 (36.6%)	55 (29.6%)	35 (18.8%)	26 (14.0%)	2 (1.1%)
2	Employees are motivated and committed to their work	92 (49.5%)	52 (28.0%)	14 (7.5%)	26 (14.0%)	2 (1.1%)
3	The organisation consistently meets deadlines and deliverables	55 (29.6%)	68 (36.5%)	34 (18.3%)	27 (14.5%)	2 (1.1%)

S/N	Item	SA	A	D	SD	U
4	Communication within the organisation is efficient and effective	66 (35.5%)	63 (33.9%)	29 (15.6%)	24 (12.9%)	4 (2.2%)
5	The organisation continuously improves processes to increase productivity	89 (47.8%)	64 (34.4%)	18 (9.7%)	13 (7.0%)	2 (1.1%)

Source: Field survey, 2025

Table 2 depicts respondents' opinions on organisational productivity. The first item in the table reveals that 68 respondents (36.6%) strongly agreed that their organisation effectively uses resources to achieve goals. 55 respondents (29.6%) agreed, 35 respondents (18.8%) disagreed, 26 respondents (14.0%) strongly disagreed, and 2 respondents (1.1%) were undecided. There was no missing value on this item.

The second item in the table shows that 92 respondents (49.5%) strongly agreed that employees are motivated and committed to their work. 52 respondents (28.0%) agreed, 14 respondents (7.5%) disagreed, 26 respondents (14.0%) strongly disagreed, and 2 respondents (1.1%) were undecided on this. There was no missing value on this item.

The third item in the table shows that 55 respondents (29.6%) strongly agreed that their organisation consistently meets deadlines and deliverables. 68 respondents (36.5%) agreed, 34 respondents (18.3%) disagreed, 27 respondents (14.5%) strongly disagreed, and 2 respondents (1.1%) were undecided on this. There was no missing value on this item.

The fourth item in the table reveals that 66 respondents (35.5%) strongly agreed that communication within the organisation is efficient and effective. 63 respondents (33.9%) agreed, 29 respondents (15.6%) disagreed, 24 respondents (12.9%) strongly disagreed, and 4 respondents (2.2%) were undecided on this. There was no missing value on this item.

The fifth item in the table reveals that 89 respondents (47.8%) strongly agreed that the organisation continuously improves processes to increase productivity. 64 respondents (34.4%) agreed, 18 respondents (9.7%) disagreed, 13 respondents (7.0%) strongly disagreed, and 2 respondents (1.1%) were undecided on this. There was no missing value on this item. There was no missing value on this item.

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4.1 Test of Hypotheses

Ho_1: There is no significant effect of human capacity training on the productivity of healthcare centres in Cross River State, Nigeria.

H_{A1}: There is a significant effect of human training on the productivity of healthcare centres in Cross River State, Nigeria.

Table 3: ***Regression analysis of the effect of human capacity training on productivity***

Model	R	R square	Adjusted R square	Std error of the estimate	
1	.708[a]	.501	.499	3.22356	
Model	Sum of square	Df	Mean square	F	p-value
Regression	1912.789	1	1912.789	184.076	.000[b]
Residual	1901.611	183	10.391		
Total	3814.400	184			
Variables	Unstandardized Coefficient B	Standard error	Standardized coefficient Beta	t	p-value
(Constant)	2.698	.767		3.516	.001
Human Capacity Training	.754	.056	.708	13.567	.000

Source: SPSS output, 2025

The first hypothesis focused on the effect of human capacity training on the productivity of healthcare centres in Cross River State, Nigeria. The results of the analysis regarding the research question and hypotheses were presented in Table 3 above. The table indicates a positive R value, which signifies a positive relationship between human capacity training and productivity. The table also shows an adjusted R-squared value of 0.499. This value indicates that human capacity training accounts for 49.9% of the variance in productivity. Furthermore, the table also indicates the ANOVA section, which is a test of the hypothesis postulated. Table 3 shows an F-ratio of 184.076 and a p-value of 0.000. Given the p-value, which is less than the alpha level of 0.05, the null hypothesis, which states that there is no significant effect of human capacity training on productivity, is therefore rejected. This implies that there is a significant effect of human capacity training on the productivity of healthcare centres in Cross River State, Nigeria. This significant effect is affirmed in the t-value section of the table, which also has a p-value of 0.000. Moreover, the t-value section of the table, in addition to providing the p-value, has the standardised coefficient value of 0.708. This section of the results implies that for every unit of variation in human capacity training, there is 70.8% of variation in productivity. Therefore, the summary of the analysis concerning the testing of the hypothesis is that there is a statistically significant effect of human capacity training on the productivity of healthcare centres in Cross River State, Nigeria.

4.2. Discussion of Findings

The result of the study's hypotheses revealed that there is a significant effect of human capacity training on the productivity of healthcare centres in Cross River State, Nigeria. This implies that investing in employees' capacity training leads to improved job performance, increased job satisfaction, and ultimately higher levels of productivity within an organisation. This was supported by Baldwin et al. (2017), who found that organisations that provided ongoing training opportunities for their employees experienced higher levels of productivity compared to those that did not. This is also supported by the work of Noe (2023), who stated that training programmes can help employees acquire the necessary skills and knowledge to perform their jobs more effectively, leading to increased productivity. A similar finding was revealed by Mathis and Jackson (2021), who suggested that training can also have a positive impact on employee motivation and engagement, which are important factors in driving productivity. When employees feel supported and valued through training opportunities, they are more likely to be committed to their work and strive for higher levels of performance. Also, research by Ahmad and Schroeder (2023) found that organisations that invest in training programs tend to have lower turnover rates and higher levels of employee retention. This is important because retaining skilled and experienced employees can contribute to a more productive workforce.

5. Conclusion, Recommendation and Future Research Avenues

Establishing a consistent platform for human capacity training is essential to a firm's ability to sustain a learning environment where staff can utilise their core competencies and resources. Since it is a tried-and-true fact that developing the human capacity consistently improves the productivity of both firm and staff, its profitability in services offered, therefore, its ability to leverage the skills and engagement of the workforce is crucial in determining its long-term innovativeness and viability. In conclusion, by implementing human capacity training, organisations can enhance their efficiency and productivity. It can also enhance overall success and sustainability in the healthcare centres in Cross River State, Nigeria. Through continuous assessment and improvement, organisations can strengthen their internal processes, build a strong organisational culture, and foster innovation and growth.

It was recommended that healthcare centres in Cross River State, Nigeria, as well as other workplaces, must invest in employee development and on-the-job training programmes to enhance their practical skills, knowledge, and competencies within the sector for greater productivity and efficiency.

In light of this, future research should investigate how workforce's capacity for training affects their innovativeness. It should also broaden the industry's focus to include the manufacturing and hospitality sectors and examine how the intricate business environment influences their operations.

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THE EFFECT OF INCREMENTAL CHANGE MANAGEMENT STRATEGY ON THE EFFICIENCY OF HEALTH CENTRES IN AN EMERGING ECONOMY

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Abstract

Incremental change management refers to the gradual and continuous process of implementing small-scale changes within an organisation, as opposed to radical or transformational changes that can disrupt existing systems and cultures. This approach is increasingly recognised as a vital measure of organisational development, as it allows organisations to adapt to evolving environments while minimising resistance and maintaining stability. In this study, the effectiveness of general hospitals in Cross River State will be examined in relation to incremental change management approach. The study's research design was a descriptive survey. In all, 204 copies of the survey were distributed to employees at the chosen general hospitals in Cross River State. Upon administration of the instrument or questionnaire, one hundred and eighty-six (186) copies representing 91.2 per cent were appropriately filled and returned. The data was collected using a standardised questionnaire that was validated by specialists. The test-retest approach was utilised to determine reliability, and the results ranged from 723 to 835. The collected sample was presented and analysed using frequency tables and simple percentages, while hypotheses were tested using simple regressions. The findings revealed a significant effect of incremental change management process on the efficiency of General Hospitals in Cross River State. The study therefore recommended that General Hospitals in Cross River State, as well as other organisations, should invest in incremental change management approach in order to make necessary and gradual improvements and adjustments to existing systems and processes.

Keywords: *efficiency, environment, health centres, incremental change management, implementation, transformation.*

JEL Classification: D2, H51, L2, M10, M19, L32, I18, I15, O32, O21, O33

1. Introduction

One of the most crucial components of effective business management is change. Additionally, since change is unavoidable in any organisation's history, managers must positively embrace it and prepare for it to stay successful in increasingly competitive marketplaces (Ugwu et al., 2020). Change cannot be avoided in organisations. Managers need to change to manage their organisation and improve the standard and competitiveness of the organisation. In coping with increasingly complex technology, managers in the organisations also need to change. This is the reason why this study has been conducted to promote incremental change management in hospitals as well as other organisations. It is also to achieve the organisation's goal. Managers need to learn how to create and lead teams that are adept at anticipating the future and turning their ideas into solutions. Most workplaces, like health centres, are involved in intervention or change management but have always been unsatisfied as a result of not incorporating proper risk management practices or making adequate use of their organisational resources (Monyei, Aiyelabegun, Kelvin-Iloafu & Ukpere, 2023; Dawson, 2013). Public and private hospitals are being pressured by technology, rivals, and regulators to alter their organisational structures, policies, and procedures to enhance their overall operations (Phillips et al., 2023). Hashim et al. (2024) assert that gradual change results in long-term, organisational-wide problems. Therefore, it covers the organisation's purpose and objective, in addition to concentrating on guiding the organisation towards a desirable future state. According to Monyei, Ukpere & Nnabugwu (2023), Udeh and Igwe (2013), although change can be frightening and confusing, if managed well, it can have a number of beneficial consequences on organisational performance.

Change can make it easier to assess how well an organisation is doing at creating change management policies. This suggests that change management aids in an organisation's policy change implementation. On the other hand, the organisation's systems serve to reduce the potential negative consequences on management and personnel (Westenholz, 2013). Additionally, it is worth noting that the organisations' incremental change management procedures are not without issues. Top management always manipulates pertinent change management data to suit their interests. Also, a key advantage of incremental change is its lower risk profile compared to radical change initiatives. Large-scale transformations often encounter resistance from employees, who are not satisfied with the company's change management process. In contrast, incremental changes are typically less disruptive and can be more easily integrated into existing workflows. Monyei et al., (2023b) further stated that this gradual approach allows organisations to build momentum and foster a progressive belief that will encourage employees to contribute ideas and participate in the change process. Incremental change

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management processes have received much attention, but organisations continue to have problems in managing them. It is obviously evidence that the incremental change management is inadequate to address the different approaches and methods that are involved in the organisation. In the case of general hospitals, the management has made efforts to make the system efficient and effective for Nigerians. This has led to different change initiatives in the health sector as a whole. This study therefore proposes to assess the impact of incremental change management process on the efficiency of general hospitals in Cross River State, Nigeria.

1.1 Research Objective

Investigate the effect of the incremental change management process on the efficiency of health centres in Cross River State, Nigeria.

2. Literature Review

Below is the review of literatures related to the current study.

2.1 Dynamic Capabilities Theory by David Teece, 1997

This study adopts the Dynamic Capabilities Theory (DCT) as proposed by David Teece in 1997 to support its conduct. A firm's competitive advantage and long-term performance are largely determined by its capacity to continuously adapt, integrate, and reconfigure its resources and capabilities in response to shifting market conditions, according to the dynamic capabilities' theory. The theory argues that firms that are able to continuously innovate and adapt to their environment will outperform their competitors. Organisational development can help businesses develop the necessary dynamic capabilities by offering access to training, workshops, and expertise that can enable them to innovate, differentiate themselves from competitors, and sustain their growth in the long run. Among the presumptions of dynamic capabilities theory are the following: that businesses can learn to recognise, grasp, and change opportunities in their surroundings; that resources and capabilities are the main sources of competitive advantage; and that businesses operate in a dynamic and unpredictable environment. Other scholars, such as Eisenhardt and Martin (2000) and Winter (2003), have made important contributions to the development of dynamic capacities theory by delving deeper into the idea of organisational growth and its effects on sustainability and firm performance.

According to Grant (1996), dynamic capabilities are the organisational and strategic practices that managers use to modify their resource base. Additionally, they gather, distribute, integrate, and recombine resources to create new methods

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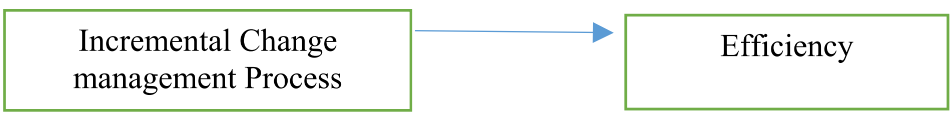
that create value. With regards to the dynamic capability approach, emphasis is placed on the development of resources with rent-generation potential rather than possession (Vinayan et al, 2012). Teece et al. (1997), Eisenhardt and Martin (2000), and Zollo and Winter (2012) claim that the dynamic capability approach mimics the ideas of evolutionary economics (Nelson & Winter, 2014) and Schumpeterian theory (Schumpeter, 1934). The Schumpeterian viewpoint places more emphasis on innovation and the development of new games than it does on competing with powerful incumbents who have the advantage of setting the pace in the market and have perfected the methods for doing so (Christensen, 2010; Foster & Kaplan, 2011). The value of the current resources of companies has constantly increased and maintains their dynamic capability potentials through a flexible adaptation method in their environment. The theory has important implications for the study of organisational development and the performance of organisations. By emphasising the importance of adaptation and innovation, dynamic capabilities theory provides insights into how developed firms can develop the ability to respond to changing market conditions and sustain competitive advantage over time. Additionally, the theory highlights the role of resource reconfiguration and capability development in the growth and success of organisations. Overall, the above theory is highly relevant to the study of organisational development and the performance of an organisation in order to achieve long-term goals in a competitive environment.

2.2 Conceptual framework



2.3 Incremental Change Management Process

In the dynamic landscape of contemporary organisations, the ability to adapt and evolve is paramount for sustained success. Incremental change management, characterised by small, gradual adjustments rather than sweeping transformations, has emerged as a significant approach to fostering organisational development. According to Monyei et al., (2023a), and Dawson (2023), incremental change management refers to the gradual and continuous process of implementing small-scale sustainable strategies and changes within an organisation, as opposed to radical or transformational changes that can disrupt existing systems, modus oprandi and cultures. This approach is increasingly recognised as a vital measure of organisational development, as it allows organisations to adapt to evolving environments while minimising resistance and maintaining stability. Incremental change management is essential in facilitating adaptability and resilience. Furthermore, they respond to external pressures, such as technological advancements, market fluctuations, and shifts in consumer preferences (Burnes, 2024). This adaptability is essential for long-term sustainability and competitiveness. One of the key advantages of incremental change is its lower risk profile compared to radical change initiatives. Large-scale transformations often encounter resistance from employees, who are not satisfied with the company's change management process (Monyei et al., 2023b; Graves et al., 2023). In contrast, incremental changes are typically less disruptive and can be more easily integrated into existing workflows. This gradual approach allows organisations to build momentum and foster a progressive belief that will encourage employees to contribute ideas and participate in the change process (Senge, 2019). This participatory approach not only enhances morale but also leverages the collective intelligence of employees, which can lead to the introduction of new things (Bessant & Tidd, 2021).

In practice, incremental change management can be applied across various organisational dimensions, including processes, technologies, and employee engagement. For example, organisations may implement small changes in their operational processes to enhance efficiency, such as streamlining workflows or adopting new software tools. These changes, while seemingly minor, can lead to significant improvements in productivity and employee satisfaction over time (Hammer & Champy, 2023). Moreover, incremental change can be instrumental in fostering new beliefs. By encouraging employees to experiment with new ideas and practices, organisations can create an environment where continuous improvement is valued. This strategy fits the idea of ambidexterity, which advises businesses to strike a balance between taking advantage of their current strengths and looking for new ones (Tushman & O'Reilly, 2016). Incremental change management also allows organisations to mitigate risks associated with change. Large-scale transformations often come with significant uncertainties from unsatisfied employees in their work environment (Armenakis & Bedeian, 2019). In contrast, incremental changes are less likely to provoke fear and anxiety, as they are perceived as manageable and less disruptive. This gradual approach enables organisations to test new ideas and processes on a smaller scale, gather feedback, and make necessary adjustments before broader implementation (Dawson, 2023).

Moreover, incremental change aligns well with the principles of agile management, which emphasise flexibility and responsiveness to change. Agile

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methodologies advocate for iterative development and regular reassessment of goals and processes, allowing organisations to adapt quickly to market demands and technological advancements (Highsmith, 2019). By adopting an incremental change management strategy, organisations can remain competitive in fast-paced environments, ensuring that they are not only reactive but also proactive in their development efforts. Incremental change management serves as a vital measure of organisational development, enabling organisations to adapt and thrive in an ever-changing environment. By focusing on small, continuous improvements, organisations can enhance their resilience, foster a culture of innovation, and achieve sustainable growth.

2.4 Organisational Efficiency

Organisational efficiency is a key principle in management that focuses on maximising output with minimal input, ultimately leading to improved performance and productivity. It involves the effective and efficient utilisation of resources, processes, and people within an organisation to achieve its goals and objectives. Various factors contribute to organisational efficiency, including clear communication, streamlined processes, effective leadership, and appropriate use of technology, motivated and skilled employees, and a strong organisational culture (Brynjolfsson & Hitt, 2020). When these elements are well-aligned and functioning together harmoniously, organisations can optimise their performance and achieve sustainable success. One of the key components of organisational efficiency is effective leadership. Organisational leaders set the tone by giving guidance and inspiring staff to give their best efforts. Effective leadership significantly affects the entire performance and efficiency of the organisation, according to a study by O'Reilly, Caldwell, and Barnett (2021). Another important factor in organisational efficiency is the utilisation of technology. By leveraging the right tools and systems, organisations can automate processes, improve communication, and enhance decision-making processes. Brynjolfsson and Hitt (2020) found that organisations that effectively use technology achieve higher levels of efficiency and competitiveness. Furthermore, organisational efficiency can be enhanced through the development of a strong organisational culture. A positive culture that promotes collaboration, innovation, and continuous improvement can foster a high-performance environment and drive efficiency. According to a study by Cameron and Quinn (2021), organisations with a strong culture are more likely to achieve greater levels of efficiency and performance. In conclusion, organisational efficiency is essential for the success and sustainability of any organisation. By

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focusing on factors such as effective leadership, technology utilisation, and organisational culture, organisations can streamline their processes, improve performance, and achieve their strategic objectives.

2.5 Empirical Insight

Brown and White (2021) examined the effect of organisational development interventions on performance: evidence from a manufacturing firm in Canada. The study adopted a quasi-experimental design with a sample size of 100 employees from a manufacturing firm selected using a randomised control trial. The data collection method was surveys and performance metrics analysis, and the data were analysed using regression analysis. The study found a significant improvement in organisational performance after the implementation of organisational development interventions in the manufacturing firm.

The effect of organisational development on the performance of Australian IT organisations was investigated by Johnson and Williams (2020). In particular, the study looks at how organisational performance is affected by organisational development in the field of change management. For the study, survey research was used, and a sample size of 200 IT professionals was chosen using the convenience sampling methodology. Data was collected using online surveys, and structural equation modelling was used for analysis. The study found that effective change management and organisational development practices positively influenced the performance of IT organisations.

Lee and Clark (2023) examined the role of organisational development in improving organisational efficiency in Australia. In particular, the study looked at how succession planning, performance management, change management, and leadership development affected organisational performance. One hundred employees, chosen by random sampling, made up the sample size for the cross-sectional survey. The data collection method was surveys and performance metrics analysis and was analysed using regression analysis. Findings revealed that organisational development significantly improved organisational efficiency through effective change management processes and performance management systems.

3. Research Methodology

The research design employed for this study is a descriptive survey with a quantitative component. To gather information from the respondents, cross-sectional methods were employed. Understanding the actual condition of things without any influence is ensured by descriptive research design, which guarantees that the true behaviours of the variables and phenomena under study are captured exactly as they are collected, without any manipulation. By analysing frequencies, percentages, and graphical representations of the data, researchers can gain insights into relationships and trends that may exist within the dataset. Furthermore, it enables researchers to make comparisons between different groups or variables and calculate measures such as proportions and percentages. They can compare the characteristics of different subgroups within the dataset and identify any significant differences.

A total of two hundred and four (204) copies of the questionnaire were administered to the staff members of the selected General Hospitals in Cross River State. Upon administration of the instrument or questionnaire, one hundred and eighty-six (186) copies representing 91.2 per cent were appropriately filled and returned. This implied that the workable sample size for the study was one hundred and eighty-six. The data obtained for each of the items contained in the instrument were presented in the tables below, using frequency tables and simple percentages. The study used a structured questionnaire as a primary source of data collection to obtain first-hand information. Questions that were raised in the questionnaire were based on the specifics of the research variables. The data collection method was purely hand delivery; the staff members of the selected General Hospitals were met at their various departments as well as offices and duly administered the questionnaire. While in designing the research instrument, a structured questionnaire was chosen consisting of two (2) parts: The First part was centred on respondents' demographic information, and the second part focuses on eliciting information based on related literature and research objectives. The questionnaire items in this section were structured utilizing the 5 points Likert scale for the respondents to indicate the extent of their agreement or disagreement with the statement in the following order: strongly agree (SA) 5, agree (A) 4, undecided (U) 3 disagree (D) 2, and strongly disagree (SD) 1.

Lastly, to ensure the appropriateness of the content of the research instrument, expert opinions were solicited for final scrutiny, vetting and corrections, which further validates the instrument. The reliability of the research instrument connotes the consistency and stability of the instrument in measuring what it was intended to measure. Using the test-retest method, a pilot study was conducted in the University of Calabar Teaching Hospital, Calabar. Thirty copies of the questionnaire were administered to thirty staff members of the University of Calabar Teaching Hospital, Calabar. Three weeks later, the same set of instruments was administered to the selected respondents who participated in the first test to ascertain response consistency. The alpha coefficient index (α) was calculated from the pilot test after administration of the research instrument to determine its reliability, and the result ranged from 0.723 to 0.835, indicating a high reliability, as shown in Table 1 below.

Table 1: ***Reliability Test***

Variables	Mean	Std. Deviation	Cronbach's α	No of Items
Incremental change management strategy	14.1190	2.95102	.723	5

Source: Researcher's Compilation from Field Survey, 2025 using IBM's SPSS '22.

4. Data Analysis

Table 2: ***Respondents' Responses to Incremental Change Management Strategy***

S/N	Items	SA	A	D	SD	U
1	My organisation anticipates and plans for change to remain current	66 (35.5%)	61 (32.8%)	32 (17.2%)	27 (14.5%)	0 (0.0%)
2	• My organisation monitors changes in the environment and aligns accordingly	57 (30.6%)	45 (24.2%)	43 (23.1%)	40 (21.5%)	1 (0.5%)
3	• My organisation is proactive in adopting new technology and processes to remain current in the industry	68 (36.6%)	61 (32.8%)	29 (15.6%)	26 (14.0%)	2 (1.0%)
4	• My organisation also embraces new technology and processes to stay ahead of the competition	95 (51.1%)	53 (28.5%)	18 (9.7%)	19 (10.2%)	1 (0.5%)
5	• My organisation consistently communicates the reasons for change and actively involves employees in the change process	88 (47.3%)	69 (37.1%)	15 (8.1%)	13 (7.0%)	1 (0.5%)

Source: Field survey, 2025

Table 2 depicts respondents' opinions on the incremental change management process. The first item in Table 2 reveals that 66 respondents (35.7%) strongly agreed that their organisation anticipate and plans for change to remain current. 61

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respondents (32.8%) agreed, 32 respondents (17.2%) disagreed, and 27 respondents (14.5%) strongly disagreed on this. There was no missing value on this item.

The second item in the table shows that 52 respondents (30.6%) strongly agreed that their organisation monitor changes in the environment and aligns accordingly. 45 respondents (24.2%) agreed, 43 respondents (23.1%) disagreed, 40 respondents (21.5%) strongly disagreed, and 1 respondent (0.5%) was undecided on this. There was no missing value on this item.

The third item in the table shows that 68 respondents (36.6%) strongly agreed that their organisation is proactive in adopting new technology and processes to remain current in the industry. 61 respondents (32.8%) agreed, 29 respondents (15.6%) disagreed, 26 respondents (14.0%) strongly disagreed, and 2 respondents (1.0%) were undecided on this. There was no missing value on this item.

The fourth item in the table reveals that 95 respondents (51.1%) strongly agreed that their organisation also embrace new technology and processes to stay ahead of the competition. 53 respondents (28.5%) agreed, 18 respondents (9.7%) disagreed, 19 respondents (10.2%) strongly disagreed, and 1 respondent (0.5%) was undecided on this. There was no missing value on this item.

The fifth item in the table reveals that 88 respondents (47.3%) strongly agreed that their organisation consistently communicates the reasons for change and actively involves employees in the change process. 69 respondents (37.1%) agreed, 15 respondents (8.1%) disagreed, 13 respondents (7.0%) strongly disagreed, and 1 respondent (0.5%) was undecided on this. There was no missing value on this item.

Table 3: ***Respondents' Responses to Organisational Efficiency***

S/N	Items	SA	A	D	SD	U
1	The organisation effectively utilises its resources to achieve its goals	74 (39.8%)	85 (45.7%)	18 (7.9%)	9 (4.8%)	0 (0.0%)
2	The organisation has clear and streamlined processes in place for decision-making and problem-solving	56 (30.1%)	62 (33.3%)	44 (23.7%)	24 (12.9%)	0 (0.0%)
3	Employees are encouraged and provided with opportunities to continuously improve their skills and performance	57 (30.6%)	46 (24.7%)	43 (23.1%)	39 (21.0%)	1 (0.5%)

S/N	Items	SA	A	D	SD	U
4	Communication within the organisation is efficient and transparent	61 (32.8%)	68 (36.6%)	29 (15.6%)	26 (14.0%)	2 (1.0%)
5	The organisation demonstrates a high level of adaptability and responsiveness to changes in the external environment	78 (45.0%)	72 (38.7%)	22 (11.8%)	12 (5.5%)	2 (1.1%)

Source: Field survey, 2025

Table 3 depicts respondents' opinions on organisational efficiency. The first item in the table above shows that 74 respondents (39.8%) strongly agreed that their organisation effectively utilises its resources to achieve its goals. 85 respondents (45.7%) agreed, 18 respondents (7.9%) disagreed, and 9 respondents (4.3%) strongly disagreed on this. There was no missing value on this item.

The second item in the table reveals that 56 respondents (30.1%) strongly agreed that their organisation has clear and streamlined processes in place for decision-making and problem-solving. 62 respondents (33.3%) agreed, 44 respondents (23.7%) disagreed, and 24 respondents (12.9%) strongly disagreed on this. There was no missing value on this item.

The third item in the table shows that 52 respondents (30.6%) strongly agreed that employees are encouraged and provided with opportunities to continuously improve their skills and performance. 45 respondents (24.2%) agreed, 43 respondents (23.1%) disagreed, 40 respondents (21.5%) strongly disagreed, and 1 respondent (0.5%) was undecided on this. There was no missing value on this item.

The fourth item in the table shows that 61 respondents (32.8%) strongly agreed that communication within the organisation is efficient and transparent. 68 respondents (36.6%) agreed, 29 respondents (15.6%) disagreed, 26 respondents (14.0%) strongly disagreed, and 2 respondents (1.0%) were undecided on this. There was no missing value on this item.

The fifth item in the table shows that 78 respondents (45.0%) strongly agreed that the organisation demonstrates a high level of adaptability and responsiveness to changes in the external environment. 72 respondents (38.7%) agreed, 22 respondents (11.8%) disagreed, 12 respondents (5.5%) strongly disagreed, and 2 respondents (1.1%) were undecided on this. There was no missing value on this item.

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4.1. Test of Hypotheses

Ho_1: The incremental change management strategy has no significant effect on the organisational efficiency of Health centres.

H_{A1}: The incremental change management strategy has a significant effect on the organisational efficiency of Health centres.

Table 4: ***Regression Analysis of the Effect of Incremental Change Management Strategy on Organisational Efficiency***

Model	**R**	**R square**	**Adjusted R square**	**Std error of the estimate**	
	.763[a]	.582	.579	2.95254	
Model	Sum of square	Df	Mean square	F	p-value
Regression	2219.098	1	2219.098	254.557	.000[b]
Residual	1595.302	183	8.717		
Total	3814.400	184			
Variables	Unstandardized Coefficient B	Standard error	Standardised coefficient Beta	T	p-value
(Constant)	1.837	.709		2.592	.010
ICMP	.858	.054	.763	15.955	.000

Source; SPSS output, 2025

ICMP = incremental change management process

The research hypothesis on the effect of incremental change management strategies on the efficiency of health centres in Cross River State. The results of the analysis regarding the research question and hypothesis were presented in the table above. The table indicates a positive r-value, which signifies a positive relationship between the incremental change management process and efficiency. The table also shows an adjusted R square value of 0.579. This value indicates that the incremental change management process accounts for 57.9% of the variance in efficiency. Furthermore, the table above also indicates the ANOVA section, which is a test of the hypothesis postulated. The table shows an F-ratio of 254.557 and a p-value of .000. Given the p-value, which is less than the alpha level of 0.05, the null hypothesis, which states that there is no significant effect of the incremental change management process on the efficiency, is therefore rejected. This implies that there is a significant effect of the incremental change management process on the efficiency of general hospitals in Cross River State. This significant effect is affirmed in the t-value section of the table above, which also has a p-value of .000. Additionally, the t-value section of the table, in addition to providing the p-value, has the standardised coefficient value of .763. This segment of the results implies that for every unit of variation in the incremental change management process, there is 76.3% of variation in efficiency. Therefore, the summary of the analysis concerning the testing of the hypothesis is that there is a statistically significant effect of the incremental change management process on the efficiency of general hospitals in Cross River State.

5. Discussion of Findings

The findings of the study showed that the efficiency of general hospitals in Cross River State is significantly impacted by the incremental change management approach. The results of this research indicate that by enabling organisations to adjust to shifting surroundings, enhancing employee engagement and happiness, and fostering a continuous improvement culture, incremental change management can increase organisational efficiency. By implementing incremental changes over time, organisations can achieve higher levels of efficiency and success in the long run. This agrees with Burke and Litwin (2019), who found that organisations that implement incremental changes over time are more likely to adapt to changing environments and achieve higher levels of efficiency. This is because incremental changes allow organisations to gradually improve processes, systems, and structures, resulting in continuous improvements in organisational performance. Armenakis and Harris (2019) also found that incremental change management can lead to increased employee satisfaction and commitment, which in turn can improve organisational efficiency. This is because incremental changes are less disruptive to employees and allow them to adapt to changes more easily, leading to higher levels of engagement and productivity. Additionally, research by Burnes (2014) suggests that incremental change management can help organisations to build momentum for change and create a culture of continuous improvement. By making small, incremental changes, organisations can gradually build confidence and support for larger-scale changes in the future, ultimately leading to improved organisational efficiency.

6. Conclusion and Policy Implications

In conclusion, the incremental change management process allows general hospitals to adapt to changing environments, improve employee satisfaction and commitment. It also creates a culture of continuous improvement. An incremental change management process helps organisations to gradually build confidence and support for larger-scale changes in the future, ultimately leading to improved organisational efficiency. Furthermore, organisations work in a dynamic environment, and to stay relevant and gain a competitive advantage, they must periodically evaluate operational strategies, and for operations to continue, incremental change techniques are thus required. It is worthy of note that the primary factors influencing the selection of these change management strategies are the firm's goal and resources. Hence, it is determined that to survive the complexities of the business environment, an incremental change management in operations is required. As a policy implication, the study offers that health centres and workplaces in emerging economies, particularly in Cross River State, Nigeria, should implement change management strategies to effectively manage organisational change and ensure the successful implementation of new initiatives to enhance organisational efficiency. Additionally, before implementing any change strategies, business leaders should ensure that firm operations and the intervention strategies to be adopted align with the available resources.

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MENTAL HEALTH, RELIGION, AND ECONOMIC OUTCOMES: EVALUATING CBT INTERVENTIONS IN SERBIA

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Abstract

Depending on the severity of the symptoms and the clinical picture, depression is usually treated with a combination of medication therapy and certain forms of psychotherapy, of which CBT therapy has proven to be particularly effective. However, an increasing number of practitioners – psychiatrists, psychotherapists, and psychologists – recognize the importance of other types of activities, which can be brought under a certain lifestyle and which can have a protective effect on people's mental health and reduce their level of depression. In the current paper, the possibility of the protective effect of religiosity and finding the meaning of life by turning to God are examined, which would more precisely mean that the subject of the current research could be defined as the examination of the relationship between the level of religiosity and depression in people. Gender differences, as well as differences between persons who declare themselves as members of different religions, are also determined.

The research was conducted online, through a Google questionnaire, on a sample of 400 respondents, uniform by gender, while the data was processed using the SPSS program. The results show the existence of a negative correlation between religiosity and depression, which means that with an increase in the degree of religiosity, depressive symptomatology decreases.

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Depressive symptomatology is more pronounced in women. On the other hand, men are more committed to their relationship with God, more easily declare themselves as members of certain religions and more often practice different religious rituals.

From an economic perspective, these findings suggest that incorporating religiosity into CBT may not only enhance clinical outcomes but also reduce the economic burden of depression in Serbia. Lower levels of depression are linked to increased productivity, reduced absenteeism, and lower healthcare expenditures. Thus, religiosity as a complementary factor to CBT can be viewed as a cost-effective public health strategy, contributing to both improved mental health and broader economic well-being.

Key words: *economic value, cost-effectiveness, health economics, productivity, mental health, well-being, religiosity, Cognitive Behavioral Therapy (CBT), depression*

JEL Classification: I12, I31, Z12

Introduction

Increasing attention is paid to the influence of spirituality and religiosity on mental health. Spirituality is a broad term that can be used to describe the relationship between people and God. Religion can be defined as a set of beliefs and behaviors characteristic of a certain community of people (Hodge 2006). On the other hand, depression is defined as a type of mental disorder in people that ultimately leads to a loss of hope and meaning in life (Dein 2006). In addition to the deterioration of general mental health, depression also affects the decline in quality of life, primarily and most intensively in the elderly population (Cully et al. 2006; Dickens et al. 2006).

Beyond the health consequences, depression also generates a significant economic burden through reduced work productivity, absenteeism, premature retirement, and increased healthcare costs. The World Health Organization estimates that depression is among the leading contributors to global economic losses caused by mental illness, highlighting the importance of interventions that are not only clinically effective but also cost-efficient. Therefore, approaches that can mitigate depressive symptomatology—such as religiosity when combined with cognitive-behavioral therapy (CBT)—may carry considerable economic value by lowering direct treatment costs and improving broader social and economic outcomes.

In addition to the classic treatment of depression, which includes the application of adequate drug therapy in combination with psychotherapy, of which cognitive-behavioral psychotherapy shows good results (Zdravković 1980, 2003), turning to religion has very positive effects on the mental health of people. The cognitive-behavioral approach to depression is reflected in the understanding that for a person's general mental health and level of depression it is not so important what actually happens in his life, but the way he perceives, experiences and connects it with his emotions and behavior. This means that the critical or traumatic event itself will not automatically cause increased depression in all people, but the way it is perceived, the belief in the person's own abilities to adequately overcome it and to find meaning and a way out despite the bad events and situations they are going through.

Whether a person will become apathetic, depressed, sad and uninterested in himself, other people and his future, or whether he will manage to adequately face and overcome life's difficulties will depend to a large extent on: the earliest experiences and early learning, basic beliefs which she formed during her life about herself, other people, the world and the future, the characteristics of the current critical event or situation that is happening to her, the assessment of threats in relation to her own strengths and weaknesses, i.e. her personal competences to deal with them successfully (Clark and Beck 1989).

Various techniques of cognitive restructuring, the aim of which is to change the way of looking at one's own position when encountering critical events and empower a person to move, look at the situation, himself, other people and the future from a different perspective, as well as the behavioral activation itself, which implies that through performing activities that used to bring pleasure to a person slowly comes out of a state of depression, have proven to be very successful and adequate CBT techniques in the treatment of depression (Gautam et al. 2020). There, religiosity as one of the possible ways of activating people towards certain and specific goals has shown its positive effects in reducing the level of depression, with the additional potential of decreasing the economic costs of depression and contributing to the overall well-being and productivity of society.

Literature Review

The relationship between religiosity and different aspects of mental health is very complex and ambiguous, but it certainly deserves the attention of the scientific and professional public. Different correlates of mental health and their connection with religiosity can be observed, among which optimism, the meaning of life, hope, and depression, apathy, anhedonia, and various types of fears, the most prominent of which are the fear of death, are examined on the one hand. Data from the literature are not unambiguous and indicate that this relationship is very complex and dynamic. The results of certain researches have shown that involvement and connection with religious communities and a higher degree of religiosity can have positive effects on mental health (Escher et al. 2006). Some of the possible reasons for such a beneficial effect of religiosity on mental health can be reflected through belonging to a certain religious community, which leads on the one hand to richer social involvement and connection between people, that in itself has a positive effect on the health of everyone, especially the elderly (Krause and Wulff 2005) who are isolated and lonely to a greater extent, and on the other hand it leads to the discovery of a new sense of the meaning of life (Krause 2007), which is especially endangered after certain life crises (Čolović and Mitić 2022a). Certainly, in older people, especially after children leave home and become independent, there is a big void that can be filled by turning to religion and religious activities, which contributes to better mental health and a lower likelihood of depression (Čolović 2017; Čolović and Stojković 2017). Therefore, it is not surprising that in older adulthood, in a certain number of people, there is an increase in the level of religiosity and spirituality as one of the possible ways of overcoming life crises (Aldwin et al. 2009; Čolović and Mitić 2022b, 2025; Milošević and Čolović 2019). Another optimal ways that have a positive impact on reducing depression are increasing responsibility for one's own life through a healthy diet (Mitić and Čolović 2022, Čolović and Mitić 2024a), moderate physical activity (Čolović and Mitić 2023), enjoying travel and learning about new cultures (Čolović and Mitić 2024b, Čolović et al. 2023), and finding a new meaning in life and more meaningful way of living in general (Čolović and Mitić 2022a). All of these optimal ways contribute to better health, and therefore lower economic costs that the state spends on healthcare.

Religiosity can be seen as a very effective and adequate tool for reducing stress levels, according to the results of a study conducted on a sample of 1,431 respondents (Park et al. 2013), as well as for acquiring resilience, i.e. resistance to unpleasant events with which people can meet in life (Manning 2013). Given the fact that stress is one of the inevitable factors in life, which significantly reduces its quality and consequently its length, and is very present in all areas of work and human activity (Čolović et al. 2022), regular activities such as religious as well as the very feeling of belonging to certain religious communities can be very important protective factors and effective ways of combating stress in people.

Greater dedication to religion and spirituality is an important protective factor for mental health, in the sense that it can lead to the absence of depression in people at all, or if it is already present, to the alleviation and minimization of

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depressive symptomatology, i.e. to the acceleration and achievement of positive outcomes treatment (Koenig et al. 2012). Similar results were obtained in a study conducted among college students in the USA, according to which those who report higher levels of religiosity are less likely to suffer from depression (Phillips In addition to belonging to a certain religious community, one of the important factors for reducing the level of depression is designing daily routines and incorporating religious activities into everyday life. Namely, a number of studies indicate that certain forms of religious activities, such as frequent church attendance, are associated with a reduction in stress and depression (Powell, Shahabi and Toresen 2003; Worthington et al. 2003).

Also, a reverse causal relationship can be observed, i.e. the situation that with the onset of depression, people reduce or even completely stop participating in most or all religious activities (Li et al. 2016; VanderWeele et al. 2016). A study (Koenig 2007) on a sample of 996 respondents with symptoms of depression showed that the largest number of people pointed out that they did not have a clear religious affiliation and affiliation to a particular religion and generally showed a low level of religiosity.

A group of researchers (Santero et al. 2019) conducted an extensive study in 4 large cities in South America on a sample of 7,524 respondents and came to the conclusion that there is a connection between the level of religiosity and depression in women, primarily in those older than 65 years. When it comes to men, no connection between religious activities and depression has been established. The aforementioned researchers measured the level of religiosity through a clear declaration of belonging to a certain religious community and the frequency of participation in various religious activities.

Older people (over 60 years old) who express a higher degree of religiosity are less prone to depression and have better health than people who are less religious (Wink et al. 2005). When it comes to adolescents, a stable sense of religiosity better protects them from various types of stressors and depression caused by problems in the sphere of school activities and intimate relationships, primarily friendships (Fruehwirth et al. 2019).

Beyond the psychological and social benefits of religiosity, its impact on economic outcomes has become increasingly evident in the literature. Depression and other mental health disorders impose significant economic costs at both individual and societal levels. These costs include reduced labor productivity, increased absenteeism, higher healthcare expenditures, and greater reliance on social support systems (OECD, 2021; WHO, 2017). By contributing to lower levels of depression and better mental health, religiosity can indirectly enhance workforce productivity and reduce public and private healthcare costs.

Several studies suggest that interventions which integrate religious or spiritual practices alongside standard treatments like cognitive-behavioral therapy (CBT) may not only improve clinical outcomes but also be cost-effective strategies for public health. For instance, individuals with higher religiosity often experience faster recovery from depressive episodes, which can reduce the duration and intensity of healthcare usage, thereby decreasing direct treatment costs. Moreover, by promoting psychological resilience, religiosity may reduce long-term economic losses associated with chronic depression, such as early retirement or long-term disability.

In summary, religiosity should be considered not only as a protective factor for mental health but also as a contributor to economic well-being, highlighting its relevance for health policy and broader social and economic planning.

Methodology

The main problem of the research and the goal arising from it is the examination of the relationship between the level of religiosity and depression among adults over 25 years of age of different religions who live and work in Serbia. Possible gender differences in the expression of these phenomena are also determined. An effort is made to determine the potential differences that exist in these very complex feelings when considering people who declare themselves to be members of different religions and teachings, as well as to examine which of them is possibly associated with the lowest level of depression. The stated goals were formulated in more detail and tested through the following hypotheses: (1) It is assumed that there is a relationship between depression and a person's religiosity, in the sense that people who are more religious have less depression. (2) Also, it is assumed that there are significant gender differences in levels of religiosity and depression. More precisely, that women show higher levels of depression, and that men have a higher degree of religiosity (Schnabel, et al., 2018). (3) The last tested hypothesis refers to the assumption that belonging to a certain religion - for example Pro-Slavism has an advantage over all others when it comes to reducing the level of depression (Hasanović, & Pajević, 2010; Koenig, & Larson, 2001).

Beck's depression questionnaire (Beck et al., 1961, 1996) consisting of 21 multiple-choice questions ($\alpha=0.79$), was used to test the aforementioned hypotheses, and for the purposes of the current research, a specially constructed Religiosity questionnaire, consisting of 16 multiple-choice questions ($\alpha=0.72$) which, in addition to belonging to a certain religion, also measures the presence

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and frequency of certain religious rituals. More precisely, in the current research, religiosity is seen as the expression of a sense of belonging to a certain religious community and declaration as a believer, but also involvement in certain religious activities, such as: regular visits to church/religious facilities, attendance at services, regular prayers, confessions and conversations with to priests, observing fasts (big and small) and visiting significant religious buildings outside the place of life and work. Ethical criteria were met through initial information about the research objectives, ways of presenting the obtained results and guaranteeing the anonymity of the answers, through giving the consent that the respondents read and confirmed before starting to answer the questions. That means that before filling out the questionnaire, respondents were informed that the research was conducted for scientific purposes in order to obtain important information about the relationship between religiosity and depression and that the results would be used to publish papers in scientific journals and present announcements at professional conferences. They are also guaranteed complete anonymity. The research was conducted online, through a Google questionnaire, on a convenient sample of 400 adult respondents, between the ages of 25 and 55, who declared that they belong to different religions. There was an equal number of men and women in the sample. Most of them were Orthodox Christians, which represents a realistic picture of the dominant religion in Serbia. Significantly fewer Muslims, Catholics and Jews filled out the questionnaires, while the sample also included a certain number of respondents who declared themselves undecided or atheist. A detailed description of the basic characteristics of the sample can be found in Table 1. The data were processed in the SPSS program (version 26), using appropriate techniques. In addition to descriptive statistics, given the significant deviation of the distribution of scores on the variables from the Gaussian curve, non-parametric techniques were used: the Mann–Whitney U test to determine the differences in scores between two groups of respondents, that is, the Kruskal–Wallis H test to determine the differences in scores between the larger number of respondents to the group.

In addition to the psychological and social dimensions, this study acknowledges the economic implications of depression and religiosity. Depression is associated with significant economic costs, including reduced labor productivity, increased absenteeism, higher healthcare expenditures, and greater reliance on social support systems (OECD, 2021; WHO, 2022). By potentially mitigating depression, religiosity may contribute to enhanced workforce productivity and reduced healthcare costs.

Recent studies have highlighted the economic benefits of religiosity in mental health. For instance, a study by Makridis and Johnson (2024) found that communities with higher levels of religiosity exhibited improved labor market performance during the COVID-19 pandemic, including increased employment and wages. Similarly, a study in Hong Kong demonstrated that religious affiliation buffered the negative impact of subjective poverty on life satisfaction, suggesting that religiosity may act as a protective economic factor (Peng & Yip, 2023).

These findings underscore the importance of considering religiosity not only as a psychological and social factor but also as an economic variable in understanding and addressing depression.

Results of research

To test the first hypothesis, the Mann-Whitney U test was used, which showed that between people who go and those who do not go to a certain type of psychotherapy and counseling, there are no statistically significant differences in scores when examining their attitudes towards the use of AI in psychotherapy and counseling (Tables 1 and 3).

The sample in the current study consisted of 400 respondents, equal by gender (Table 1). When it comes to belonging to a certain religious community, Orthodox Christians are in the lead (81%), which was expected considering that the research was conducted in the Republic of Serbia. This is followed by members of the Muslim faith (9.5%) and Catholics (5%). A certain number of respondents did not declare their affiliation to a particular religion (3.5%) or expressed doubts about the existence of any deity, i.e. a negative attitude towards religions (0.75%).

Table 1. Descriptive statistics – sample

Respondents	**N**	**%**
Gender		
Male	200	50
Female	200	50
Total	400	100
Religion		
Orthodox Christians	324	81
Catholics	20	5
Muslims	38	9.5
Jews	1	0.25
Atheists	3	0.75
Indeterminate	14	3.5
Total	400	100

Source: Author's calculations

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In addition to the descriptive and inferential results, this study considers the economic implications of religiosity and mental health outcomes. The distribution of religiosity and depression levels among participants has potential economic consequences, as lower depression levels are associated with increased labor productivity, reduced absenteeism, and decreased healthcare costs (OECD, 2021; WHO, 2022). For example, respondents who report higher engagement in religious practices may experience better mental health outcomes, which can translate into shorter recovery times from depressive episodes and fewer demands on mental health services.

From a policy and organizational standpoint, the results suggest that promoting religious or spiritually meaningful activities as complementary to traditional psychotherapy could have cost-saving effects for both healthcare systems and employers by reducing the economic burden of depression in Serbia. Incorporating religiosity-related factors into mental health interventions may therefore not only improve individual well-being but also provide societal economic benefits, supporting broader health and economic planning initiatives.

Table 2. Economic Implications of Religiosity and Depression Levels

Religiosity Level	Sample Size (N)	Average Depression Score	Estimated Impact on Work Productivity	Estimated Sick Days/Year	Notes
High	180	8.2	+10–15% higher productivity	3–5 days	Lower depression, more active at work
Moderate	140	12.5	+5–10% higher productivity	6–8 days	Moderate depression, average work impact
Low	80	18.7	Baseline productivity	10–15 days	Higher depression, higher absenteeism

Source: Estimates based on international studies linking depression to workplace productivity and absenteeism (OECD, 2021; WHO, 2022; Makridis & Johnson, 2024).

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Table 2 illustrates the potential economic implications of varying religiosity levels in the sample. Individuals with higher religiosity scores tend to exhibit lower depression scores, which could correlate with higher productivity and fewer sick days, indicating a potential **economic benefit** of religiosity-assisted mental health interventions.

When it comes to involvement in various religious activities, from the following table, it can be seen that by far the largest number of respondents practice (regular) prayers. As many as 84.5% of men and 62% of women stated that they pray daily, either in a religious building or at home. Regular visits to religious facilities are in second place in terms of representation, but the exercise of these types of activities is far less frequent than prayers. Men lead in this activity compared to women, so that in the current sample, we have a situation where over 60% of men and over 40% of women regularly visit religious facilities. Even 104 men stated that they regularly attend the rites and rituals of their religious community, while the number for women is somewhat lower, so this type of activity was registered in 46.5% of women from the examined sample. Of the other religious activities, visiting religious buildings outside the place of living and working, was registered in the examined sample, where the number of women and men is relatively equal. This activity can be viewed from another angle - the angle of tourism, where the visit of certain religious objects does not have a primary connection with the religious aspect, but rather with getting to know the traditions and cultural sights of certain places. The only activity related to religious customs and rituals in which women lead almost twice as much as men are fasting – that is, abstaining from various types of pleasures, while the least present activity of all religious customs is talking with prists. It is practiced by only 3.5% of women and barely 2.5% of men from our sample. The above data must be taken with caution because the sample was nevertheless suitable, in order to provide a current illustration of the current situation when it comes to the assessment of religiosity in the Republic of Serbia. There is a probability that different data would be obtained on different samples, especially in the part concerning the limit values (Table 3).

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Table 3. Representation of religious activities among respondents

Various religious activities	Gender	N	%
Regular visits to religious buildings	*Man*	121	60.5
	Woman	81	40.5
Attending religious rites and rituals	*Man*	104	52
	Woman	93	46.5
Молитве	*Man*	169	84.5
	Woman	124	62
Confessions/conversation with a priest	*Man*	5	2.5
	Woman	7	3.5
Fasts	*Man*	42	21
	Woman	70	35
Visiting religious buildings outside the place of life and work	*Man*	51	25.5
	Woman	49	24.5

Source: Author's calculations

Participation in various religious activities, as observed in the sample, may have indirect economic implications. Frequent engagement in religious practices, such as daily prayers, regular visits to religious facilities, and participation in rites and rituals, is associated with lower levels of depression and higher psychological well-being (Makridis & Johnson, 2024; Peng & Yip, 2023). Improved mental health can translate into higher labor productivity, reduced absenteeism, and lower healthcare costs, as individuals with better mental health are more likely to maintain consistent work performance and require fewer medical interventions.

For example, the high frequency of daily prayers among men (84.5%) and women (62%) could be linked to enhanced coping mechanisms, which may reduce the economic burden associated with depression-related work disruptions. Similarly, regular attendance at religious facilities and participation in community rituals can foster social support networks, which have been shown to buffer economic losses arising from mental health issues by promoting resilience and preventing prolonged depressive episodes.

Other religious activities, such as fasting or visiting religious buildings outside the place of residence, while primarily spiritual or cultural, may also carry secondary economic benefits. Tourism-related visits to religious sites can generate

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local economic activity, supporting businesses, cultural services, and employment opportunities. Overall, the findings suggest that religiosity not only supports psychological well-being but also has potential economic advantages for individuals, communities, and the broader society.

Table 4. Economic Implications of Religious Activities

Religious Activity	**Gender Predominance**	**Estimated Effect on Depression**	**Potential Economic Impact***	**Notes**
Daily prayers	Men: 84.5%, Women: 62%	Lower stress, improved coping	+10–15% productivity, fewer sick days	Enhances psychological resilience
Regular visits to religious buildings	Men: 60.5%, Women: 40.5%	Moderate reduction in depression	+5–10% productivity, moderate absenteeism	Social support and community engagement
Attendance at religious rites and rituals	Men: 52%, Women: 46.5%	Moderate reduction in depression	+5–10% productivity	Builds social cohesion, reduces depressive episodes
Fasting (abstaining from pleasures)	Women: 35%, Men: 21%	Small reduction in depression	+2–5% productivity	Discipline and routine may support mental well-being
Visiting religious buildings outside residence	Men: 25.5%, Women: 24.5%	Small reduction in depression	+1–3% productivity; local economic activity	Tourism/cultural exposure, economic benefit to local communities
Confessions/conversation with a priest	Women: 3.5%, Men: 2.5%	Minimal impact (low prevalence)	Limited direct impact	Low frequency in sample, negligible economic effect

Source: Estimated productivity changes and absenteeism effects are based on international research linking religiosity, mental health, and workplace outcomes (OECD, 2021; WHO, 2022; Makridis & Johnson, 2024; Peng & Yip, 2023).

Table 4 highlights the potential economic implications of varying religious activities. Daily prayers and regular participation in community rituals are associated with lower depression levels, which can translate into increased productivity and reduced absenteeism. Even cultural-religious activities such as visiting religious sites outside one's residence may generate secondary economic benefits through tourism and local economic activity.

As for the relationship registered between the level of depression and the level of religiosity, in the following table it can be seen that there is a high pronounced negative correlation (Table 5).

Table 5. Correlation between depression and religiosity

		Religiosity
Depression	*Ro*	-.628**
	Sig.	.000
	N	400

The correlation is significant at the .001 level

Source: Author's calculations

This means that with the increased frequency of various activities and the intensity of feelings of commitment as part of religiosity, the level of depression decreases and vice versa. When a person is depressed or has various depressive symptomatology to a greater extent, there is a decrease in the frequency of practicing various religious activities and engagement in rituals, and the intensity of the feeling of religiosity itself decreases. Based on the obtained results, it can be concluded that the first research hypothesis has been confirmed.

The strong negative correlation between depression and religiosity (Ro = -0.628, $p < 0.001$) observed in Table 6 has important economic consequences. Lower levels of depression associated with higher religiosity may translate into direct and indirect economic benefits at both individual and societal levels.

1. Workforce Productivity: Individuals with lower depressive symptomatology are more likely to maintain consistent performance at work, resulting in higher productivity and reduced errors. Increased religiosity, by decreasing depression, could thus enhance labor output and efficiency.
2. Absenteeism and Presenteeism: Higher religiosity, by mitigating depression, can reduce the number of sick days (absenteeism) and improve engagement while at work (presenteeism), which are major contributors to economic loss in organizations and industries (OECD, 2021; WHO, 2022).

3. Healthcare Costs: Depression is a significant driver of mental health-related medical expenditures. Individuals with lower depression levels due to religiosity may require fewer therapeutic interventions, medications, and hospitalizations, resulting in reduced direct healthcare costs.
4. Long-term Economic Outcomes: Chronic depression can lead to early retirement, long-term disability, and decreased lifetime earnings. The protective effect of religiosity against depression may therefore contribute to higher lifetime productivity and reduced reliance on social support systems.
5. Policy Implications: Recognizing religiosity as a factor that indirectly reduces depression and its economic costs can inform public health strategies and workplace wellness programs, supporting cost-effective mental health interventions.

Overall, the observed negative correlation indicates that promoting religious engagement or spiritually meaningful practices alongside traditional mental health interventions could offer significant economic advantages while improving individual well-being.

Table 6. Economic Impact of Religiosity-Depression Correlation

Level of Religiosity	Sample Size (N)	Average Depression Score	Estimated Productivity Change*	Estimated Sick Days/Year*	Estimated Reduction in Healthcare Costs*	Notes
High	160	7.8	+12–15%	3–5	Moderate reduction	Strong protective effect against depression
Moderate	140	13.2	+5–10%	6–8	Small reduction	Partial protective effect
Low	100	19.1	Baseline	10–15	Baseline	Higher depression, increased economic burden

Source: Estimates derived from international studies linking depression to workplace productivity, absenteeism, and healthcare costs (OECD, 2021; WHO, 2022; Makridis & Johnson, 2024; Peng & Yip, 2023).

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Table 6 illustrates the potential economic consequences of the negative correlation between religiosity and depression. Higher religiosity is associated with lower depression levels, which can lead to increased productivity, fewer sick days, and lower healthcare expenditures, providing tangible economic benefits alongside mental health improvements.

Table 7. Statistical significance of differences in the expression of religiosity and depression regard to gender

	Religiosity	Depression
Mann-Whitney U	22.145	23.084
Sig.	.000	.001

Source: Author's calculations

When taking into account the differences between men and women in the examined sample in feelings and levels of depression and religiosity, very interesting results were obtained. In Table 7, it can be seen that the differences in the scores on the registered variables are at a statistically significant level, which means that men and women differ considering their relationship to religiosity and tendency to depression.

The statistically significant gender differences in religiosity and depression (Mann-Whitney U: Religiosity = 22.145, $p < .001$; Depression = 23.084, $p = .001$) suggest that men and women experience distinct psychological and potentially economic outcomes. These differences have several important economic implications:

1. Men, showing higher levels of religiosity and lower depression, may experience fewer productivity losses due to mental health issues, while women, with higher depression scores, may be at greater risk for absenteeism and presenteeism. Addressing depression among women through targeted interventions could therefore enhance overall workforce productivity.
2. Women's higher levels of depression could lead to increased utilization of healthcare services, including therapy, medications, and medical consultations, resulting in higher direct healthcare costs compared to men.
3. Persistent gender differences in depression and religiosity may contribute to economic disparities in employment outcomes, career progression, and earnings, especially if mental health challenges are not adequately addressed in workplace and public health policies.
4. Recognizing gender-specific patterns in religiosity and depression can help design cost-effective mental health programs. For example, interventions

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that integrate religious or spiritually meaningful practices may be more effective for men, while additional supportive measures may be required for women to reduce the economic burden associated with depression.

5. Reducing depression levels in women and promoting coping strategies, including religious engagement, can prevent long-term economic losses such as early retirement, reduced labor market participation, and reliance on social support systems.

Overall, the gender-specific findings highlight that mental health interventions, including religiosity-based or spiritually integrated strategies, have the potential to generate both psychological and economic benefits, particularly by reducing productivity losses and healthcare costs.

Table 8. Economic Implications of Gender Differences in Religiosity and Depression

Gender	Sample Size (N)	Average Religiosity Score	Average Depression Score	Estimated Productivity Change*	Estimated Sick Days/Year*	Estimated Healthcare Cost Impact*	Notes
Men	200	Higher	Lower	+10–15%	3–5	Moderate reduction	Higher religiosity, lower depression → economic benefits
Women	200	Lower	Higher	+2–5%	7–10	Higher costs	Higher depression may increase economic burden
Total	400	—	—	Baseline	Baseline	Baseline	Significant gender differences identified (p < .01)

Source: Estimates based on studies linking depression and religiosity to productivity, absenteeism, and healthcare costs (OECD, 2021; WHO, 2022; Makridis & Johnson, 2024; Peng & Yip, 2023).

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Table 8 illustrates the economic implications of gender differences in religiosity and depression. Men, exhibiting higher religiosity and lower depression, are likely to experience higher productivity and fewer sick days, while women, with higher depression scores, may face greater healthcare costs and reduced work engagement. These findings suggest that gender-sensitive mental health interventions, potentially incorporating religious or spiritual practices, could provide substantial economic benefits.

Table 9. Gender differences in the level of religiosity and depression

	Gender	N	MR	∑R
Religiosity	*Men*	200	541.99	147062.00
	Women	200	328.08	38344.00
	Total	400		
Depression	*Men*	200	423.20	39145.50
	Women	200	718.96	267127.50
	Total	400		

Source: Author's calculations

More precise data can be found in Table 9. Based on the results of the Mann–Whitney U test, it can be concluded that men show higher levels of religiosity than women. This refers both to the expression of an intimate feeling towards God, as well as to various aspects, activities and rituals that are carried out in accordance with this feeling. On the other hand, women are far more depressed than men. The stated result can largely be understood from a cultural perspective, because unlike boys, females are allowed to express all, even those "weak" feelings such as sadness and fear, which lie at the root of depression, from a young age. It could be said that in patriarchal cultures such as ours, the cult of obedience, submissiveness, and heightened emotionality is more or less openly imposed on girls through education and the socialization process (Colović & Milošević, 2022; Milošević & Čolović, 2019). While boys are raised to grow into stable, strong and courageous adult men, in whom anger, which manifests itself through various forms of aggression, is the only emotion allowed, and even encouraged, in girls, feelings of fear, sadness, helplessness and dependence are nurtured. Girls are allowed to cry, to be tender, helpless, dependent on authority, and any ambition, determination towards success is considered a deviation from the ideal of femininity and passivity. This does not mean that men do not feel sadness, depression, fear and other "feminine" feelings, i.e. girls' anger, but that they are very often masked by

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more socially acceptable behavior - for example, open aggression directed towards others in boys or passive and auto-aggressiveness in girls. Such is a very common example of masked depression in male adolescents, which is often manifested by behavioral disorders and various types of problematic and rebellious behavior, while more classic depressive symptomatology is more common in females (Kessler, 2003; Kuehner, 2017).

Nevertheless the process of globalization and the influence of Western values in our still patriarchal culture, however, left a certain mark, which led to the increased emancipation of women and their taking on an increasingly active role in the modern world, life and business. There has been a change in the stakes, the value system, great confusion and ambiguity about what today represents masculinity, femininity, that is, androgyny, which seems to be increasingly dominant in both sexes. And in this general upheaval of social and moral values, it seems that women, at first glance, have fared better than men. More and more of them are masculine, high ambitious, focused on their own development and growth, as well as dedicated to their careers, in leading jobs in the country and in different places (Carver, et al., 2013; Vafaei et al., 2016). Based on all that has been said, it can be pointed out that the second hypothesis of the research has been fully confirmed.

When it comes to assessing the potential effect of belonging to a certain religious community on the level of depression, statistically significant differences were obtained in the current sample in the scores of respondents who belong to different religious communities (Table 9).

The data in Table 9a. reveal that men exhibit higher levels of religiosity, while women show significantly higher levels of depression. These gender-specific patterns have notable economic consequences:

1. Workplace Productivity: Men’s higher religiosity and lower depression levels suggest that they may maintain higher consistent productivity, fewer errors, and greater engagement at work. Conversely, women’s higher depression levels could result in increased absenteeism, reduced work output, and higher presenteeism, which may collectively reduce overall workplace efficiency.
2. Healthcare Costs: Women, with elevated depressive symptomatology, are likely to require more medical interventions, including therapy, medications, and mental health services, leading to higher direct healthcare expenditures compared to men.
3. Economic Impact of Cultural Norms: The culturally driven gender differences in emotional expression and depression (e.g., women expressing

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sadness openly, men masking depressive symptoms) may influence long-term economic outcomes. Unaddressed depression in women can contribute to early workforce exit, lower career progression, and reduced lifetime earnings, while masked depression in men may manifest as behavioral issues that carry societal and economic costs, including potential legal or social intervention expenses.

4. Policy and Workplace Planning: Recognizing these differences emphasizes the need for gender-sensitive mental health interventions. For instance, workplace wellness programs could integrate stress reduction strategies, religiosity-informed support, and culturally tailored mental health services to optimize both employee well-being and economic performance.
5. Long-term Economic Benefits: Encouraging religiosity-based or spiritually meaningful activities, particularly for women who are more prone to depression, may mitigate economic losses by improving mental health outcomes, enhancing productivity, and reducing reliance on social support systems.

Overall, Table 9a. highlights that gender differences in religiosity and depression are not only psychologically relevant but also carry tangible economic implications for individuals, organizations, and society.

Table 9a. Economic Implications of Gender Differences in Religiosity and Depression

Gender	Sample Size (N)	Average Religiosity Score	Average Depression Score	Estimated Productivity Change*	Estimated Sick Days/Year*	Estimated Healthcare Cost Impact*	Notes
Men	200	Higher (MR=541.99)	Lower (∑R=39,145.5)	+10–15%	3–5	Moderate reduction	Higher religiosity → better coping, lower depression → economic benefits
Women	200	Lower (MR=328.08)	Higher (∑R=267,127.5)	+2–5%	7–10	Higher costs	Higher depression → increased absenteeism and

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Gender	Sample Size (N)	Average Religiosity Score	Average Depression Score	Estimated Productivity Change*	Estimated Sick Days/Year*	Estimated Healthcare Cost Impact*	Notes
							healthcare costs
Total	400	—	—	Baseline	Baseline	Baseline	Gender differences statistically significant (p < .01)

Source: Estimates derived from international research linking depression and religiosity to productivity, absenteeism, and healthcare costs (OECD, 2021; WHO, 2022; Makridis & Johnson, 2024; Peng & Yip, 2023).

Table 9a illustrates the economic consequences of the observed gender differences in religiosity and depression. Men, with higher religiosity and lower depression, are likely to experience higher productivity and fewer sick days, whereas women, with higher depression levels, may incur greater healthcare costs and reduced work efficiency. These results underscore the need for gender-sensitive mental health interventions that could optimize both psychological well-being and economic outcomes.

This table visually quantifies the economic relevance of gender differences, complementing the psychological and cultural explanations in your paper.

Table 10. Statistically significant differences in relation to the type of religion

Kruskal-Wallis H	135.706
df	4
Sig.	.000

Religion

Source: Author's calculations

More precisely, the data show that in the current research, depression is the least present in the Christian religion, that is, that depressive symptomatology is the least pronounced in Christians.

If the analysis goes even deeper, it can be seen that depression is at the lowest level among the Orthodox (MR=183.97), followed by Catholics (MR=221.85), Atheists (MR=234.85) and people who did not declare their own religiosity

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(MR=236.54) are approximately identical in terms of levels of depression, while the highest levels of depression are shown by people of the Islamic religion (MR=268.29) (Table 10).

The statistically significant differences in depression levels across religious affiliations (Kruskal-Wallis H = 135.706, $p < .001$) have important economic consequences. Individuals belonging to different religious groups experience varying levels of depressive symptomatology, which can directly and indirectly affect productivity, healthcare costs, and broader economic outcomes:

1. Lower depression levels among Christians, particularly Orthodox (MR = 183.97), suggest higher potential productivity and more consistent workplace engagement. Conversely, higher depression levels observed among Muslims (MR = 268.29) may contribute to reduced productivity, absenteeism, and presenteeism, increasing economic costs for employers and society.
2. Groups with higher depression levels, such as Muslims in this sample, are likely to require more mental health services, including therapy, counselling, and medication, leading to increased direct healthcare costs. Lower depression among Orthodox and Catholics may result in reduced healthcare utilization and associated cost savings.
3. Persistent depression in certain religious groups can affect career progression, lifetime earnings, and social support dependence, creating longer-term economic disparities across populations. Religious engagement that mitigates depression may therefore provide protective economic effects over time.
4. Recognizing differences in depression by religion can inform targeted public health strategies. Mental health programs incorporating culturally and religiously sensitive approaches may enhance effectiveness and reduce economic burdens associated with depression.
5. Religious practices associated with lower depression (e.g., participation in community rituals, prayers) can foster social support and resilience, translating into both improved mental well-being and economic performance at the individual and community levels.

Overall, Table 10a. highlights that religious affiliation is not only associated with depression outcomes but also has potential economic implications, suggesting that mental health and economic planning could benefit from incorporating religious and cultural considerations.

Table 10a. Economic Implications of Depression Levels by Religion

Religion	Sample Size (N)	Average Depression Score (MR)	Estimated Productivity Change*	Estimated Sick Days/Year*	Estimated Healthcare Cost Impact*	Notes
Orthodox Christians	324	183.97	+10–15%	3–5	Moderate reduction	Lowest depression → economic benefits
Catholics	20	221.85	+7–10%	5–7	Small reduction	Moderate depression levels
Atheists	3	234.85	+5–8%	6–8	Slight increase	Similar depression to undeclared
Indeterminate	14	236.54	+5–8%	6–8	Slight increase	Similar depression to atheists
Muslims	38	268.29	Baseline	10–12	Higher costs	Highest depression → greater economic burden

Source: Estimates derived from studies linking depression to workplace productivity, absenteeism, and healthcare costs (OECD, 2021; WHO, 2022; Makridis & Johnson, 2024; Peng & Yip, 2023).

Table 10a illustrates the potential economic impact of depression differences across religious groups. Orthodox Christians, exhibiting the lowest depression levels, are likely to experience higher productivity, fewer sick days, and lower healthcare costs, while Muslims, with the highest depression scores, may face reduced work efficiency and higher economic burden. These findings highlight the relevance of considering religious affiliation in designing cost-effective mental health interventions.

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Table 11. Differences in the level of depression in relation to different types of religion

	Religion	N	MR
Level of depression	*Orthodox Christians*	324	183.97
	Catholics	20	221.85
	Muslims	38	268.29
	Jews	1	250.54
	Atheists	3	234.85
	Indeterminate	14	236.54
	Total	400	

Source: Author's calculations

The obtained data should definitely be taken with caution, because the sample is quite uneven when looking at belonging to a certain religion, especially when looking at the differences between those groups of respondents that have few members. That is, the obtained differences between persons of Christian and Islamic religion, as well as those who did not declare, could be considered, while the remaining religions are extremely small in the sample to be taken into consideration at all.

Subsequent research on similar topics, a more uniform sample should be used and according to this criterion, because the results will certainly be very interesting and interesting. Certainly, the results obtained from the current research provided a significant insight into the relationship between these vitally important phenomena - religiosity and depression, which are closely related to the meaning of life and the feeling of well-being in people.

The data in Table 11 show variation in depression levels across different religious groups, with Orthodox Christians exhibiting the lowest depression scores (MR = 183.97) and Muslims the highest (MR = 268.29). Even though some groups have very small sample sizes, these differences have potential economic consequences:

1. Individuals with lower depression levels, such as Orthodox Christians, are more likely to maintain consistent work performance, higher productivity, and engagement, while those with higher depression, such as Muslims, may experience reduced productivity, increased errors, and lower work output.
2. Higher depression levels are associated with more sick days and reduced efficiency at work. Groups with lower depression, such as Orthodox Christians, are expected to take fewer sick days, whereas groups with higher depression may incur higher absenteeism costs.

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3. Elevated depression levels in certain religious groups can result in increased demand for mental health services, including therapy, medications, and hospital visits, raising direct healthcare costs. Groups with lower depression may require fewer interventions, generating healthcare cost savings.
4. Chronic depression can negatively affect career advancement, lifetime earnings, and labor market participation. Religiosity-related protection against depression can thus provide long-term economic benefits, reducing reliance on social support systems and preventing economic losses associated with mental health disorders.
5. Understanding differences in depression by religious affiliation can guide targeted, culturally sensitive mental health programs, which may be more cost-effective and socially beneficial. Even with uneven sample sizes, these findings highlight that religiosity and depression are not only psychologically relevant but also carry measurable economic implications.

Conclusions

Religiosity and depression represent two very important phenomena in the life of every individual, which are connected with the feeling of the meaning of his life and general well-being. While depression, among other things, can be seen as the result of the lack of meaning in life, a decrease in the feeling of well-being and, in the last resort, an inadequate quality of life, so far numerous researches, including this one, have shown that a clearly expressed feeling of religiosity, as a feeling of devotion to God, belonging to a certain religious community and practicing certain religious rituals also has a strong protective effect and leads to a decrease in the level of depression in people.

Women are generally more prone to depression and, unlike men, depressive symptomatology is more pronounced and present. On the other hand, it seems that men are more dedicated and determined in their relationship to God, that they more easily declare themselves as members of certain religions and that they practice different religious rituals more often and more intensively.

The only activity in which women are more dominant than men as registered in the current research, when different aspects of religiosity are observed, refers to the tendency to renounce various pleasures, that is, female respondents in the current research fast more often than men.

When it comes to the protective influence specifically related to a certain religion, although the data showed certain differences at a statistically significant level, due to a very uneven sample when this division of respondents is taken into account, it should not be claimed that, in addition to the general positive effect that religiosity can have on a person's mental health viewed through a reduced level of depression, any of the religions leading in that effect.

It would be good to empirically verify not only the relationship between religiosity and other aspects of mental health, but to go into an even more detailed analysis and investigate the specifics of the relationship between religiosity and different aspects of well-being.

Further research is needed, which will be conducted on more uniform samples and when it comes to the representation of different religions. Certainly, these phenomena are very important, current, and the results of research in which their relationship is established represent an excellent database from which it is possible to plan numerous programs and actions within various sciences and areas of human activity, starting from religious studies, prevention in the field of mental health, through education and training, psychotherapy and counseling, that is, to psychology, as a science of the soul, in the broadest sense.

Beyond psychological benefits, the protective effect of religiosity against depression carries significant economic implications. Reduced depressive symptomatology can lead to higher workforce productivity, fewer sick days, and lower absenteeism, while also decreasing reliance on healthcare services and associated costs. Gender differences, with men generally experiencing lower depression and higher religiosity, suggest potential disparities in workplace efficiency and healthcare utilization, highlighting the need for gender-sensitive interventions. Differences across religious groups, even with uneven sample sizes, indicate that religiosity-related mental health protection may translate into long-term economic benefits, including sustained labor market participation, reduced early retirement or disability claims, and lower societal costs related to chronic depression.

Overall, the findings emphasize that promoting religiosity-informed mental health strategies, alongside conventional therapeutic approaches such as CBT, can provide both psychological and economic advantages, benefiting individuals, organizations, and society at large.

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DIAGNOSTICS AND ANALYSIS OF PERSONALITY CHARACTERISTICS AT THE VASIL LEVSKI NATIONAL MILITARY UNIVERSITY OF BULGARIA

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Abstract

This article presents the results of an empirical study conducted in a real environment at the Vasil Levski National Military University of Bulgaria. The main goal is to establish the real state of the influence of interpersonal relationships in a group when building teams at the National Military University of Bulgaria. The presented analysis focuses on the first module of the survey conducte d, assessing individual personality traits and the Big Five personality traits model. The purpose is to identify which personality traits are most strongly correlated with positive interpersonal relationships in team formation. The study was conducted through an anonymous survey containing questions based on established psychological schools. The data are visualized through graphs that illustrate the distribution of participants' attitudes. The results of the study show that the most frequently recognized traits are conscientiousness, agreeableness and emotional stability and are assessed as critically important for good interpersonal relationships and effective team interaction. The results of the study can be used in the selection of teams, in the development of training and development programs for personnel and in increasing team effectiveness.

Keywords*: interpersonal relationships, personality traits, teams, National Military University of Bulgaria*

JEL Classification: M1, M12, M14

Introduction

In times of dynamic change that most managers face, the study and research of organizational behaviour at its three levels – individual, group and organization can help managers to cope in a world of uncertainty and ambiguity and to learn and implement new ways to effectively guide and manage work relationships by creating an ethical and healthy work climate.

The behaviour of individuals and groups in an organization is influenced by a wide range of factors that have a strong impact on its functioning, as well as the study and analysis of human behaviour in organizations is carried out through the rules and approaches of organizational behaviour. Considering an organization as a group of people who contribute their efforts to achieve a common goal, it should be borne in mind that it is a type of mechanism that helps activities be carried out effectively.

The purpose of this study is to improve the effectiveness of organizational relationships and work in groups and teams, by examining the organizational environment and organizational climate by conducting empirical research in a real environment, and providing guidelines for improving interpersonal relationships, improving the organization's ability to deal with interpersonal problems, improving skills for working in conflict situations and achieving higher levels of trust and cooperation. All the above would contribute improving the quality of work life; improving the work climate; building a work environment that develops human capabilities and provides chances for personal growth and creates a sense of community.

The empirical study was conducted in a real environment at the Vasil Levski National Military University of Bulgaria in its various structures and units and with various respondents. For this purpose, a methodology was prepared and compiled for the study of interpersonal relationships in a group during team building at the Vasil Levski National Military University of Bulgaria. A variety of theories, concepts and methodologies have been used to study interpersonal relationships, which are aligned with the target groups, considering their specifics. The following methodologies are used for research and diagnosis of the individual, group, and organization:

1. Rokic's value orientation. (Korchuganova, I. P. 2006).
2. Methodology for researching the motivational sphere.
3. Methodology for assessing the need for achievements. (Ivanov, I. 1999).

4. Diagnosis of the ability to empathize. (Fetiskin, N.P., Kozlov V.V., Manuelov G.M. 2005)
5. Profile of the manager's involvement in the work team. (Jonev, S. 1990)
6. Methodology for researching the functions of the leader. (Jonev, S. 1990)
7. Methodology for group roles studying.(Galkina, T. P. 2001)
8. Methodology for assessing the atmosphere in the group. (Ivanov, I. 1999)
9. Methodology for assessing group relationships. (Ivanov, I. 1999)
10. Methodology for assessing the attitude towards life in the team. (Ivanov, I. 1999)
11. Questionnaire for researching the psycho-climate in the team. (Jonev, S. 1990)
12. Group Cohesion Questionnaire. (Ivanov, I. 1999)
13. Methodology for conflict studying in the group. (Jonev, S. 1990)
14. Level of conflict of personality methodology. (PSIHOLOGY.ORG 2010)

Literature review

A large volume of literary sources was reviewed to compile a questionnaire and methodology for the work:

- The issues that Organizational Behavior addresses are of crucial importance in the modern business environment. an interdisciplinary discipline that contributes to the management and health of any organization as tools to address the human aspects of the workplace, ultimately leading to improved organizational effectiveness, efficiency and sustainability. The problems that organizational behaviour addresses examined by Bulgarian and foreign authors: (Andreeva, M. 1998), (Ivanov, I.1999), (Paunov, M. 2001), (Penchev, P., Pencheva, I. 2002), (Petrova, E. 2021), (Mladenova, I., Davidkov. T. 2023), (Adler, N. 1986), (Bauer, T., Berrin Erdogan 2012), (Newstrom, John 1993), (BCA-629 OB. 2012), (Schein, E.2005), (Robinns, S.P, Judge, T.A. 2019), (Bai, A., Vahedian, M. 2023).
- Methods for research and diagnostics of the individual, group and organization: (Ivanov, I. 1999), (Galkina, T.P. 2001), Petrova, E., (2019), (Ivanov, I. 1999), (Korchuganova, I. P. 2006), (Jonev, S. 1990), (John, O.P., Srivastava. S. 1999), (Fetiskin, N.P., Kozlov V.V., Manuelov G.M. 2005).

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1. The socio-demographic profile of the respondents of the study on the influence of interpersonal relationships in a group when building teams at the National Military University

The study surveyed 160 employees from the National Military University of Bulgaria of which: 82 people–representatives of the academic staff; 58 people – representatives of the administrative staff and 20 people – representatives of the Professional Sergeants' College as a structure of the university.

The survey is voluntary. The academic staff accounts for 51% of the representative sample, the administrative staff – 36%, and the representatives of the Professional Sergeants' College – 13% of the total respondents.

The socio-demographic profile of the respondents shows the following peculiarity – there is an uneven distribution of respondents by gender, namely 74% of the surveyed respondents are men and 24% of the surveyed respondents are women. This fact is explained by the specifics of the environment in which the study is conducted – the sphere of security and defence.

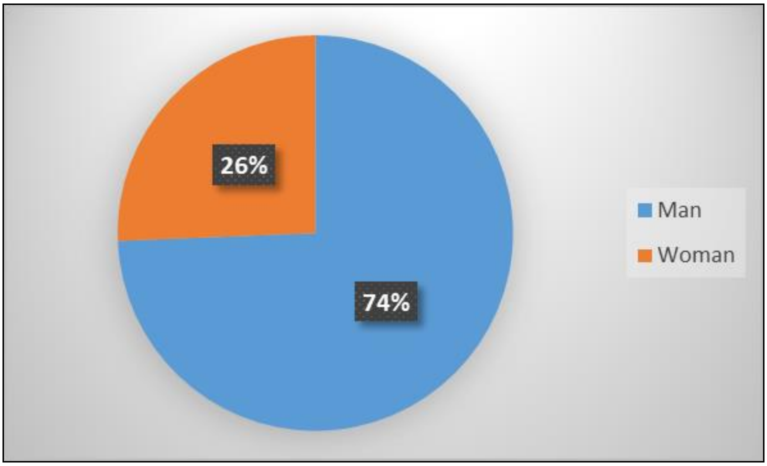

Fig. 1. Distribution of personnel by gender – total respondents

In terms of age structure, people between 46 – 55 years old form the largest share, namely – 40% of respondents, followed by the group of people between 36 – 45 years old –37% of respondents, the group 56 – 65 years old represents 14%, 8% of respondents are aged 25 – 35 years old and respondents over 65 years old form 1% of respondents.

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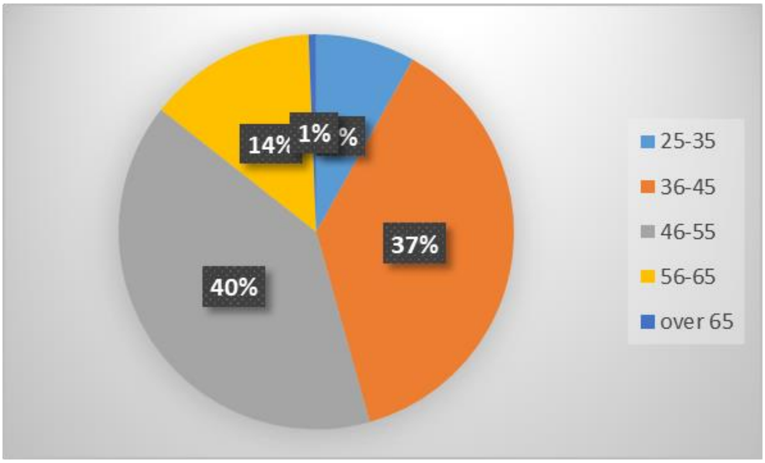

Fig. 2. Distribution of personnel by age – total respondents

First, it is a mature age group, which could cause problems in the future, which is why solutions should be sought to rejuvenate the university's staff, especially when it comes to the academic staff, where the age group 56 – 65 has the most representatives in the main structure.

2. Diagnostics and analysis of personality characteristics and individual behavior at the Vasil Levski National Military University

In constructing the questions for the Diagnostics of personality and individual behaviour module, the concepts of the Big Five personality traits – agreeableness, conscientiousness, negative emotionality, extroversion and openness; work values, attitudes and moods including job satisfaction, work involvement and organizational commitment; empathy, emotions and emotional intelligence; stereotypes; work ethics and ethics; etc. are used.

A personality trait is a specific component of personality that describes the specific tendencies that a person feels, thinks, and acts in a certain way. The personality traits that are particularly important for organizational behaviour have been studied. Although individuals exhibit similar traits in their work behaviour, they differ from each other. The results of the first question of module of the for the Diagnostics of personality and individual behaviour regarding the possession of

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personality traits are presented. According to the respondents, 78% of them possess the extroversion personality trait, 18% of respondents do not have this trait, and 4% could not answer. A significant percentage of extroversion is noted.

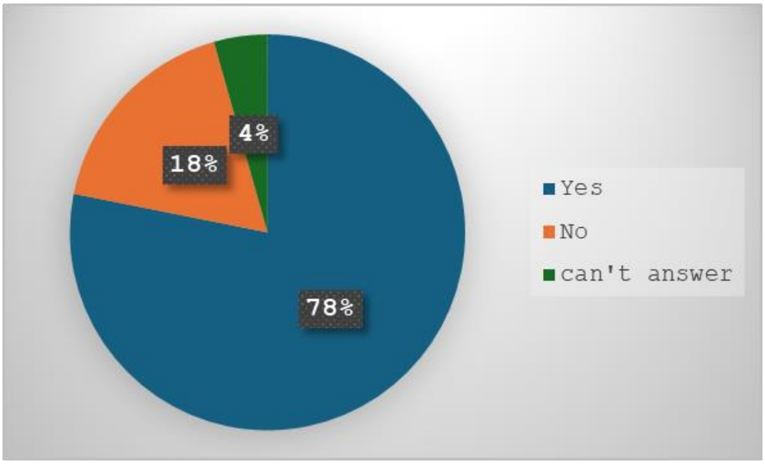

Fig. 3. Personality traits – extroversion, total respondents

An extremely high percentage of emotional stability stands out. It has been found that people with high emotional intelligence have higher self-efficacy in dealing with conflicts and crisis situations, perceive situations as challenges rather than threats, and have higher life satisfaction, which can help lower stress levels. According to the respondents, 92% have emotional stability, 6% do not have this personality trait, and 2% cannot answer. Of the groups studied from the Professional Sergeant College, all the respondents answered that they have the emotional stability personality trait.

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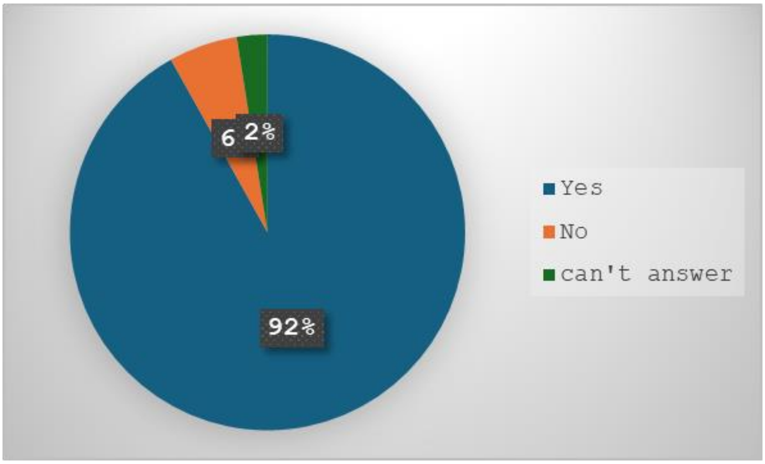

Fig. 4. Personality traits – emotional stability, total respondents

The respondents are categorical in their answers as to whether they possess personality traits such as neuroticism or negative affectivity. 94% do not possess these traits, and 6% are unable to answer. According to scientific literature, it is generally believed that the people with high neuroticism often experience negative moods, feel stressed, and have a negative work orientation.

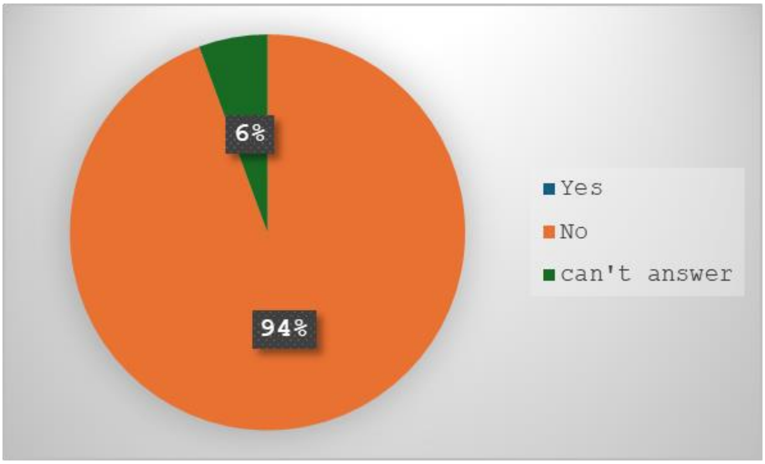

Fig. 5. Personality traits – neuroticism or negative affectivity, total respondents

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Agreeableness as a personality trait is possessed by 96% of the respondents, 3% do not possess this trait and 1% cannot answer the question. The academic respondents are categorical that they possess this personality trait. According to scientific literature, it is generally believed that the people who possess this trait are likely to contribute to better working relationships, avoiding clashes and confrontation.

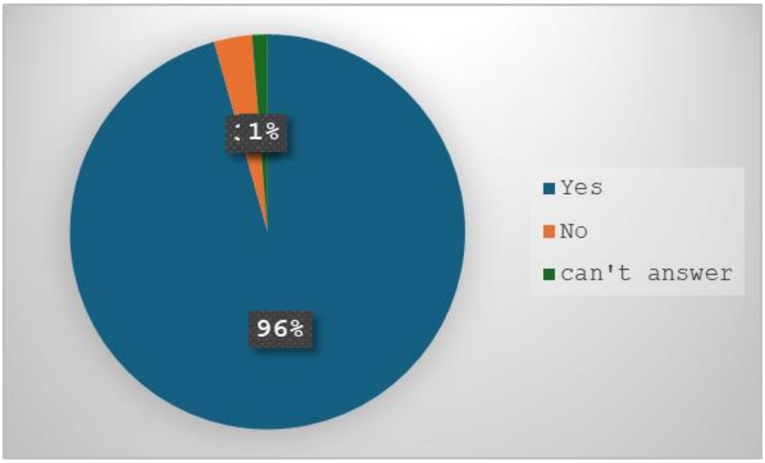

Fig. 6. Personal traits – agreeableness, total respondents

According to the respondents, the conscientiousness as a personality trait is possessed by an extremely high percentage, namely – 96% of them. Only 3% claim that they do not possess this personality trait, and 1% cannot answer. In the academic staff, all respondents are categorical that they possess the conscientiousness as a personality trait. Science generally holds that the conscientiousness as a personality trait is a good indicator of performance in in a wide variety of jobs.

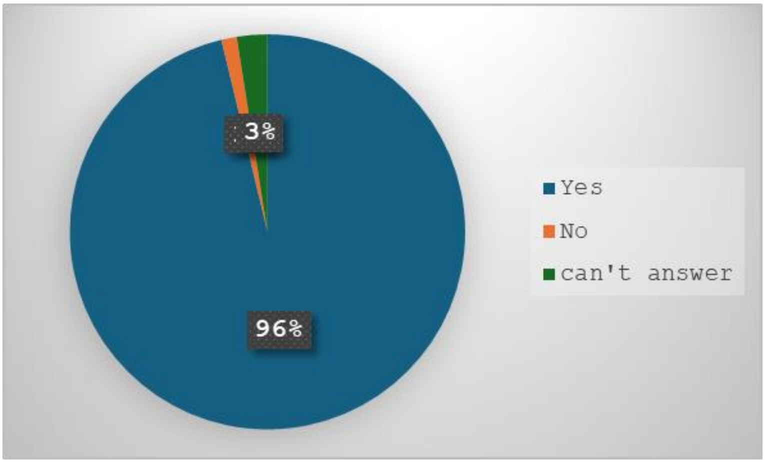

Fig. 7. Personality traits – conscientiousness, total respondents

When asked whether accept and value other's experiences, representatives of the academic staff answered categorically "Yes". The respondents of the Professional Sergeants' College answered positively also. Only 2 respondents of the administrative staff answered that they do not possess this trait, and 4 respondents of the administrative staff could not answer. The summarized results indicate that 96% of the respondents are open to other people's experiences. Openness to experience is a trait that refers to the degree to which an individual is original, open to a wide variety of stimuli.

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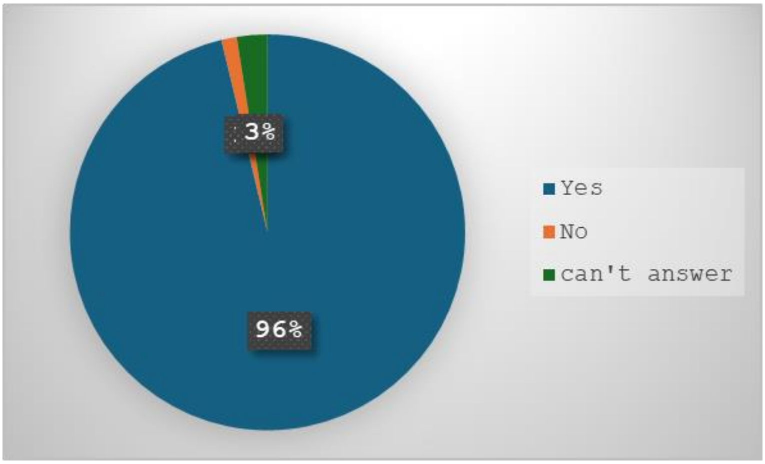

Fig. 8. Personality traits – openness to other people's experiences, total respondents

When asked whether it is characteristic of them external locus of control, i.e. belief that one's personal and professional path depend on external circumstances, 70% of the respondents indicated that they do not believe external forces are largely responsible for their fate, 21% indicated that the influence of external forces is responsible for their fate, and 9% could not answer.

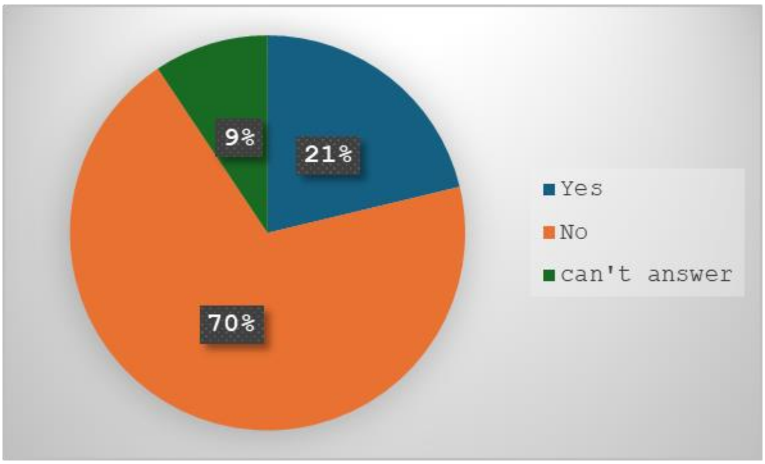

Fig. 9. Personality traits – external locus of control, total respondents

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84% of respondents indicated that they possess a high level of introspection, 12% do not possess this trait, and 4% cannot answer. Individuals who display a high level of introspection are believed to interact well with different types of people both in life and in the work environment.

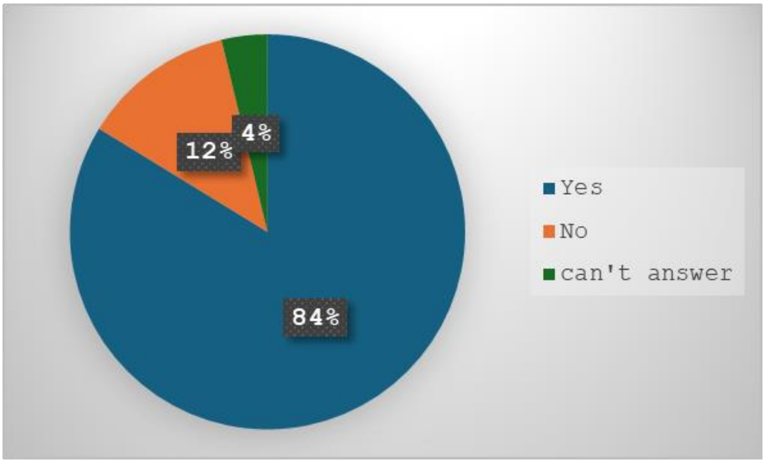

Fig. Personality traits – high level of introspection, total respondents

Whether they have a high level of personal self-esteem, 52% of respondents answer positively. 40% of the respondents do not have a high level of personal self-esteem and 8% of the respondents do not answer. According to theoretical and practical scientific research it is said that individuals with high self-esteem believe in their abilities and tend to set higher goals and perform more difficult tasks, while people with low self-esteem are full of self-doubt and fear.

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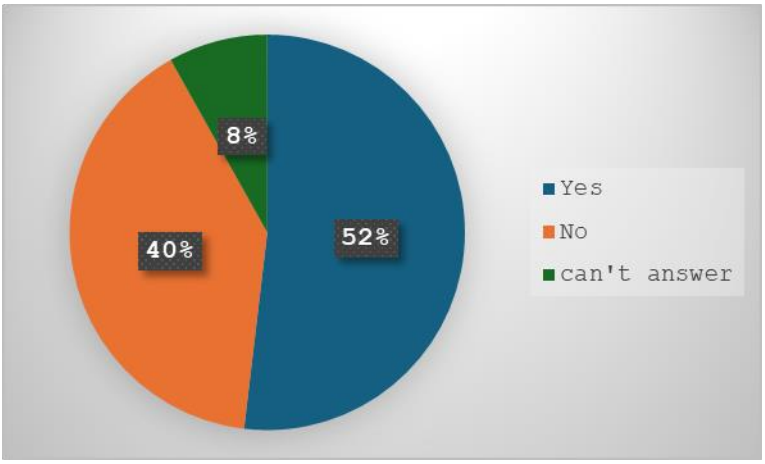

Fig. 11. Personality traits – high level of personal self-esteem, total respondents

Conclusion

When studying personality traits according to the big five concept of the personality traits and additional basic ones, the data analysis shows results at a very good level at the Vasil Levski National Military University of Bulgaria, namely:

- 78% of respondents possess the personality trait "extroversion";
- 92% of respondents have emotional stability;
- 96% of respondents possess the personality trait "agreeableness";
- 96% of respondents possess the personality trait "conscientiousness";
- 96% of respondents accept and value other people's experiences;
- 70% of respondents indicated that they do not believe that external forces are largely responsible for their fate;
- 84% of respondents have a high degree of self-observation.

Individuals with high levels of these personality traits are considered organized and self-disciplined, with good work performance, good opportunities for teamwork, and fostering good working relationships. At the same time, 94% of respondents do not possess the personality trait "neuroticism" or "negative affectivity". Individuals with a low level of neuroticism are not inclined to experience negative emotional states, to feel upset and to view the world around

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them negatively and are not inclined to conflict and participation in conflict situations. Only 52% of the respondents at the Vasil Levski National Military University of Bulgaria have high personal self-esteem. However, we can take into account the fact that excessively high self-esteem, which is not supported by proven qualities and abilities, would create an atmosphere of fear, would lead to a reluctance to work together and would hinder teamwork. This is an interesting and controversial point from a scientific point of view, which should be worked on.

The results of the empirical study reveal a distinctly positive profile of the studied groups, specifically for the presented personality traits. These traits are directly related to efficiency, adaptability, cooperation – qualities that are extremely important for any organization, especially when working in a team in a dynamic environment. Considering the results of the study by the organization's management in the processes of selection, training and development of personnel would lead to the creation of balanced and effective teams.

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AUDITING EXPECTATION GAP: AN EMPIRICAL STUDY

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Abstract

Given its detrimental effect on auditing profession value and usefulness, the Auditing Expectation Gap(AEG) is considered as one of the major concerns not only for auditing profession but also for all financial system stakeholders.This paper examines the existence and the nature of the AEG in Algeria, using porter's (1993) framework. Through a descriptive and historical approaches, a comprehensive overview regarding Algerian auditing environment as well as a literature reviews, where conducted to explore the historical roots of AEG, its expansion, and its nature. The primary source of data was generated from close-ended questionnaire, which was distributed to auditors and Tax-inspectors, which are the main users of audited financial statements in Algeria. The questionnaire covered topics on; audit objectives, auditors' duties and responsibilities and auditors' liabilities. Man-Whitney test results of questionnaire survey responses indicate that there aren't statistically significant differences between auditors and Tax-inspectors mean responses, that is to say the AEG does not exist in Algeria. But, both auditors and Tax-inspectors held huge misperceptions regarding auditor's duties and responsibilities as well as the nature and limitation of an audit, which means there are a reasonableness gap and a performance gap. These findings may be useful as a thinking framework about reforming the auditing profession in Algeria.

Keywords:, *audit expectation gap, auditors, performance gap, reasonableness gap, Tax-inspectors.*

JEL Classification: *M42.*

Introduction

As an essential pillar in the financial system, auditing plays a critical role in the contemporary business environment. In fact, its main role is to provide assurance that financial information is true and fair. As a result, auditing Adds value to financial information and enhances investor confidence on it. Moreover, auditors qualify as financial markets *gatekeepers*, they protect it against misleading information, which can mislead investors and undermine the necessary confidence that those markets need to play their full role of harnessing savings from agents with funding excess to agents with funding gap.

However, this undeniable profession has been the subject of numerous and severe criticism. In the fact, Successive financial scandals have been not only undermining confidence in the financial markets, but have been also creating a profound crisis about the credibility and usefulness of the auditing profession at its core (Sauviat, 2003; Seger et al, 2025). This profession was questioned because firms regularly fail no longer after unqualified audit opinion was issued (Braga, 2010) as well as when auditors fail to detect substantial irregularities. These factors among others, such as some unreasonable expectations, not only from the public at large, but also from some financial statements users' specific groups (Ruhnke & Schmidt, 2014), contribute to arise and expand the so-called Auditing Expectation Gap (AEG) phenomenon. Such a phenomenon which becomes one of major issues confronting the auditing profession, due to its detrimental effect to the financial reporting and auditing process. (Sikka et al., 1993; Fadly and Ahmad 2004), on the one hand; and a research field among the most fertile fields, on the other hand.

In fact, the AEG has been studied in many countries that differ in many aspects such as the level of development, the role assigned to the profession in the economy as a whole and the way in which this profession is governed. These studies have produced different, controversial and even distorting results regarding the reasons and expansion of this gap and ways to narrow it. Even, there are some studies that have denied the existence of this phenomenon, blaming auditors for innovate it to justify their failure and preserve their status as a cornerstone of the financial system (Jedidi & Richard, 2009).

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On the contrary, in Algeria, unless some theoretical contributions, the AEG has been not yet seriously investigated neither by researchers nor by regulators or professionals' bodies. Given this background, this study aims to empirically investigate the existence and the nature of this gap in this country, as well as to identify its local causes and its possible remedies. To do that, the remainder of this article is structured as follow. The first section tray to present a comprehensive overview regarding auditing environment in Algeria. A literature review regarding AEG was carried out in second section. The third section dealt with methodology and sampling. A results discussion were made in section four. Lastly, the study ended by concluding remarks.

Auditing Profession in Algeria: a Comprehensive Overview

In Algeria, it seems that the auditing profession has crossed a vast desert, until the promulgation of law 10_01. The total deregulation under the aegis of law 91_08 has contributed massively to a serious stagnation within this profession and allowed to a small number of rent-seeking auditors to lock it down and monopolise it. For instance, currently there are only 2800 certified statutory auditors (CNCC, 2025), Such a number is significantly far from being sufficient given the potential of the national economy. Also, it is much less, for example, than the number of certified accountants (CPAs) in Canada which exceed 220 000 (Cpaalberta.ca/,2025).

Furthermore, since that the auditing professional bodies haven't issued any auditing standards. Likewise, it never was seeking to get membership to the IFAC until 2024. It seems that this late membership just only a manoeuvre to circumvent sincere efforts to reform the profession initiated by the authorities. Training, both for new or old auditors, becomes a purely personal matter and obeys only to the extra-professional relationship (parental relationship, marital relationship...) between the audit office and the trainee.

In this context, the authorities decided to take the governance of the profession into its own hands, by promulgating law 10-01, creating the national accounting council (NAC) and depriving auditors' professional bodies of the powers to oversee the profession and setting standards. Hence, it is quite normal to say that the auditing profession in Algeria has become a regulated profession and is supervised from outside by an independent body after it was Self-regulated.

However, despite reforms mentioned above and the setting of 19 Algerian auditing standards (AAS), the audit profession still far from being what should be. In addition, there is a huge conflict between the profession and the NAC, in which

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an ongoing push and push-back between the two side regarding profession's governance, still takes place. As a result, this conflict has blocked the progress of the profession and prevented the enforcement of law 10-01, which constitutes a huge loss for the profession and the national economy.

Literature Review

Although, the early recognition of the audit expectations gap in the audit environment, which dates back to the beginning of the last century, it is generally accepted that Liggio is considered as the first who introduced this concept into auditing sciences in 1974 (Koh & Woo, 1998). He defined it as "the difference between the level of expected performance as envisioned by independent accountant and by the users of financial statement". Afterwards, The Cohen Commission (1978) extended this definition by considering whether a gap may exist between what the user expects or needs and what auditors can and should reasonably expect to accomplish. Chandler & Edwards (1996) also defined it as the difference between what the public expect from an audit and what the auditing profession prefers the audit objectives to be. As for porter (1993) she considered *Ligio's* and Cohen commission definitions to be too narrow (Furedi-Fulop, 2015), and defined the (AEG) as the gap between society's expectations of auditors to achieve and auditor's performance, as perceived by society. In sums, the audit expectation gap exists when auditors and the public hold different beliefs about auditors' duties and responsibilities and the message conveyed by audit report (Koh & Woo, 1998).

As a pioneer scholar in this topic, porter (1993) distinguished two major components of AEG. First, *the reasonableness gap*, resulting from unreasonable expectations regarding the auditor duties and responsibilities among the users of audit services. Second, the *performance gap*, which is the difference between what the public can reasonably expect auditors to accomplish and what auditors are perceived to achieve. This latest component which in turn was dismantled into two partial sub-components, one resulting from a deficiency in auditing standards (*Deficient standards*) and another resulting from poor auditor performance (*Deficient performance*).

The literature review on AEG shows that research in this field focused to proving the existence of this gap; measurement its expansion and exploring the ways to narrow it. In this regard, we can point out several studies that was conducted in different countries, including the United States (Baron & Johnson, 1977); United Kingdom (Hamphrey & al, 1993) ; Australia (Monore & Woodliff,

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1993; Schelluch, 1996) ; South Africa (Gloeck & Jager, 1993) ; Netherlands (Hassink & Billen, 2009); France (Jedidi & Richard, 2009); Singapore (Best & al, 2001;Koh, 2000); Malaysia (Fadzly & Ahmad, 2004) ; China (Lin & Chen, 2004) ; Egypt (Dixon & al, 2006) ; Lebanon (Sidani, 2007) ; Saudi Arabia (Haniffa & Hudaib, 2007); Cameroon (Fossung, 2020); Iran (Pourheydari & Abousaiedi, 2011); Romania (Gherai, 2011); Sri Lanka (Kumari & Ajward, 2023).

Studies that have been conducted all over the world have shown differences about characters and causes of AEG across countries (Jedidi & Richard, 2009; Chandler & Edwards, 1993). Moreover, It founded also that this gap exist on its acute form by its two components in less developed countries where the auditing profession is still taking shape such as Saudi Arabia, Egypt, Lebanon, Malaysia and Sri Lanka (Haniffa & Hudaib, 2007; Dixon & al, 2006; Sidani, 2007; Fadzly & Ahmad, 2004, Kumari & Ajward, 2023). However, this gap is much less acute in developed countries such as UK and New Zealand (Hamphrey & al, 1993; Porter, 1993), where the auditing profession has a long history of practice. In fact, it limited only on reasonableness gap. It seems that, the long history witch the profession enjoys, in these countries, led to a greater understanding of auditing standards and responsibilities among auditors.

Regarding the reasons which was contributed to the AEG emergence, several studies has shown that this gap is due to the unreasonable expectations among audit services users and their misunderstanding of the auditor's role (Epstein & Greiger, 1994; humphrey et al. 1993; Ebimobowei, 2010; Okafor & Otalor, 2013 Salehi & Rostami, 2009). However, there are other studies that have point out causes that come from both sides of the gap, which are auditors and financial statements users (Porter, 1993; Lee & al, 2009; Ruhnke & Schmidt, 2014). With this line of thought, we can emphasize studies that attributed a large part of the AEG to the shortcomings of auditing standards (Lee T., 1970; Porter, 1993; Beck, 1994; Haniffa & Hudaib, 2007; Kumari & Ajward, 2023), especially those relating to the audit report (Best & al, 2001). For instance, Kumari & Ajward (2023), using Porter's framework, founded that more than half (56%) of AEG was due to deficiency in auditing standards, 19% due to unreasonable expectations by financial statement users, while 25% of the AEG was found to be due to deficient performance. However, despite this controversy, most studies agree that the reasons for this gap are as follows: the complicated nature of audit function, Conflicting Role of Auditors, Retrospection Evaluation of Auditors' Performance, Time Lag in responding to changing Expectation, Self-Regulation Process of the Auditing Profession and Unawareness and Unreasonable Expectations (Lee & Azham, 2008).

As for on how to address the AEG, IFAC (2003) as well as (ACCA, 2019) announce that the profession's attempts to eliminate it have been not successful. Also, researchers on their side stressed that the elimination of this gap is infortunately impossible (Hamphrey & al, 1993; Sikka & al, 1998). However, this fact did not prevent regulators, professional bodies and researchers to suggest a set of approaches that could be followed to narrow this gap.

As a response on *reasonableness gap* resulting from *unreasonable expectations*, almost all of researchers suggest that education may be an effective approach to narrow it (Koh & Woo, 1998). Moreover, Bailey et al (1983) found that more knowledgeable financial statements users place less responsibility on auditors than less knowledgeable users do. In addition, in a similar way, Epstein & Geiger (1994), found that well knowledgeable investors require less more auditor's assurance regarding the fairness and regularity of the financial statements. As a result, these findings illustrate the role of university's accounting and auditing teaching as a leverage to narrow *the reasonableness gap*, especially by clarifying to students some ambiguous issues such as auditor's duties and responsibilities, as well as the auditing objectives (Monore & Woodliff, 1993; Fadzly & Ahmad, 2004).

On this basis, many studies emphasize the need to follow an education approach, and more importantly educate public regarding auditor's duties and responsibilities and auditing objectives to bridge the AEG (Porter, 1993; Monore & Woodliff, 1993; Hamphrey & al, 1993; Epstein & Geiger, 1994;McEnroe & Martens, 2001).

Otherwise, the audit report expansion can play an important role in narrowing this gap. In this regard, several studies conducted in United-States, United Kingdom, Australia tried to assess the message conveyed in audit report and check its relationship with AEG (Koh & Woo, 1998). Those studies, concluded that audit report expansion as well as the clarification of its confusing terms, improve users' perceptions regarding the responsibilities of both audited entity management and auditor about entity accounts (Nair & Rittenberg, 1987). Therefore, it contributes to enhance their understanding of the auditing process nature (Kelly & Mohrweis, 1989). Moreover, another argument to expand the audit report and make it more understandable comes from banks. Banks- as audit services users- urge the auditing profession to expand the audit report and make it more understandable and suitable for decision makers (Miller & Reed, 1990).

Also, it should be noted the great role can be played by the clarification of auditors' responsibilities and liabilities regarding irregularities detection. In this regard, Hamphrey et al. (1993) & O'Malley (1983) stressed that the auditors' responsibilities for detecting anomalies must be clarified. Moreover, Humphrey et al.

(1993) point out the importance of auditors' liabilities towards shareholders, creditors and potenial shareholders. Furthermore, O'Malley (1983) insist on the role that the auditor must play in verifying the internal control system. However, Lochner (1996) urge that the expansion of auditors' responsibilities and liabilities will be working only if accompanied with auditors' high protection level against lawsuits.

Finally, it should be noted that there is another important issue which is the enhancement of auditors' independence (García-Hernández & al, 2022; Ionesco, 2017). In this regards, Hamphrey (1993) and Lee & Azham (2008) suggested the establishment of an independent (independent from auditing profession) body which deal with auditing standards setting and more importantly with auditors' independence procedures. Moreover, Rabinowitz (1996) insisted on strengthening the audit committee within the board of directors And enhance its role in overseeing the work of the external auditor. Furthermore, both scholars and professionals, suggest the prohibition to auditors to provide Non Audit Services (NAS) to the same clients who have statutory audit tenure with them, as this situation could impairs auditors' independence (Wang & Rahmat, 2023; IFAC, 2020; Hay et al, 2006).

In all, as an integrated approach to deal with the AEG, Hamphrey et al (1993) point out that there are tow main reponse strategies to narrow the AEG, namely a defensive and constructive approach. The defensive approach focuses on education and improvement of public awareness regarding auditor's duties and responsibilities. The expansion of audit report falls in this approach, as well. The constrictive approach seeks to broadening audit activities to meet public reasonable expectations, for example broaden the auditor's responsibilities in area like fraud and illegal acts and to enhance the perceived independence of auditors.

Sample and Methodology

In accordance to the subject nature and the issue to deal with it, as well as in accordance with almost studies which have investigated the AEG, (Carassus et al., 2013; Reiner, 2020; Lee et al., 2009), a questionnaire survey was used to gather data from both the auditors and *Tax-inspectors*. The same questionnaire was distributed to both parties. The questionnaires' statements suitability was discussed with specialist in auditing and methodology as well as to test its reliability as a whole. Finally, we opted for a full-structured questionnaire with two parts. The first deal with the demographic characteristics of the respondents and the second containing 22 statements (knowledge-based questions) in which the respondents can respond using a Five-point Likert scale ranging from 1(Strongly disagree) to

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5(Strongly agree). These statements deal with some issues such as auditing objectives, auditors' duties and responsibilities and auditors' legal liabilities.

As for the study sample, it included 205 auditors and 215 Tax-inspectors, given that the accounting in Algeria is a tax-oriented accounting, which means that the main users of audited financial statements are tax-inspectors. The table 1 illustrates the respond rate.

Table no. 1. Respond rate

Subject group	No. of survey	Responses received	
		N	%
Auditos	650	205	31,53
Tax inspector	270	215	79,62

Sources: developed by the authors based on (SPSS, 2025)

The table 2 indicate the demographic characteristics of respondents

Table no. 2. The demographic characteristics of respondents

Gendre		
	Auditors	**Tax-inspectors**
Male	170	80
Female	35	135
Total	205	215
Education level of respondents		
	Auditors	**Tax-inspectors**
Lower than university level	40	25
Graduation	95	175
Post graduation	70	15
Total	205	215
The level of professional experience of respondents		
	Auditors	**Tax-inspectors**
Less than 10 years	70	64
Between 10 to 20	90	71
Between 21 to 30	20	65
More than 31	25	15
Total	205	215

Sources: developed by the authors based on (SPSS, 2025)

As a reliability test, we carried out the Cronbach alpha test to assess the questionnaires' internal consistency. The outcomes of this test are 0,838, so much higher than 0,7, Which means that the questionnaire is internally consistent. Moreover, Kolmogorov-Smirnov (K-S) test was also carried out to verify whether data follows a normal distribution or not. (K-S) test results made it is clear that the data doesn't follow a normal distribution, which allows us to use Mann-Whitney U test as a non-parametric test.

Results and discussion

Generally, the aggregated results for the survey as illustrated in Table 3, on contrary with Hamphrey et al. (1993) and Koh (2000), show there are no significant differences between the arithmetic means of the auditors' responses and those of the tax-inspectors. In other words, auditors and tax-inspectors have practically the same understanding regarding all issues that the questionnaire deals with it. However, the fact that auditors and tax-inspectors held the same view regarding what auditors should accomplish shouldn't mislead us and lead us to think that the AEG doesn't exist in Algeria and the audit profession in this country is very well. Of course, Paying a close attention to the arithmetic mean of the auditors 3,38 and tax-inspectors 3,40 responses shows that this means is within the acceptance zone of the wrong assertions, which means that both auditors and tax-inspectors misunderstand the objective of an audit, as well as auditor duties and auditors' responsibilities.

The finding that tax-inspectors misunderstand the nature and limitation of the audit is acceptable, because it is generally accepted that the *knowledge gap* exists even in developed countries (ACCA, 2019). Also, this finding corroborates with porter's (1993) framework as well as with other studies mentioned above which claimed that unreasonable expectations among users contribute substantially to arise and expand this gap. Nevertheless, what is abnormal, but does not come as surprise given the chaos reigning in the auditing profession in Algeria, is the fact that the auditors themselves don't know what should perform. Especially, the enormous lack in terms of audit teaching and the continuing training of auditors can justify this situation.

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Table no. 3. Aggregated Mann Wittney U test results

	(N)	(Mean)	(Mann Wittney U)	W de Wilcoxon	Z	Sig
All statments	**Auditors 205**	3,3836	1304,000	2165,000	-,563	0,573
	Tax-inspectors215	3,4098				

Sources: developed authors based on (SPSS, 2025).

Specifically, looking at the results per section. Firstly, for audit objectives, as shown in the table 4, there isn't a significant difference between the arithmetic mean of the auditors' responses and those of the tax-inspectors. The table's results, made very clear that both auditors and tax-inspectors have huge misunderstanding of audit objective and limitation, despite the little differences between their responses which are not significant. Furthermore, the majority of respondent in both sides agreed or even strongly agreed with wrong assertions. For example, 61% auditors 77,9% tax-inspectors agreed with the claims asserted that the objective of an audit is to detect all irregularities, as well as 39% auditors 33,8% tax-inspectors agreed with the claims asserted that the objective of an audit isn't to provide an opinion about the truth and fairness of accounts. Secondly, for auditor's duties, as shown in the table 4, besides that there are no statistically significant differences between auditors' and tax-inspectors' responses, their responses' arithmetic mean falls within the scope of wrong assertions acceptance. Moreover, incredibly 39% auditors 55,9% tax-inspectors agreed with completely wrong assertions such as auditors have a duty to make accounting record and prepare the financial statement on behalf of audited entities. Also, 73% auditors and 72% tax-inspectors think that auditors implement internal control systems in audited entities, which considered at least for auditors as a huge ignorance of both on how companies organise their activities. Moreover, it demonstrates the extent to which auditors ignore the provisions of ISA 240 regarding auditor's responsibilities relating to fraud in an audit of financial statements (Nica & Cocosatu, C. C., Tomoiaga, L. 2012). Hence, those results show that there is a wide *ignorance gap* regarding auditor's duties not only among tax-inspectors but also among auditors. It doesn't corroborate with any study results and show that a large percentage of auditors don't know pertinently what means independence standards, which a bedrock principle upon the audit quality is based. Thirdly, as can be seen in table 4, both auditors and users were

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neutral regarding to the auditor's responsibilities and liability. But, looking at responses per assertion, its frequencies show that 46,4% of responded auditors agreed with statements which asserts that auditor is primarily responsible and liable for fraud and misleading information contained in audited financial statements. Moreover, 39,1% think that auditor can be held liable by users notwithstanding he argued that he performed with due diligence.

Table no. 4. Per topic Mann Wittney U test results

Results per section	(N)	(Mean)	(Mann Wittney U)	W de Wilcoxon	Z	Sig
Audit objectives	**Auditors 205**	3,5610	1309,000	2170,000	-0,534	0,593
	Tax-inspectors215	3,6282				
Audit duties	**Auditors 205**	3,5463	1234,000	2095,000	-1,007	0,314
	Tax-inspectors215	3,7294				
Audit responsibilities	**Auditors 205**	2,7415	1152,500	2013,500	-1,515	0,130
	Tax-inspectors215	2,9735				

Sources: developed by the authors based on (SPSS, 2025).

Conclusions

The main purpose of this study was to investigate the existence of AEG in Algeria, as well as to understand in which area exists this Gap, using a porter's (1993) and ACCA's (2019) framework. The outcomes of this study show that there isn't AEG, in contrary with what almost studies reached. But there is a huge misunderstanding on both auditors and users of all area that the knowledge-based questions contained in the questionnaire deal with it.

Therefore, as asserted by Lim (1993) and Wolf (1985) the blame, for these puzzling results, should not place on one side totally. Of course, we can blame audit services users for their unreasonable expectation but we can't totally side with profession and Epstein & Greiger's www (1994) and Humphrey et al (1993) assertions that attributed the AEG to misperceptions of audits by users and the public. Moreover, we can't allow auditors to escape responsibility for being held nearly the same wrong perceptions as well as users. Furthermore, if auditors fail to

Hence, all audit stakeholders in this country should move as soon as possible to deal with this situation that metastasizing auditing profession, undermine the public confidence towards it and raise concerns regarding its feasibility. To mitigate this problem, we need a holistic approach that implements far-reaching changes. These changes must follow, as suggested by Humphrey et al (1992), two main strategies namely a defensive and constructive approach. Furthermore, it is true that public's perception of audit should be improved. The performance gap also needs to be addressed and that involve action by all auditing profession stakeholders.

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HUMAN CAPITAL MIGRATION, HUMAN CAPITAL SKILLS AND INDUSTRIAL OUTPUT GROWTH. A DYNAMIC SYSTEM GMM APPROACH

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Abstract

This study examined the impact of human capital skills and human capital migration on industrial output across sub-Saharan Africa (SSA). Endogenous theorists posited that human knowledge and mobility spur industrial output growth. Nevertheless, indication from the sub-region proves otherwise based on the persistent threats on industrial growth posed by low human capital skills and incessant human capital migration from the sub-region to advanced economies. Consequently, vacuums were filled in the literature through sub-sample technique to methodically relate human capital migration and skills across the SSA's sub-regions. The short-run and long-run econometric estimating technique was used through System Generalized Methods of Moments (sys-GMM) to examine the impacts of human capital skills and human migration on industrial growth in SSA. Therefore, effects based on sub-regions were systematically revealed. Then, the findings suggested that nations in SSA should design strong sub-region policy framework by reforming and refining learning systems throughout the sub-region blocs across SSA. Also, the authorities should produce a favorable knowledge and working environment for trained human capital to accelerate up-to-date skill acquirement and restrain brain-drain for industrial output growth. This would ultimately uphold knowledge-deepening toward a knowledge-based economies in SSA.

Keywords: *human capital, migration, skill output growth, system GMM.*

JEL Classification: J6, J24, L11, O55.

Introduction

Human capital skills are productive inputs pertinent to industrial output growth (Becker, 1964; Leibbrandt, 2013; Ghahroudi, Hoshino & Ahmadpoury, 2019; Mboko, 2020). However, there are divergent views on how human capital skills and migration affect industrial growth across sub-economies across sub-Saharan Africa (SSA), where low human capital skills, low mechanical skills, low creativity, low productive output, and low-value addition, amongst other factors, restrain productive growth (Mendes, Bertella, and Teixeira, 2014; Novignon & Lawanson, 2017; Akinlo, 2020; Ughulu, 2020; Keji, 2021; Ndaguba, & Hlotywa, 2021; Keji, 2023).

According to World Migration Report (2024), highly skilled human capital mobility has been intensified across the global by 169 million in the last two year, especially from developing countries such as sub-Saharan Africa (SSA) to developed countries. This intensification of migration has re-shaped productive activities in the SSA due to continuous loss of few available human capital with the requisite skills to advanced nations for better job opportunities. The SSA region is predominated by huge populace with low productive skills while the few available ones are attracted to better offers abroad, hence disrupt the sub-regional output growth (Keji, Akinola & Mbonigaba, 2024). Meanwhile, human capital migration across sub-region countries follow varied pattern, as migrants from the East Africa tend towards the Gulf nations to seize one job opportunity or the other, while their counterparts from the West and the Central Africa tend toward United States and Europe for greener pastures (World Migration Report, 2024). In past years, there has been incessant rise in the trend of human capital migration, including those with requisite productive skills. This could traced to the world development indicators and the world migration reports thus;

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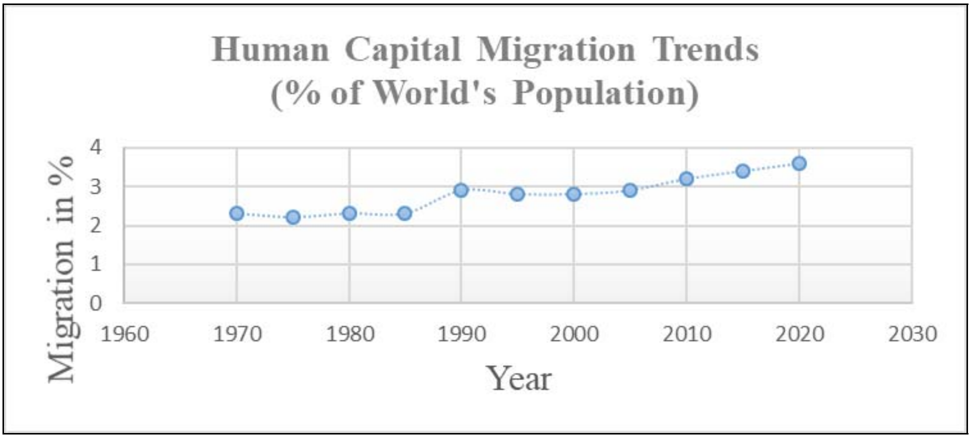
Figure 1:



Source: Adapted from World Migration Report. 2024.

The growing trends in human capital migration in Figure 1 has compromised human capital skills and re-shaped the productive outlook across the sub-region in the SSA. Notably, Nigeria, as the most populous nation on the continent of Africa, is a good example of vast human resources without significant impact on productive growth, especially in terms of human capital skills. The sub-Saharan populace is being characterised by slow industrial output growth in recent years (Keji, Akinola and Mbonigaba, 2025). The low industrial output growth tends to have been further compromised by the incessant migration of a few skilled labour, particularly in large numbers of young skilled workers running out of the continent for greener pastures in advanced economies abroad. These vastly skilled workers that had been educated in the SSA abruptly travel abroad without any contribution to productive growth within the sub-regional economies. For example, in Europe and the United States, highly skilled Nigerians and other sub-region member nations represented large percentage of the total migrant workers (World Development Indicator, 2023; World Migration Report, 2024). Percent of Nigerian rise to 23% of 40,000 workers that were employed in the health-care sector, while accounted for with 12 % in real estate and wholesale sectors in 2019 (OECD, 2020). In another development, advanced countries retrain migration-skilled workers to improve their internal industrial output growth. Migrants are normally expose to additional training in Canada and the United Kingdom to fit into the demand-driven employment gap. Nigerians accounted for 55 percent of the 247,500 migrant workers in OECD countries in 2002 and they were mainly experts (Liu, 2020). However, some others strive to meet up daily needs with menial jobs such as cleaners, cab drivers, construction labourers, hairdressers, automobile repairers and retailers at the expense of the sub-Saharan industrial output growth (World Migration Report, 2024).

Industrial output growth requires high-skilled human resources (Brunello & Rocco, 2017; Keji, 2021; Tadele, Sirany, & Nsiah, 2021; Githaiga & Kilong'i, 2023). However, Sub-Saharan Africa is constrained by limited human capital skills development, which is characterised by massive human capital skill migration, which is commonly called "JAPA syndrome," to slow industrial output growth in SSA. JAPA syndrome is a common slang often used among the young populace as a desperate means of travelling abroad for greener pastures. This is further complicated by limited government efforts in tackling the massive loss of skilled human capital from the sub-region to advanced economies across the globe at every slight opportunity. Another concern is the sub-region maladministration without creating enabling environment for human potential to thrive in SSA (Wonyra, 2018; Akinlo, 2020). Therefore, this study is pertinent in addressing how slow industrial output growth might have linked to human capital skills and human capital migration in SSA?

Consequently, the research intends to fathom the roles of human capital skills and human capital migration on industrial output growth in sub-regional economies across SSA from 1995 to 2024. This study firstly identifies the causes of human capital skills and human capital migration across individual sub-region economies in SSA via sub-sampling techniques and then attempts to measure the collaborative effects of human capital skills and human capital migration on industrial output growth across SSA via the long-run System GMM. Notably, this study would have addressed poor human capital skills, incessant migration of skilled workers and slow industrial output growth among the sub-region blocs in SSA. The emerging questions are: firstly, what are the causes of human capital skills and human capital migration advancement across the Economic Community of Central African States (ECCAS), East African Community (EAC), Economic Community of West African States (ECOWAS) and South African Development Community (SADC). Secondly, how do human capital skills and human capital migration influence industrial growth across sub-regions in SSA?

Despite this vast human capital, the number of skills possessed among the populace still falls short of catalysing industrial growth (World Bank, 2023).

Particularly, SSA has not entirely connected its potential due to numerous encounters such as low human capital skills, decaying infrastructure, policy contradiction and corruption (Akinlo, 2020). Although migration provides economic benefits such as high remittances and increased labour mobility, it also poses several challenges, such as slow industrial output growth due to brain drain pressure. Consequently, this study is pertinent to stabilising productivity in the SSA sub-region and improving labour employment, which could drastically reduce JAPA syndrome. Africa has a huge labour force, and a large fraction of this workforce lives in sub-Saharan Africa (Akinola & Mbonigaba, 2019).

2. Literature

The concept of human migration could be traced back to the mercantilists' era, when European migrants came to Africa via mercantile entrepreneurship to acquire protectorates and reside in enormous areas of region for more than 300 years (Golden & Reinert, 2006). Also, the theory of human capital comprises the overall skills and energies of human assets in an economy directed towards achieving general output growth. However, in recent years, the reverse has been the case, where human mobility incessantly includes any type irrespective of its distance, configuration, or causes; it comprises movement of migrants, displaced people, relocated people, and economic travelers (World Migration Report, 2024). This trend has made advanced economies across the globe major destinations for foreign skilled migrants, which has drastically affected domestic productive output growth. Whereas, the few available human capital skills in SSA were constrained by poor infrastructure and the requisite educational skills to influence productive growth.

Empirical Literature

Troshchenkov (2011) inspected the effect of migration on the unemployment rate in 99 municipalities across Denmark within three years. The study disclosed that most European studies negatively affect immigration, which contradict studies from North America with positive effects. The study adopted a regression statistical model to analyse and conclude that there exist the impact of migration on unemployment rate in Denmark for immigrants from non-Western nations. The outcomes show that variations in the foreign population, especially the non-Western origins populace do have significant changes in the unemployment rate.

Ratha et al. (2014) disclosed a trend on the development influence of migration and remittances on home and destination countries in the sub-Sahara Africa, with significant implications for transfer and receipt nations. In lieu of a destination

nation, migration and the resultant remittances caused improved wages and poverty decline, better-quality health and education, and promoted economic expansion. Meanwhile, Brunow et al., (2015) considered the influence of international migration on economic growth in the global world via a regression model between 1950 and 2010. The outcomes showed that net migration in ten years period has been neither detrimental nor useful to economic growth based on the real per capita income. However, the regular surge (in variance between birth and death rates) has been detrimental to growth through lags, which indicates that wealthy countries' net-migration aids development in the long run through a demographic dividend.

Škuflić and Vučković (2018) examined the impacts of emigration on emigrant nations' unemployment rates (temporary effect) in designated emigrant from the EU. The panel fixed-effects model spans through 2004 and 2015 nations across the EU: Bulgaria, Croatia, Estonia, Greece, Latvia, Lithuania, Portugal, Poland, and Romania. The outcomes show that emigration upsurges the unemployment rate across migrant countries. As against the general anticipated positive impact on unemployment, hence emigration can also adversely affect emigrant countries' labour markets.

Liu (2020) examined 'Belt and Road' country's industrial structure advancement from 1995 to 2018. The research employed dataset via panel distribution to reveal that human capital determined industrial configuration through quality and quantity labor forces. Meanwhile, Lin (2019) stressed human capital skills attained needed to be transformed into productive use for industrial output growth via Knowledge evaluation and investigation in Knowledge administration. The study resolved that knowledge is preserved into creation, controlling, storage, transfer, and transformation toward industrial output growth.

Duru (2021) studied the primary causes and effects of international migration in Nigeria through a structured questionnaire. The opinions of 100 respondents were sought for through the purposive sampling technique. The results shown that the primary causes of international migration in Nigeria were attributed to lack of job opportunities, unemployment, low salaries, safety and security, while the effects were attributed to better conditions of service, better salaries and higher standards of living.

Kunwar (2021) considered the influences of migration on poverty alleviation across all the society strata. Both in-house and global migration phenomena, including the job location of migrants, are analysed. The study employed secondary data to establish the finding proof of the connections between migration and poverty at specific, family, community, and nationwide levels. The migration

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issue has revealed evidence of decreasing poverty levels, but travelers are being forced to work in an unfair and unclean environment. Female migrants have been the major victims of mistreatment compared to male migrants. Poverty decline was achieved at the cost of the exploitative and hazardous working location of migrants, which can be measured as prejudiced against migrants and their countries of destination. Meanwhile, Adeyemi and Ogunsola (2016) posited significant influence of investment in human capital on the Nigerian economy in the long run. Cointegration and ARDL techniques were employed via secondary data. Consequently, the findings recommended that the government focus more on developing human capital skills in the education sector to improve output growth in Nigeria. To address the disconnection from the literature, examining the effect of human capital skills and migration on industrial growth in SSA between 1995 and 2024 is germane. This is to address the needed vacuum yet to be address in the previous studies.

3. Methodology

The extant endogenous growth theory is adopted in the study to establish the causes of human capital skill and human capital migration on industrial output growth. As advocated by Arrow (1962) and Lucas (1988), Romer (1994) emphasised different determinants of human capital and how sustainable these investments in human capital propel output growth compared to investment in physical capital. Mankiw (1992) and Romer (1994) therefore introduced stock knowledge in human capital as the public stock for general output growth to come up with; $Y_j = A(H)F(K_j, H_j)$……………………………………3.1

Log-linearizing model

3.1; $logY_j = logA + logH + logK_j +, logH_j + U$………3.2

Where H denotes aggregate stock of human capital, A explains factor intensity, while Kj means the stock of physical capital across country j, and Hj implies the public stock of human capital in j. j describes individual SSA countries, and U explains the stochastic error terms in the model. So, publicness in H and Hj is different in model 3.2.

4. Empirical data results

This is to achieve objective one by unravelling diverse effects of human capital skills and human capital migration across EAC, ECCAS, ECOWAS, and SADC sub-regions. It paves the way through a sub-sample analysis. The first results from

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the sub-sample analysis and short-run dynamic model were revealed in Tables 1 and 2. The sub-sample analysis is used to relate the strength of human capital skills and human capital migration indicators across the sub-regions. Meanwhile, the short-run estimations were performed using robust empirical modelling. This is done to establish the true impacts of human capital skill and human capital migration on industrial output growth.

Table 1: Sub-Sample Analysis for the Determinants of Human Capital Skills in SSA.

Sub-regions	**EAC**	**ECCAS**	**ECOWAS**	**SADC**
Robust Analysis	logHit	logHit	logHit	logHit
Variables	Coef./t-stat.	Coef./t-stat.	Coef./t-stat.	Coef./t-stat.
IDO	.0045754	-.0000415	.0005878	.001233
	(2.28) ***	(-0.16)	(0.49)	(1.80)*
AYS	-.0502319	-.0019524	-.0494359	-.0543594
	(-3.84)***	(-0.31)	(-6.48)***	(-2.89)***
LPR	-.0010291	-.0055801	.0004478	.0018172
	(-1.51)	(-7.21)***	(0.90)	(-3.76)***
LBF	3.97e-09	-4.03e-09	-2.08e-09	9.74e-10
	(1.35)	(-3.83)***	(-3.40)***	(1.89)*
GCF	.0005919	.0002311	-.0001305	.0006304
	(1.80)*	(1.65)*	(-1.23)	(1.51)
HOC	.0001789	-.0000592	.0001815	-.0001772
	(0.20)	(-0.81)	(0.23)	(-0.27)
FDI	-.0036536	-.0005438	.0010705	.0094386
	(-2.23)**	(-1.93)**	(1.21)	(3.01)***
LIR	.0019579	.0004931	.0025089	.0019768
	(4.29)*	(1.47)	(8.30)***	(3.21)
MIG	.0107459	.0052447	.0075865	.0062874
	(6.08)***	(3.77)***	(7.30)***	(4.82)***
Cons	.5023434	.9336774	.6055116	.6009577
	(2.87)	(17.72)	(9.89)***	(3.45)***
Number of obs	285	192	443	348
F-statistics	24.59	29.27	37.80	32.05
Prob > F	0.0000	0.0000	0.0000	0.0000

Source: Author's Computation, 2025. ***Note:*** *representations of numbers in parentheses indicate the t-statistics and a level of significance at (***)1%, (**) 5%, and (*)10%, respectively.*

Table 1 shows outcomes from the robust sub-sample analysis to explain the resilience of indicators for human capital and human capital migration indicators across EAC ECCAS, ECOWAS, and SADC in SSA. These are the key indicators employed in the models. Key impacts of human capital skill and human capital migration in Table 1 are school enrolment (SER), average of schooling (AYS), labour participation rate (LPR), labour force (LBF), literacy rate (LIR), and migration rate (MIG), which were significant in the four sub-regions. Also, control variables for human capital skill development, such as gross capital formation (GCF) and foreign direct investment (FDI), were significant across the four sub-regions except for household consumption (HOC). Human capital skill and human capital migration determinants were more proactive in SADC compared to other sub-regions. SADC has a higher percentage level of human capital skill, which is strongly estimated to predict output growth than ECOWAS, ECCAS, and EAC. While SADC trails ECOWAS, and it is better off in terms of coefficient determinants for human capital skills compared to ECCAS and EAC. Based on the cross-sub-regional ranking, EAC's coefficient of human capital skill development is ranked the least, followed by ECCAS. The implication is that each sub-region has a peculiar pattern and strength of both human capital skills and human capital migration, which have diverse implications on industrial output growth.

Consequently, industrial output growth across EAC, ECCAS, ECOWAS, and SADC in SSA disclosed diverse effects, as predicted by human capital skills and human capital migration, as shown in Table 1. The next is short-run system GMM analysis.

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Table 2: **Dynamic short-run panel-data estimation, two-step system GMM** (Short-run Robust model)

Number of instruments = 39	Number of observation = 1240	Wald chi2(15) = 8268.61 Prob> chi = 0.0000	Time variable = Years Obs per group: min= 31	Number of group = 40 avg = 31.00 max = 31
Variables				
Loggdp	**Co-efficient**	**Robust Standard Error**	**Z-statistics**	**Probability Value**
L1.logGDP	**0.3838458**	**.14307660**	**2.68**	**0.006**
SER	**-2.032187**	**0.7925304**	**-2.28**	**0.023**
AYS	**-0.167951**	**0.0842693**	**-1.68**	**0.093**
LPR	**-0.004147**	**0.0045731**	**-0.85**	**0.541**
logLBF	**0.0293031**	**0.0363256**	**1.09**	**0.290**
GCF	**0.004393**	**0.0016957**	**2.29**	**0.008**
FDI	**0.012083**	**0.0036640**	**3.30**	**0.002**
HOC	**0.000196**	**0.0005149**	**0.38**	**0.703**
LIR	**0.005949**	**0.0019704**	**3.02**	**0.003**
MIG	**-0.024337**	**0.0147890**	**-2.15**	**0.040**
Con.	**2.604635**	**1.0170700**	**2.56**	**0.010**

Source: *Authors Computation, 2025.*

On this note, we need to perform some post-estimation tests to unravel the validity of the two-step dynamic system GMM results in Table 4. The autocorrelation and Hasen/Sargan tests shall be carried out, respectively, to ascertain the validity and reliability of the two-step dynamic system GMM model estimation in Tables 5 and 6.

Table 3: Robust Arellano-Bond Autocorrelation Test

Ho: no autocorrelation		
Arellano-Bond test for AR(1)	**z = -2.57**	**Pr > z = 0.010**
Arellano-Bond test for AR(2)	**z = 1.37**	**Pr > z = 0.169**

Source: Authors Computation 2025.

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Table 4: Hansen test of over-identifying restrictions

Ho: over-identifying restrictions are valid	
chi2(28) Prob > chi2	= 31.99 = 0.275

Source: Authors Computation 2025.

According to Roodman (2009), autocorrelation levels, as stated by Arellano–Bond autocorrelation test, should be executed on the basic residuals rather than the differenced levels, which only apply to System GMM. Hence, the study built on this rule of econometric assumption. The salient fact from the second model is the fact that the presence of autocorrelation at the lower order is adjusted at the higher order, hence the model is free from any incidence of autocorrelation (Arellano & Bover, 1995; Blundell & Bond, 1998; Adeleye et al., 2017 and Roodman, 2009; Adeleye, 2018). Likewise, the Sargan test of over-identifying boundaries results was reported to disclose group exogeneity of a null hypothesis instruments. The implication is that the higher p-value from zero, the better the Sargan statistics. Therefore, the Sargan coefficient in Table 4 indicated the Null hypothesis was rejected that group instruments are firmly not exogenous. That is, over-identifying boundaries are not valid. Hence, the GMM instruments adopted in this research are good and free from negative impact on the estimates.

4.3 Long-run Dynamic Effects of Human Capital Skill and Migration on Industrial Output Growth, two-step System GMM

It is worth noting that long-run analyses were adopted to reveal the strong and significant impact of short-run estimates, as this would reveal the level of consistent effects of the estimated variables in the model (Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998; Adeleye et al., 2017; Roodman, 2009). This forms part of the contribution to the empirical literature by estimating the long-term effects of human capital skill and migration on industrial output growth via the GMM system. Notably, the main variables such as **AYS, SER, GCF, FDI, LIR, and MIG** were statistically significant in the short-run as the variables of interest in this section. The long-run system GMM analysis relied on the following econometric computation and formula. That is, the long-run impact of human capital skill development on output growth for the ɳth parameter effects is estimated by $\boldsymbol{\beta_\eta / [1 - \Phi]}$. Where $\boldsymbol{\beta_\eta}$ signifies the significant coefficient of the short-run System GMM estimation, $\boldsymbol{\Phi}$ elucidates the short-run coefficient of the GMM lag-dependent estimate. As stated above, statistical syntax divides the

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short-run coefficient estimate by one minus the short-run lag coefficient to compute the long-run coefficient estimate. Outcomes from Table 5 disclosed that all variables of human capital skill and migration exhibit long-run effects on output growth in SSA. The variables for school enrolment, average year of schooling, and literacy rate demonstrated as sources of the former and informal means for knowledge acquisition were statistically significant in connection with industrial output growth in SSA. *This has filled notable gap in the empirical literature, as the results account for the long-run transformation human skill and migration into output growth, which is very rare among mainstream economic studies.*

Details of relevant statistics reports, such as Z-statistics, probability value, and interval confidence level, were disclosed in Table 5.

Table 3: Long-run dynamic panel-data estimation, two-step system GMM (Specific Effects)

Statistics	Coefficient.	. Std. Err.	Z statistics	P>|z|	95% Conf. Interval
SER	-3.316034	1.734713	-1.91	0.056	-6.716009 .0839396
AYS	-.2561863	.1686247	-1.52	0.129	-.5866846 0.074312
GCF	0.0063162	0.003451	1.83	0.067	-0.0004476 0.0130801
FDI	0.0196111	0.0064072	3.06	0.002	0.0070532 0.0321689
LIR	0.0096546	0.0027925	3.46	0.001	0.0041814 0.0151279
MIG	-0.0394981	0.0275746	-2.43	0.052	-0.004547 0.0035432

Source: *Author's Computation 2025.*

Results from Table 5 revealed that all variables of human capital and human capital migration exhibit long-run effects on industrial output growth in SSA. The variables for school enrolment as a source of the former or conventional mean of knowledge acquisition continued to be negative and statistically significant on industrial output growth. Also, the opportunity cost of skill acquisition, proxied by average years of schooling, is statistically insignificant in the long run. This implies that labour human capital is unable to adjust to productive life in and out of school. Furthermore, control variables such as series for gross capital investment in human capital skill proxy, as gross capital formation and variable for internalisation and investment in human capital skill proxy, as foreign direct investment, was significant in the long-run. Other key measures of human capital skill development, such as literacy rate, which explained labour's speaking and writing skills, with the ability to communicate effectively, are statistically significant. Meanwhile, the life expectancy ratio that explains the life cycle of acquired skills in human capital only significantly affects output growth in the short run, with no long-run contribution to output growth. The implication is that longer life does not equate to higher contribution to output growth, but rather the level of productive skill labour possessed is pertinent to growth while alive.

5.0 Conclusions and Recommendations

The study adopted sub-sample analysis and short-run and long-run System GMM methods, which are rare among mainstream studies. Subsequently, this research fills the current gaps by assessing the cross-regional impact of human capital skill and human capital migration across EAC, ECCAS, ECOWAS and SADC. That is, the study assessed the collaborative effects of human capital skills and human capital migration on industrial output growth in SSA. Therefore, using sub-sample analysis, the research contributed to the body of literature by disclosing proof that the human capital skills and human capital migration composition significantly varies across sub-regions in SSA. Also, the disaggregated system-GMM methods adopted disclosed the short-run and long-run effects of human capital skills and human capital migration on industrial output growth. Therefore, the study concludes that the key human capital factors negatively influence output growth, which further reveals the underdevelopment of human capital productive skills in SSA. This is further attributed to incessant migration of human capital skills popularly referred to as “JAPA syndrome” among the young migrants from the African region. From the estimated results, it was observed that the variable for literacy rate influenced output growth, with the expectation that the ability to communicate effectively would improve general output growth. While variable for school enrolment rate, average year of schooling and migration data coefficients exhibited a adverse and significant impact on industrial growth. The negative implications might be caused by a poor education system and poor opportunity cost of schooling (i.e., ineffective alternation between schooling ages and working ages). The education system in SSA does not propel better alternatives forgone for human capital skill acquisition while at school and at work across different age groups. Also, poor curriculum design and lack of intellectual and political will might be responsible for the negative and significant effect of school enrolment on industrial output growth. Therefore, necessary attention is needed in these areas to address slow output growth in the region. The government needs to make more concerted efforts through reconfiguring the entire education system in the region, especially across EAC, ECCAS, and ECOWAS, by allowing intellectualism to thrive rather than politics, as this would address the current challenges of brain-drain. Based on the diverse effects of human capital skill determinants across EAC, ECCAS, ECOWAS, and SADC, individual sub-regional policy support should be drafted towards addressing low human capital skill development and restraining brain drain. Although this study tries to fill some gaps in the literature, there is still a limitation in data accessibility that prevented the inclusion of some SSA countries in our study. It is pertinent for future researchers to be aware of this current challenge.

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EFFECT OF FUEL SUBSIDY REMOVAL ON THE NIGERIAN ECONOMY: IMPLICATION FOR THE HOUSEHOLD

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Abstract

This study examined the impact of subsidy removal on the Nigerian economy. Specifically, the study aimed to determine how the removal of subsidies influences the prices of food items, assess their effect on the standard of living, and investigate the extent to which it contributes to rising poverty levels. Data for the research was gathered through questionnaire and interviews, while a survey research design was employed. The analysis of responses revealed that the removal of subsidies has a significant negative effect on food prices, as it leads to noticeable increases in the cost of basic commodities. Similarly, findings showed a negative relationship between subsidy removal and the standard of living, with citizens experiencing greater economic hardship. The study also established that subsidy removal has played a role in deepening poverty in the country. In conclusion, the study highlighted that the withdrawal of fuel subsidy has triggered a general rise in the prices of goods and services, particularly in areas such as transportation and food. Based on these findings, the study recommends that the government should invest more in critical infrastructure, such as roads, bridges, drainage systems, and storage facilities, to reduce costs for businesses and enhance the welfare of citizens.

Keywords: *fuel subsidy removal, Nigeria economy, standard of living, development, infrastructure*

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Introduction

The discovery of crude oil in commercial quantities at Oloibiri in the Niger Delta in 1956 shifted Nigeria's focus almost entirely to oil production and export. Once an agrarian nation, Nigeria quickly redirected its economic priorities toward petroleum exploitation. This brought in unprecedented foreign exchange earnings and reserves, but at the same time led to the neglect of other critical sectors such as agriculture and manufacturing. Consequently, the Nigerian economy became heavily dependent on oil revenues for its interactions with the global economy.

According to IISD (2012), subsidies are a key policy issue for many developing and emerging economies. While they are intended to ease economic pressure on citizens, they impose huge financial costs on governments, and efforts to remove them often meet resistance. In Nigeria, subsidy was introduced in 1992 when the country's refineries collapsed due to poor maintenance. It was meant to temporarily stabilize fuel prices so that citizens could buy petroleum products at affordable rates until the refineries were fixed. However, the policy was hijacked. As Bnovative (2014; Etinagbedia & Nwokolobia, 2024) noted, oil import and marketing licenses were issued to close associates of the Ibrahim Babangida administration, mostly from Northern Nigeria. This group, often referred to as the "oil cabal," exploited subsidy payments to amass enormous profits while deliberately frustrating refinery rehabilitation. A measure designed to last just six months has, however, persisted for more than four decades. Todaro et al. (2009) describe a subsidy as government assistance to an industry or business to prevent its decline, essentially covering part of the production cost so consumers can purchase goods at lower prices. Similarly, UNEP (2002) defines subsidy as government action that reduces consumer prices or increases producer prices. In Nigeria's context, fuel subsidy means selling petroleum products below importation cost.

Since the 1980s, Nigeria's petroleum sector has faced persistent challenges, with subsidies becoming a major feature of the energy industry from the mid-1980s. Their cost rose sharply from \$1 billion in the 1980s to about \$6 billion by 2011 (Adebiyi, 2011). Because the Nigerian economy depends almost entirely on petroleum, especially Premium Motor Spirit (PMS), as both a production and consumption driver, alternatives to petroleum energy remain underdeveloped. Attempts at economic diversification have yielded little results. Consequently,

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subsidy removal has serious national implications, as it increases production costs, leading to general price hikes across goods and services.

Oil and gas wealth remains the backbone of Nigeria's economy, accounting for about 99 percent of government revenue and 38.8 percent of GDP (National Budget, 2010). Yet, despite this enormous income, successive governments have failed to use oil resources effectively to reduce poverty or deliver essential social and economic services to citizens (Ering & Akpan, 2012; Okolie & Etinagbedia, 2024). Economically, subsidy means consumers are supported by the government to pay less than the actual market price for fuel. In practice, it is the difference between the true market price of petroleum products and the amount consumers pay at the pump. Beyond direct payments, subsidies can also take indirect forms, such as regulations or government funding that favor a particular fuel or energy source (Adebiyi, 2011).

Statement of the Problem

According to Bazilian and Onyeji (2012), many developing countries have relied on fossil fuel subsidies for consumers as a strategy to achieve specific social, economic, and environmental goals. These include reducing energy poverty, promoting equity, boosting domestic resource supply, redistributing national wealth, addressing externalities, and stabilizing inflation. In line with this, Nigerian leaders introduced fuel subsidies in the 1980s, believing that citizens deserved to benefit from the nation's natural resources by accessing petroleum products at lower prices, while also pursuing broader socio-economic and environmental objectives.

Since the introduction of the policy, Nigerians have enjoyed subsidized fuel prices. However, from the outset, the government did not clearly define which categories of citizens were entitled to benefit. As a result, industries, multinationals, and foreign investors, who could afford market prices also reaped the benefits. This led to a surge in consumption, making the subsidy increasingly difficult for the government to sustain. This aligns with the observation of Onyeizugbe and Onwuka (2012), who noted that successive Nigerian governments have often reduced subsidies, arguing that domestic fuel prices were artificially low compared to international benchmarks, and that subsidy removal was necessary to realign the economy.

Ultimately, this policy shift placed ordinary Nigerians in a challenging position, as the withdrawal of subsidies eroded a benefit they had depended on for decades. Against this backdrop, this study seeks to examine the impact of fuel subsidy removal on the Nigerian economy, with particular attention to household

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experiences. Therefore, the primary aim of this study was to analyzed the impact of fuel subsidy removal on the Nigerian economy, with particular focus on household experiences in the South-South region. To achieve this, the study pursues the following specific objectives:

i. To investigate how subsidy removal influences the prices of food items.
ii. To assess the relationship between subsidy removal and the standard of living.
iii. To evaluate the extent to which subsidy removal contributes to rising poverty levels.

Conceptual Framework

The Concept of Subsidy

Subsidy is generally understood as financial support provided to certain goods or industries to keep prices low, sustain employment, and stimulate economic activities (Nkwagu, 2012). It may also be described as any government intervention that reduces the cost of energy production, increases the earnings of energy producers, or lowers the price paid by consumers (IEA, OECD, & World Bank, 2009, cited in GSI, 2011). Similarly, the Oxford Advanced Learner's Dictionary (2001) defines subsidy as money granted by a government or organization to reduce the cost of producing goods or services, thereby keeping prices affordable. In the same vein, the *Academic Dictionary of Economics* (2006) views subsidy as a cash incentive provided by the government to an industry to reduce product prices and enhance competitiveness.

In Nigeria, citizens had benefited from fuel subsidies since the 1980s, but this policy was suspended by the administration of President Goodluck Ebele Jonathan on January 1, 2012. The government argued that sustaining subsidies was costing the nation trillions of naira annually and that reallocating these funds was essential for infrastructure development. This position was endorsed by the National Economic Council (NEC), chaired by Vice President Namadi Sambo, which included state governors, key ministers, and the Central Bank of Nigeria. The NEC maintained that subsidy removal was necessary to prevent the collapse of the economy (Oji & Eme, 2014).

Fuel subsidy essentially represents a form of price control, whereby the government sets a fixed pump price for consumers and compensates retailers for the gap between the actual market price and the regulated price per liter. This arrangement enabled millions of Nigerians to access petroleum products at cheaper rates (Iyobhebhe, 2012). According to Ezeagba (2005), subsidies exist when the government helps consumers pay less than the market price of a commodity. From the producers' perspective, a subsidy could mean government support to either restrict production or supplement producers' incomes when product prices fall below a sustainable level.

Factors to Consider Before Using a Subsidy or Principles of Subsidy

According to WSSCC/WHO (2005), as cited in Aleix and Keller (2014), the following principles guide the use of subsidies:

1. **Alignment with policy goals:** Subsidies must be clearly tied to well-defined policy objectives.
2. **Targeted benefits:** They should be directed toward the intended beneficiaries, with effective monitoring systems to ensure proper delivery.
3. **Financial sustainability:** The total costs, including both initial investments and long-term operational expenses, should be well understood, with reliable funding sources in place to keep the program sustainable.
4. **Integration of local needs:** Beneficiaries should be actively involved in the process to ensure the program reflects their needs and fosters a sense of ownership of the subsidized infrastructure.
5. **Transparency and accountability:** Since subsidies involve public resources, their implementation must be carried out clearly and transparently.

Categories of Subsidies

Louis (2012), as cited in Iheagwara, Nwiko, Otu, and Chikwe (2013), outlined various categories of subsidies. The first is direct financial transfers, which involve the government providing cash payments or grants directly to producers or consumers to reduce costs and encourage accessibility. The second is services and indirect financial transfers, where support is provided in the form of subsidized services, tax reliefs, or preferential credit schemes that indirectly lower production or consumption costs. Another category is interventions with varying short- and long-term effects, which refers to government policies or actions that may initially provide temporary relief but also have wider implications for economic growth, market stability, or consumer behavior over time. Finally, intervention is absent, where the government deliberately refrains from regulating or intervening in certain sectors, and this inaction itself may act as a form of implicit subsidy by allowing particular practices or market advantages to persist.

Negative Consequences of Fuel Removal

Abang (2012) highlighted several negative consequences of subsidy removal, which include higher production costs, increased transportation expenses, rising

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cost of living, greater costs in providing essential services, and a surge in corruption.

Effect of Subsidy Removal on Food Items: Fuel serves as the major driver of Nigeria's economy, and any increase in its price directly affects the cost of goods and services. Food commodities are particularly vulnerable to such changes. Oji and Eme (2014) observed that many traders returning to the market after festive breaks struggled to cope with the sharp rise in the cost of replenishing their stock. Inevitably, these additional costs were transferred to consumers, resulting in a noticeable rise in food prices.

Effect of Subsidy Removal on Standard of Living: Critics of subsidy removal argue that the policy reflects a disconnect between government leaders and the economic realities faced by ordinary Nigerians. For households with low or borderline incomes, the removal of subsidy worsens living conditions, forcing them into deeper financial distress. Families are often compelled to make difficult choices, prioritizing transportation and fuel expenses over healthcare, education, food, and savings. This strain reduces overall quality of life until wages or other sources of income adjust to the new economic environment. Ayodele (2014) further notes that the unemployed and underemployed are especially vulnerable, with subsidy removal potentially increasing unemployment levels in the short to medium term.

Effect of Subsidy Removal on Poverty: Poverty is a relative condition, but it is commonly associated with lack of adequate food, poor clothing, and substandard housing (Ngozi, 2004, citing Kennet Gailbraith). The removal of fuel subsidy exacerbates these conditions by inflating the cost of goods and services across the economy. From expensive transportation to higher prices for basic items such as food, seasoning, or even firewood, the burden falls most heavily on the poor. Consequently, subsidy removal has deepened economic hardship for the majority, particularly for those living below the minimum wage or without employment. This has entrenched poverty and widened inequality, leaving the average Nigerian to bear the brunt of the policy.

Theoretical Framework

Economic theory of subsidies

A subsidy on a good or service alters its price and, consequently, its level of consumption. In some cases, subsidies are introduced to address market failures. For example, when research and development generate positive externalities that extend beyond the immediate benefits to the innovators, private actors may

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underinvest in such activities. A subsidy can serve as an incentive to increase research output, thereby achieving a socially optimal level of production.

While subsidies can be appropriate and beneficial in certain circumstances, economists, along with this study are more concerned with *inefficient subsidies*. These occur when the price of a good or service no longer reflects the true social cost of producing or consuming it (Fischer & Toman, 2000). In such cases, prices deviate from marginal cost, leading to misallocation of resources and inefficiency in the economy. Eliminating inefficient subsidies is, therefore, an important policy issue, as doing so can improve overall social welfare.

Even though subsidy programs are often introduced with good intentions, they rarely represent the most efficient policy option. McKenzie and Mintz (2011) argue that one major problem with subsidies is *waste*: they may fail to influence behavior as intended or end up supporting activities that would have occurred without the subsidy. Furthermore, subsidies can distort economic choices by channeling resources into subsidized areas at the expense of potentially more productive alternatives. As McKenzie and Mintz (2011) emphasize, this often results in investment decisions driven by the presence of subsidies rather than by sound economic rationale.

Empirical Review

Adewunmi, Remy and Iyewumi (2014) examined the implications of fuel subsidy removal on Nigeria's socio-economic development. Their study applied a price pass-through framework alongside the error correction model to analyze both the short- and long-term consequences of subsidy withdrawal, covering data from 1980 to 2012. To ensure data stability, they conducted unit root tests using the Augmented Dickey-Fuller and Phillip-Perron approaches. The findings revealed that subsidy removal had little to no immediate effect on the social welfare of Nigerians in the short run. However, in the long term, deregulation of the downstream petroleum sector was found to hold strong potential for advancing economic development. This outcome aligns with both theoretical arguments and empirical evidence suggesting that removing market distortions promotes economic growth. The researchers therefore recommended that government should deliberately and transparently channel subsidy savings into strategic development projects to maximize the positive impacts of subsidy removal.

Similarly, Stephen (2015) investigated the broader effects of rising fuel prices on the Nigerian economy. Employing a survey research design, the study gathered data from a sample of 120 respondents drawn from civil servants, market men and women, and private sector employees directly involved with petrol and gas

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activities. The sample was distributed as follows: civil servants (18), market traders (55), and private sector staff (47). The research instrument was an eight-item structured questionnaire designed around a five-point Likert scale ranging from "Very Relevant" to "Very Irrelevant." Reliability testing produced a correlation coefficient of $r = 0.92$, indicating a high level of consistency. Hypotheses were tested using the Pearson Product Moment Correlation method. Results showed a significant relationship between increases in fuel prices and Nigeria's economic performance. Specifically, while fuel price hikes contributed to inflationary pressures and weakened purchasing power, they were also linked to certain aspects of economic growth. The findings further revealed a strong correlation between rising petroleum pump prices and challenges to food security. Consequently, the study recommended that government should maintain subsidies in the short term while accelerating the construction of three proposed refineries. It further advised that subsidy removal should be implemented only after these refineries become operational, alongside rehabilitation of existing refineries and investment in railway development to reduce overdependence on road transport. The study also encouraged private sector involvement in refinery construction, supported by clear government assurance on subsidy policies.

In another study, Sambe, Ahule, and Agba (2013) assessed the effect of fuel subsidy removal on food security in Nigeria, with a focus on food production, distribution, and accessibility. Adopting the classical political economy perspective, which argues that minimizing government control fosters maximum societal welfare through multiplier effects, the study found that while subsidy removal encouraged food production, it negatively affected food distribution due to higher transportation costs. Furthermore, economic access to food was constrained by rising prices of staple items. The authors concluded that subsidy removal undermined food security in Nigeria. They recommended the adoption of Marxist-oriented economic policies, which prioritize state regulation of key sectors, while abandoning subsidy removal policies to ensure food security and sustainable development.

Oji and Eme (2014) also examined the consequences of subsidy removal, focusing on its effect on the prices of food items in Nigeria. The debate over subsidy became a central national issue in January 2012, when the government increased the pump price of petrol from ₦65 to ₦140 per liter, arguing that the ₦1.3 trillion subsidy burden was unsustainable. This action triggered widespread protests across the country, compelling President Jonathan's administration to later reduce the pump price to ₦97. Despite these adjustments, questions remained

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regarding the transparency of the government's subsidy claims. Their study revealed that subsidy removal significantly increased the prices of food and other essential commodities across Nigerian cities. The paper concluded that Nigerians continue to grapple with escalating living costs without adequate government intervention to cushion the effects

Hezekiah and Bilikisu (2014) investigated the effect of fuel subsidy removal on Nigeria's transportation sector. The issue has remained highly controversial due to its frequent occurrence and its wide-ranging economic implications. The study employed co-integration and error-correction models to analyze the relationship between subsidy removal and transport operations. Findings revealed that subsidies had a positive and significant impact on the transportation sector, suggesting that the withdrawal of gasoline subsidies leads to higher operational costs in the sector and consequently reduces the nation's Gross Domestic Product (GDP).

METHOD AND MATERIAL

The study adopted a survey method, which involved administering questionnaires and conducting interviews with residents of Asaba. Secondary data was also sourced from books, journals, and online publications. Based on the 2016 population estimate of 176,060 for Asaba (Delta State Wikipedia, 2016), a sample size of 399 respondents was determined using the Zigmund sample size formula, which was considered appropriate given the large population. Out of the distributed questionnaires, 305 (76%) were duly completed and returned, while 94 (24%) were either not returned or rendered invalid. The instrument was structured using a 4-point Likert scale. To establish validity, a pre-test of the questionnaire was conducted, and reliability was assessed through the test-retest method using the Spearman rank correlation coefficient. The result produced a reliability coefficient of 0.78, signifying a strong level of internal consistency. Collected data were presented in frequency tables, while hypotheses were tested using simple linear regression analysis.

RESULTS AND DISCUSSION

The data obtained from the field were presented and analyzed with descriptive statistics to provide answers for the research questions, while the corresponding hypotheses were tested with Simple linear regression at 0.05 alpha level. To determine the effect of subsidy removal on food items

Table 1: Coded Responses on research affects subsidy removal on food items

s/no	Questionnaire items	S.Agree /Agree	Disagree /S.Disagree	Total
		Freq	Freq	
1	Purchasing of food items during removal of fuel subsidy was Difficult	300	5	**305**
2	inhabitants Asaba community were indebted because of the removal of fuel subsidy	297	8	**305**
3	Subsidy removal significantly negative affect food items	207	98	**305**
	TOTAL	**804**	**111**	**915**

Source: Field Survey, 2025

Table 1 revealed that 804 respondents (88%) selected strongly agree/agree, while 111 respondents (12%) chose to disagree/strongly disagree. From the percentage analysis, it was therefore concluded that the removal of subsidy has a significant negative impact on food items.

Hypothesis one

Ho: Subsidy removal does not have a significant negative effect on food items
Hi: Subsidy removal has a significant negative effect on food items

Table 1a Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.847[a]	.718	.717	.55434	.111

a. Predictors: (Constant), subsidy removal b. Dependent Variable: Food items

Table 1b ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	236.904	1	236.904	770.943	.000[b]
▪	93.109	303	.307		

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Model	Sum of Squares	df	Mean Square	F	Sig.
1 Residual Total	330.013	304			

a. Dependent Variable: Food items
b. Predictors: (Constant), subsidy removal

Table 1c Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.233	.069		-3.376	.001
1 subsidy removal	1.257	.045	.847	27.766	.000
R = 0.847					
R^2 = 0. 718					
F = 770.904					
T = 27.766					
DW = 0. 111					

a. Dependent Variable: Food items

Interpretation:

The regression sum of squares (236.904) is higher than the residual sum of squares (93.109), suggesting that a greater proportion of the variation in the dependent variable is accounted for by the model. The F-statistic significance value (0.000) is below the 0.05 threshold, confirming that the variation explained by the model is not a result of chance. The correlation coefficient (R = 0.847) demonstrates a strong negative relationship between subsidy removal and food items. Furthermore, the coefficient of determination (R^2 = 71.8%) reveals that approximately 71.8% of the variation in food items is explained by the model. The

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standard error of estimate is relatively low (0.55434), indicating good model fit. The Durbin-Watson statistic of 0.111, which is less than 2, shows that there is no problem of autocorrelation. The subsidy removal coefficient (0.847) further confirms a statistically significant negative effect on food item prices (t = 27.766). Consequently, the null hypothesis is rejected, while the alternative hypothesis is accepted. This establishes that subsidy removal exerts a significant adverse impact on food item prices.

Hypothesis Two

Ho: There is no significant negative relationship between subsidy removal on standard of living

Hi: There is a significant negative relationship between subsidy removal on the standard of living

To ascertain the extent of the relationship between subsidy removal on standard of living

Table 2: Coded Responses on research affects subsidy removal on the standard of living

s/no	Questionnaire items	S.Agree /Agree	Disagree /S.Disagree	Total
		Freq	Freq	
1	The removal of subsidies leads to a decline in the overall quality of life.	286	19	**305**
2	Many households were compelled to readjust and redistribute both family and business budgets. Due to Subsidy removal has a significantly negative impact on food items.	207	98	**305**
3	The removal of subsidies leads to a decline in the overall quality of life.	287	18	**305**
	TOTAL	**780**	**135**	**915**

Source: field survey, 2025

Table 2 reveals that 780 respondents (85%) selected *Strongly Agree/Agree*, while 135 respondents (15%) chose *Disagree/Strongly Disagree*. From the percentage analysis, it was concluded that subsidy removal has a significant negative effect on the standard of living.

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Table 2[a] Descriptive Statistics

	Mean	Std. Deviation	N
subsidy removal	1.3934	.70893	305
Standard of living	1.5213	1.04836	305

Table 2[b] Correlations

	subsidy removal	Standard of living
Pearson Correlation	816*	1

**. Correlation is significant at the 0.01 level (2-tailed)

Table (2a) presents the descriptive statistics for subsidy removal and standard of living. The results show a mean response of 1.3934 with a standard deviation of 0.70893 for subsidy removal, and a mean response of 1.5213 with a standard deviation of 1.04836 for standard of living, based on 305 respondents. A close examination of the standard deviation values reveals that there is no substantial difference between them, indicating a relatively similar level of variability in the data points for both the dependent and independent variables. Table (2b) provides the Pearson correlation coefficient between subsidy removal and standard of living. The correlation coefficient is 0.816, which is significant at the 0.05 level (2-tailed). This result demonstrates a strong and significant negative relationship between subsidy removal and standard of living. Since the calculated correlation coefficient ($r = 0.816$) is greater than the critical table value of 0.195 at 503 degrees of freedom ($df = n – 2$) for a two-tailed test, the null hypothesis is rejected. Therefore, it is concluded that subsidy removal has a significant negative impact on the standard of living ($r = 0.816$, $p < 0.05$).

Hypothesis Three

Ho: Subsidy removal does not negatively promote poverty.

Hi: Subsidy removal is negatively associated with higher poverty risk/incidence.

To examine the extent at which subsidy removal is associated with higher poverty risk/incidence

Table 3: Coded Responses on how subsidy removal is associated with higher poverty risk/incidence

s/no	Questionnaire items	S.Agree /Agree	Disagree /S.Disagree	Total
		Freq	Freq	
1	The removal of fuel subsidy has caused many families to experience financial insufficiency. As a result, households are now struggling to meet basic needs, with some families experiencing a decline in their ability to afford adequate clothing and other essential items.	292	13	**305**
2	The removal of fuel subsidy has caused many families to experience financial insufficiency. As a result, households are now struggling to meet basic needs, with some families experiencing a decline in their ability to afford adequate clothing and other essential items.	290	15	**305**
3	The removal of fuel subsidy has caused many families to experience financial insufficiency. As a result, households are now struggling to meet basic needs, with some families experiencing a decline in their ability to afford adequate clothing and other essential items.	295	10	**305**
	TOTAL	**877**	**38**	**915**

Source: field survey, 2025

Table 3 reveals that 877 respondents, representing 96%, indicated Strongly Agree/Agree, while only 38 respondents, representing 4%, indicated Disagree/Strongly Disagree. From the percentage analysis, it is therefore concluded that subsidy removal contributes significantly to the rise of poverty.

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Table 3a Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.758[a]	.574	.573	.67965	.180

a. Predictors: (Constant), subsidy removal b. Dependent Variable: Poverty

Table 3b ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	188.639	1	188.639	408.373	.000[b]
	Residual	139.964	303	.462		
	Total	328.603	304			

a. Dependent Variable: Poverty
b. Predictors: (Constant), subsidy removal

Table 3c Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.014	.090		-.154	.878
	subsidy removal	1.099	.054	.758	20.208	.000

R = 0.758
R^2 = 0. 574
F = 408.373
T = 20.208
DW = 0. 180

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Interpretation:

The regression analysis shows that the regression sum of squares (188.639) is higher than the residual sum of squares (139.964), suggesting that a larger portion of the variation in the dependent variable is accounted for by the model. The significance level of the F-statistic (0.000) is less than 0.05, confirming that the variation explained by the model is not due to random chance. The correlation coefficient ($R = 0.758$) reveals a negative relationship between subsidy removal and poverty. Furthermore, the coefficient of determination ($R^2 = 57.4\%$) indicates that 57.4% of the variation in poverty can be explained by the model. The standard error of estimate is relatively low at 0.67965, while the Durbin-Watson statistic of 0.180 (less than 2) confirms the absence of autocorrelation. The subsidy removal coefficient of 0.758 further demonstrates a statistically significant negative effect on poverty ($t = 20.208$). Based on these results, the null hypothesis is rejected, and the alternative hypothesis is accepted. This implies that subsidy removal significantly contributes to increased poverty levels.

Conclusion

The study established that policy reforms in Nigeria's major revenue-generating sector, the petroleum industry, have had significant ripple effects on citizens and socio-economic activities at large. One such reform is the deregulation of the downstream sector, which culminated in the federal government's removal of fuel subsidies. This policy shift has far-reaching socio-economic consequences on the livelihood of the general populace.

The removal of fuel subsidies, which was initially perceived as an unexpected and drastic measure, has imposed considerable hardship on households and businesses alike. A direct outcome of this reform was the sharp increase in the cost of transportation, which in turn escalated the prices of essential goods and services across the country. The rising costs have strained family incomes, forced adjustments in household consumption patterns, and reduced the purchasing power of the average Nigerian.

Beyond the household level, the ripple effect of subsidy removal also affected small and medium-scale enterprises, as production and distribution costs rose significantly. This has broader implications for national economic stability, social welfare, and poverty levels. In essence, while the policy was introduced as a step toward economic efficiency and reducing government expenditure, its immediate consequence has been widespread socio-economic hardship, thereby raising critical questions about policy design, implementation, and cushioning mechanisms for vulnerable groups.

Recommendations

i. The government must establish a strong and efficient regulatory framework to safeguard citizens from possible exploitation by petroleum marketers. In this regard, the Petroleum Product Pricing Regulatory Agency (PPPRA) should be urgently restructured and empowered to ensure that ordinary Nigerians are adequately protected. Such reforms will also guarantee that resources intended to cushion the impact of subsidy removal on vulnerable groups are properly managed and directed.
ii. Furthermore, the federal government should ensure that the subsidy reinvestment programmes truly reach the intended households. To achieve this, a dedicated monitoring and evaluation committee should be constituted with the mandate to track, assess, and report on the effectiveness and outcomes of these programmes. This will promote transparency, accountability, and efficiency in the distribution of benefits.
iii. In addition, government should prioritize the development of critical infrastructure such as roads, bridges, drainage systems, electricity supply, potable water projects, and warehousing facilities. These infrastructural investments will not only reduce the cost burden on business owners but also enhance economic productivity while improving the living standards of citizens.

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