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Contents

The impact of public sector employment on business strategies on economic growth

T. Ncanywa
Faculty of Education, Department of Business Management Education
Walter Sisulu University, South Africa

Keywords
Public Sector Employment, Business Growth, Human Capital Development, Autoregressive Distributed Lag, Economic Performance.

Abstract

Public sector employment, which includes business strategies and economic development, is a complex issue in labour economics and public policy. Public sector employment often involves jobs in government agencies, state-owned enterprises, and other organisations funded by public revenue. The business model of public sector employment can significantly impact economic growth by enhancing human capital development. This business model fosters innovation and can create a skilled and adaptable workforce to meet the changing demands of the labour market and drive productivity. In this model, public sector employees are empowered with business strategies such as the effective allocation of resources and cost-effective budgets, ultimately contributing to the cultivation of a more innovative and capable human capital framework. This paper uses an autoregressive distributed lag methodology to examine the impact of the public sector employment business model on economic growth in South Africa. The results indicate that public sector employment has a positive and significant impact on economic growth. This comprehensive examination is essential due to its implications for employment dynamics and overall economic performance. The contributions adhere to the public sector employees being empowered with business skills for effective performance and boosting economic growth. It is recommended that policymakers consider how to leverage public sector employment to enhance economic productivity while mitigating potential downsides to create an environment conducive to sustainable growth. Policymakers can create a more integrated approach to public sector employment that not only enhances economic productivity but also fosters a sustainable growth environment conducive to the success of the public sector. A thorough analysis requires consideration of the nexus between public sector employment practices, the operational capacities of business enterprises, and the broader socio-economic context in which these interactions occur.

Introduction

As explored within the domains of labour economics and public policy, the adoption of business strategies in public-sector employment plays a significant role in shaping economic growth and development (Abbasi, Shabbir, Abbas, & Tahir, 2021). The efficacy of public institutions is critical in enhancing human capital through innovation in the provision of education, healthcare, and transportation services, thereby augmenting overall productivity (Kravariti & Johnston, 2020; Mastromarco & Simar, 2021). Public sector employment predominantly encompasses roles within government agencies, state-owned enterprises, and other organizations that are financed by public revenue. Additionally, competitive salaries and benefits in public-sector jobs increase consumer spending, which can lead to growth in private-sector employment and entrepreneurship. However, challenges exist, such as the debates over efficiency. The relationship between public sector employment and business growth highlights the need for ongoing research to inform effective policies. Such policies are essential for sustainable economic growth and long-term viability (Osiobe, 2019).

Public sector employment involves various roles within government agencies and state-owned enterprises, which are essential for delivering services and maintaining public infrastructure (Barkhordari, Fattahi & Azimi, 2019). While it offers job security and stable benefits, it also faces challenges like bureaucratic constraints, limited funding, and political influences, which can impact hiring practices and employee morale. Also, diversity, equity, and inclusion are critical issues, as agencies must reflect the demographics of the populations they serve to enhance service efficacy and build trust (Lupu & Nuță, 2023). Understanding these challenges is essential for developing effective public policies that improve recruitment, retention, and job satisfaction in the public sector.

The study emphasises the crucial role of public sector employment models in promoting economic growth through human capital development (Yeo & Lee, 2020). It argues that public sector jobs can cultivate a skilled and adaptable workforce, essential for meeting the demands of a changing labour market. The public sector enhances employees' knowledge and competencies by investing in specialised training and continuous professional development (Imandojemu & Babatunde, 2020). This, in turn, fosters collaboration across sectors and drives innovative solutions to societal challenges. As the labour market evolves due to technological advancements and globalisation, the flexibility gained through strategic public sector practices is vital for increasing productivity and ensuring sustainable economic development (Jaiswal, Arun & Varma, 2023). The study highlights the significance of strategic investments in human resources within the public sector to support a skilled workforce that drives innovation and productivity.

The paper explores how aligning public sector initiatives with business strategies can enhance resource allocation and amplify the impact of public programs in fostering innovation (Chandana, Adamu & Musa, 2024). The innovative business model can create a skilled and adaptable workforce to meet the changing demands of the labour market and drive productivity. In this model, public sector employees are empowered with business strategies such as the effective allocation of resources and cost-effective budgets, ultimately contributing to the cultivation of a more innovative and capable human capital framework (Jaiswal et al., 2023). Government initiatives like targeted training programs can improve workforce skills by understanding business needs and encouraging businesses to invest further (Mutonyi, Slåtten & Lien, 2020). This strategic alignment enhances adaptability in a changing economic landscape, promoting collaboration and shared insights between the public and private sectors. Hence, it is imperative to examine the impact of the public sector employment business model on economic growth in South Africa.

Literature Review

Theoretical Literature

This study employs the endogenous growth theory, which posits that human capital is a pivotal engine of growth, a framework extensively utilised in scholarly literature to evaluate the impacts of economic policy (Mastromarco & Simar, 2021). The study of business growth theories in public sector employment examines the complex relationship between government employment policies, growth in the economy, and the effectiveness of public service. Public sector employment is a fundamental determinant of economic structure, wielding considerable influence over overall business growth trajectory (Barkhordari et al., 2019; Kravariti & Johnston, 2020). Central to the endogenous growth theory is the assertion that investments in human capital, innovation, and knowledge generation contribute significantly to the acceleration of economic growth (Yeo & Lee, 2020).

Empirical literature

Some studies on public sector employment focus on government policies that address worker empowerment and their effects on economic stability and social welfare (Lupu & Nuță, 2023; Chandana et al., 2024). For instance, the study of Silalahi and Walsh (2023) utilised a mixed-methods approach, combining quantitative labour market data analysis with qualitative insights from interviews to discover that the targeted workforce development and education programs can lower unemployment, while policies that enhance employee participation improve job satisfaction and well-being.

A well-functioning labour market is crucial in enhancing a country's economic competitiveness, as highlighted by Tamunomiebi and Oyibo (2020). The ability of the labour market to efficiently allocate workers to various sectors fosters productivity and drives innovation and growth. Furthermore, a significant connection exists between public-sector employment and overall economic growth. A robust public sector can create jobs, stimulating demand for goods and services, leading to a multiplier effect on the economy (Chandana et al., 2024). By investing in public sector employment, governments can enhance workforce skills, improve public services, and ultimately contribute to a more dynamic economic landscape (Osiobe, 2019).

Government policies are essential in shaping the labour market by influencing labour resource allocation, mobility, wage flexibility, and job matching. Policies that promote labour mobility, like relocation assistance and training, can enhance market efficiency. At the same time, restrictive measures, such as strict licensing and zoning laws, can hinder this mobility and create mismatches (Imandojemu & Babatunde, 2020; Abbasi et al., 2021). Wage flexibility is similarly affected; policies that allow for quick wage adjustments can reduce unemployment during downturns, whereas poorly designed minimum wage laws might lead to higher unemployment rates. Therefore, effective government initiatives that improve the job matching process, such as public employment services, can decrease frictional unemployment and improve overall market performance. Hence, understanding the relationship between government interventions and labour market dynamics is crucial for creating effective policies that foster economic growth and stability.

Capacity building within the public sector is essential for developing a robust and productive workforce, significantly influencing economic growth (Kravariti & Johnston, 2020). As governments and public institutions invest in enhancing the skills and competencies of their employees, they create an environment that encourages innovation, efficiency, and adaptability. Training programs, mentorship opportunities, and professional development initiatives equip public sector workers with the tools to navigate complex challenges and implement effective solutions (Jaiswal et al., 2023). This helps individual employees grow in their careers and strengthens the entire public administration system, making it more responsive to the community's needs (Chandana et al., 2024).

When the public sector functions optimally, it can provide better services, fostering a more stable and attractive environment for private sector investments. A well-trained public workforce is better equipped to manage resources, streamline processes, and implement policies that can stimulate economic activity (Khando, Gao, Islam & Salman, 2021). Moreover, capacity building can improve governance by promoting transparency, accountability, and ethical behaviour among public servants. This, in turn, fosters public trust and encourages citizen engagement, creating a virtuous cycle of growth and development (Li, 2022). So, by prioritising capacity building within the public sector, societies not only enhance the skills of their workforce but also lay the groundwork for sustainable economic advancement. The positive ripple effects touch on various aspects of society, ultimately contributing to a more prosperous future for all (Silalahi & Walsh, 2023).

The public sector constitutes approximately one-third of the global paid workforce, rendering its wage structures and employment practices pivotal for overall income distribution and economic wage-setting mechanisms (Khado et al., 2021; Li, 2022). However, comprehensive empirical data comparing public sector employment and compensation with the private sector has been notably scarce. Among the notable contributions to this field is a paper introducing the “Worldwide Bureaucracy Indicators,” developed by the Bureaucracy Lab at the World Bank (Baig, Han, Hasnain & Rogger, 2021). This initiative aims to serve as a significant resource for policymakers and scholars, facilitating a deeper understanding of the governmental role as an employer. Furthermore, the paper addresses critical issues within the realm of public administration, including employee motivation and the scale of public employment. Additional data on public-sector employment is provided by the South African Reserve Bank, contributing to the broader discourse on public-sector dynamics (SARB, 2024).

Methodology

The model used in this study is an econometric model, which runs multiple regression analyses between public sector employment (PSE) and economic growth (GDP). Government expenditure (GOVT) is a control variable in the model. The general model is specified as follows:

$$LGDP_t = \alpha_t + \beta_1 LPSE_t + \beta_2 LGOVT_t + \varepsilon_t$$

L indicates logged variables to standardise the variables. The study used quarterly secondary time series data from the South African Reserve Bank from 1960-2024. An autoregressive distributive lag (ARDL) was employed in this study to examine the impact of the public sector employment business model on economic growth in South Africa. The variables in the model were tested for stationarity, and different orders of integration were portrayed at level [I (0)] and, at first, differencing [I (1)]; hence, the ARDL can be employed (Ncanywa, 2019).

The ARDL approach simultaneously captures the cointegration between a set of variables, the long-run and short-run estimates, and the speed of adjustment. The ARDL cointegration and bounds tests indicate whether the long-run relationship exists in the series. It is advantageous because it can generate valid and robust results (Imandojemu & Babatunde, 2020). The ARDL bounds test gives the lower bound critical value and the upper bound critical value. If the computed F-statistics lie above the upper critical bounds test, we reject the null hypothesis of no cointegration, indicating that cointegration exists. In the case where the computed F-statistic lies in between the two-bounds test, the cointegration becomes inconclusive. No cointegration exists when the F-statistics is below the lower bound (Lupu & Nuță, 2023).

Results and Discussions

The Autoregressive Distributed Lag (ARDL) model effectively captured the simultaneous cointegration relationship between public sector employment and economic growth. This means that as public sector employment changes, it has a consistent and measurable impact on the overall economic growth of a country. Furthermore, the ARDL model provided long-term estimates that reflect how these two variables interact over time. By analysing this dynamic, the model not only highlights the immediate effects of changes in public sector employment on economic growth but also sheds light on the enduring relationship between the two, offering valuable insights for policymakers aiming to optimize employment strategies in the public sector to foster sustainable economic development. Table 1 displays the ARDL results.

Table 1: ARDL results (1960-2024)
Dependent variable: Economic Growth (GDP)

F-Bounds Test		
Test Statistics Value	**k**	
186.2	2	
Significance	**I (0)**	**I (1)**
10%	2.63	3.35
5%	3.1	3.87
1%	4.13	5
Estimates: Economic Growth = f(PSE; GOVT)		
Variable	**Coefficient**	**Probability**
Public Sector Employment	0.044	0.000
Government Expenditure	-0.018	0.269
Constant	0.041	0.454

Source: Own Compilation from E-Views

Notes: PSE- Public Sector Employment, GOVT- Government Expenditure

Table 1 presents the comprehensive F-bound test results and estimates for the public sector employment-economic growth model, which are critical indicators of the dynamic interplay between government employment levels and economic performance. The F-test statistic at 186.2 significantly exceeds the upper bound I (1) across all relevant significant levels, including 1%, 5%, and 10%. This statistical outcome robustly suggests a cointegrating relationship, which implies a long-term association between public-sector employment and economic growth. Such findings are pivotal as they corroborate the hypotheses articulated in existing literature, notably by scholars such as Barkhordari et al. (2019) and Kravariti and Johnston (2020). These authors, among others, have emphasised the role of public sector employment as a fundamental determinant of the economic structure. Their research highlights that a well-functioning public workforce substantially influences economic growth, catalysing improved economic outcomes.

The long-run relationship found in this study is reinforced by the work of Khando et al. (2021) and Mastromarco & Simar (2021), who indicate that the effectiveness of a well-trained public sector workforce extends beyond mere employment figures. An adept public workforce can efficiently manage resources, optimise operational processes, and execute policies to stimulate economic activity (Baig et al., 2021). This implies that investing in training and development for public sector employees can yield significant returns regarding enhanced productivity and economic growth (Imandojemu & Babatunde, 2020; Mutonyi et al., 2020).

Considering these insights, it becomes evident that fostering a skilled public sector is a matter of employment policy and a strategic imperative that can significantly shape the economic landscape. Governments can better align their operational capabilities with economic stability and growth goals by ensuring public sector employees have the necessary skills and knowledge (Tamunomiebi & Oyibo, 2020). Therefore, the evidence presented underscores the importance of sustaining and advancing public sector employment as a fundamental component of successful economic policy formulation and implementation (Abbasi et al., 2021).

Table 1 further displays the estimates of the public sector employment-economic growth model. Public sector employment has a strong positive impact on economic growth, significant at 1%. An increase of 1% in public-sector employment can increase economic growth by 4.4% in the long run. This suggests that fostering the professional development of public sector employees can significantly contribute to economic growth. The results align with the principles of endogenous growth theory, which posits that investments in human capital, innovation, and knowledge creation play a crucial role in fostering economic growth (Ncanywa, 2019; Yeo & Lee, 2020; Lupu & Nuță, 2023). Furthermore, these findings support existing literature that argues public-sector employment, characterised by skilled employees within an effectively functioning labour market and guided by well-considered policies, can enhance economic growth (Khado et al., 2021; Li, 2022; Silalahi & Walsh, 2023; Chandana et al., 2024).

Conclusion and Recommendations

This study employs an autoregressive distributed lag (ARDL) methodology to investigate the impact of the public sector employment business model on economic growth within the South African context. Using the ARDL approach, the research captures both short-term and long-term dynamics, allowing for a comprehensive analysis of how public-sector employment impacts various economic indicators. The significance of this inquiry lies in understanding how employment strategies in the public sector contribute to macroeconomic performance, particularly in a developing economy like South Africa. Given the intricate relationship between government employment policies and economic vitality, the results of this analysis are expected to provide valuable insights for policymakers. Through empirical investigation, this study aims to elucidate how public sector employment influences economic growth trajectories, offering a nuanced perspective that could inform future employment strategies and economic reforms.

The findings of this study underscore the positive and significant impact that public sector employment has on economic growth. This relationship is particularly noteworthy, as it suggests that a robust public sector can catalyse enhanced economic performance. The contributions adhere to the public sector employees being empowered with business skills for effective performance and boosting economic growth. A comprehensive examination of this dynamic is essential for understanding the direct contributions of public sector jobs to economic output and exploring the broader implications for employment dynamics within the labour market.

Public sector employment often leads to increased consumer confidence and spending, which can stimulate demand for goods and services across various industries. Moreover, the stability provided by public sector jobs can enhance workforce participation and reduce unemployment rates, fostering a more resilient economy. Such employment also plays a critical role in providing essential services, thereby supporting the infrastructure necessary for economic activities to flourish. Furthermore, the implications of this research extend beyond mere employment numbers. By contributing to foundational public goods and services, the public sector can influence long-term economic trajectories and thereby shape the structural dynamics of the economy. Therefore, policymakers must consider the strategic development of public sector employment as a vital component of economic planning and growth strategies. In conclusion, this examination reveals that the relationship between public sector employment and economic growth is multifaceted and significant, warranting further investigation and consideration within broader economic policies and employment strategies. Policymakers have a pivotal role in navigating the complex landscape of public sector employment and its impact on economic growth.

Here are some practical recommendations:

- Allocate resources for training and upskilling public sector employees, ensuring they have the relevant skills to meet contemporary challenges and can effectively collaborate with private enterprises.
- Encourage innovation in public sector practices.
- Embrace technology by integrating digital tools that enhance the efficiency of public services, ultimately benefiting the broader economy. This could include process automation or digital platforms for better service delivery.
- Pilot innovative public policies that test the impact of flexible working arrangements and remote work practices on employee productivity and job satisfaction, assessing their effects on the overall workforce.
- Foster a Collaborative Socio-Economic Environment. Create forums for continuous dialogue among stakeholders, including local governments, business leaders, and community representatives, to discuss the socio-economic impacts of public sector employment strategies. Invest in community development programs that boost education, health, and social services to enhance the overall socio-economic context, leading to a more productive workforce.
- Monitor and Measure Outcomes. Establish clear metrics to assess the impact of changes in public-sector employment on economic productivity. This could involve regular surveys, economic indicators, and performance reviews. Utilise feedback mechanisms that allow employees to voice their concerns and suggestions regarding collaborative practices, ensuring a more transparent and adaptive policy framework.

By adopting these recommendations, policymakers can create a more integrated approach to public sector employment that not only enhances economic productivity but also fosters a sustainable growth environment conducive to the success of the public sector. The goal is to create a harmonious relationship that benefits the entire socio-economic landscape, focusing on collaboration, innovation, and strategic development. The generalised use of secondary data limits the paper. However, the methodology provided robust results. Areas of future research can include qualitative interviews to gain insights into how public sector employees perceive their contribution to economic growth.

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Assessment of the relationship between contingent demographic variables and adoption of digital payments in Ghana

[1]Michael Nana Owusu-Akomeah, [2]Erica Maria Oteng-Gyasi, [3]Richard Nana Yaw Darkwa Ofori, [1]Emmanuel Attah Kumah Amponsah, [1]Michael Owusu-Kyei, [1]Stephen Owusu Afriyie
[1]Ghana Communication Technology University (Department of Accounting and Finance, GCTU Business School)
[2]Coventry University-UK
[3]University of Ghana (Finance Directorate, Management Accounts Office)

Keywords
Adoption, demographic, digital payments, Ghana, innovation.

Abstract
This research explores the intricate relationship between demographic variables and the adoption of digital financial services in Ghana, with a focus on payment digitization and its impact on financial inclusion. Drawing on a theoretical foundation grounded in the Technology Acceptance Model (TAM) and Diffusion of Innovations theory, the study identifies gaps in existing literature, formulates research questions aligned with the research objectives, and conducts a comprehensive empirical review of related studies. The research design combines exploratory, descriptive, and explanatory elements, justifying the approach based on the research context. The study employs a mixed-methods research approach, incorporating both qualitative and quantitative data collection methods. Data is gathered through surveys and interviews, with instruments developed, validated, and tested for reliability. The sampling process involves careful consideration of demographic factors, and data analysis utilizes both descriptive statistics and advanced analytical techniques. Findings contribute to the existing literature on digital payment adoption, financial inclusion, and payment digitization, offering insights for policymakers, financial institutions, and researchers. The study concludes with recommendations for fostering the widespread adoption of digital financial services in Ghana and potentially other similar contexts.

Introduction

The global adoption of digital financial services is currently experiencing remarkable growth, with developing economies such as Ghana undergoing significant transformations in the way financial transactions are conducted. The digitalization of payments, encompassing mobile money and internet banking, is not only revolutionizing the financial landscape but also holding immense potential for enhancing financial inclusion (Demirguc-Kunt & Klapper, 2012). In Ghana, similar to many other emerging markets, digital payment solutions are increasingly prevalent, providing a pathway to financial empowerment, efficiency, and accessibility.

Despite this rapid adoption, disparities in the utilization of digital financial services persist, with demographic variables recognized as key determinants shaping these variations. Existing research underscores the importance of demographic factors such as age, income, education, gender, urban-rural residence, and occupation in influencing the adoption of digital payment methods (Agbemabiese et al., 2018; Lee & Lee, 2017). For instance, younger generations and urban dwellers are often more inclined to embrace digital payments due to greater technological familiarity and infrastructure access (GSMA, 2020). Conversely, disparities in income levels, educational attainment, and gender can impact individuals' readiness and ability to engage with digital financial services (Demirguc-Kunt et al., 2018; GSMA, 2019).

The imperative to bridge these adoption gaps and promote financial inclusion has led to a burgeoning body of literature focusing on the intricate relationship between contingent demographic variables and digital payment adoption. However, while previous research has shed light on these dynamics, there remains a need for a comprehensive study that delves deeper into the Ghanaian context. Ghana's unique demographic composition, with its diverse population spanning urban and rural areas, necessitates an in-depth exploration of the specific determinants driving or hindering digital payment adoption in this context.

Moreover, as Ghana pursues ambitious financial inclusion targets, it becomes increasingly crucial to understand how the adoption of digital financial services contributes to achieving these goals (World Bank, 2020). By conducting a rigorous assessment of the relationship between contingent demographic variables and digital payment adoption, this study seeks to contribute valuable empirical evidence to the discourse on financial inclusion and payment digitization not only in Ghana but also to the broader global understanding of the subject. It is within this backdrop that this research endeavors to advance our knowledge of the intricate dynamics between demographics and digital financial services adoption, ultimately supporting the ongoing efforts to foster financial inclusion in Ghana.

The rapid proliferation of digital financial services heralds a transformative era in the global financial landscape, presenting opportunities for financial inclusion and economic growth. Ghana, like many emerging economies, witnesses the swift adoption of digital payment methods. However, the extent of adoption is uneven across demographic groups, with variations observed in relation to age, income, education, gender, urban-rural residence, and occupation (Agbemabiese et al., 2018; Lee & Lee, 2017; GSMA, 2019). Younger individuals tend to be early adopters, driven by greater technological familiarity, while disparities in income and education levels can impede accessibility (Demirguc-Kunt et al., 2018). Gender-specific constraints have also been noted, with women potentially facing unique barriers to digital payment adoption (GSMA, 2019).

This uneven adoption of digital financial services raises a critical research concern: understanding the intricate relationship between contingent demographic variables and digital payment adoption in the Ghanaian context. Such understanding is vital to address disparities and design targeted strategies for promoting financial inclusion. Furthermore, in line with global financial inclusion objectives (World Bank, 2020), this study seeks to investigate how the adoption of digital financial services can contribute to achieving these goals in Ghana.

Furthermore, Ghana's financial ecosystem stands at a pivotal juncture, with the government and financial institutions striving to reduce the prevalence of cash-based transactions and enhance financial inclusion. The growth of digital financial services, including mobile money, presents a compelling alternative to traditional banking, particularly in underserved rural areas (GSMA, 2020). Understanding how demographic variables intersect with digital payment adoption becomes not only research imperative but also a practical necessity for policymakers and financial service providers. By uncovering the nuanced relationships between demographics and digital payment adoption, this study can provide actionable insights for crafting policies and strategies that align with Ghana's financial inclusion objectives.

However, to date, the research landscape in Ghana has not comprehensively examined the interplay between contingent demographic variables and digital payment adoption. While existing studies offer valuable insights, they often lack the depth and specificity required to address Ghana's unique demographic composition and financial ecosystem. This research, guided by an inclusive and interdisciplinary approach, seeks to bridge this gap by providing empirical evidence and a nuanced understanding of how demographic variables influence digital payment adoption in Ghana, thereby contributing to the body of knowledge in digital finance and supporting the nation's ongoing efforts to foster financial inclusion.

Therefore, this research endeavours to empirically explore the multifaceted connections between demographic characteristics and the adoption of digital financial services in Ghana, thereby contributing to more equitable and inclusive financial systems.

Details experimental

Materials and Procedure

The overall research design for the study "Assessment of the Relationship Between Demographic Variables and the Adoption of Digital Payments in Ghana" is primarily explanatory in nature. This choice is based on the research's central aim to elucidate the relationships between contingent demographic variables and the adoption of digital financial services in the specific context of Ghana.

A mixed methods research approach is deemed most suitable. A purely qualitative approach, which emphasizes the collection and analysis of non-numerical data, would involve in-depth interviews, focus groups, or open-ended surveys to explore the perspectives, experiences, and perceptions of individuals regarding digital payment adoption.

The adoption of digital payments is a complex phenomenon influenced by both objective factors (e.g., demographics) and subjective experiences (e.g., perceptions, attitudes). A mixed methods approach enables a comprehensive understanding by capturing both the "what" (quantitative) and the "why" (qualitative).

Stratified random sampling is chosen as the sampling method for several compelling reasons: Ghana is a diverse country with variations in demographics across different regions, urban and rural areas, and income levels. Stratified sampling allows for the selection of participants from each of these strata, ensuring that the sample is representative of the entire population.

Results and discussion

Determining the relationship between demographic factors and digital adoption in Ghana

Table 1: Descriptive Statistics for Digital Adoption by Demographic Variables

Demographic Variable	Mean Digital Adoption	Median Digital Adoption	Standard Deviation
Age	35	36	5
Education	3.8	4	0.6
Income	GHs 1,200	GHS 1,000	GHS 500

Table 3.1.1 provides descriptive statistics for digital adoption in Ghana based on key demographic variables, including age, education, and income. The mean digital adoption age is reported at 35, with a median of 36, indicating a relatively centered distribution. In terms of education, respondents have an average level of 3.8, with a median of 4, suggesting a slightly positively skewed distribution. The standard deviation of 5 for age and 0.6 for education implies some variability around the mean, indicating diversity in the sample. Regarding income, the mean income for digital adopters is GHs 1,200, with a median of GHs 1,000 and a standard deviation of GHs 500. These statistics provide insights into the central tendency and variability of digital adoption concerning demographic factors in Ghana.

Table 2: Correlation Matrix for Demographic Variables and Digital Adoption

	Age	Education	Income
Digital Adoption	0.8212	0.7922	0.9286

Table 3.1.2 presents the correlation matrix depicting the relationships between digital adoption and demographic variables (age, education, and income). The correlation coefficient values indicate the strength and direction of these relationships. Age shows a positive correlation of 0.8212 with digital adoption, suggesting that as age increases, digital adoption tends to increase as well. Education demonstrates a positive correlation of 0.7922, indicating a strong association between higher educational levels and increased digital adoption. The correlation between income and digital adoption is particularly strong, with a coefficient of 0.9286, suggesting a robust positive relationship between higher income levels and greater digital adoption. Overall, the correlation matrix reveals the interconnected nature of demographic factors and digital adoption in the Ghanaian context.

To assess the effect of payment digitization on the achievement of financial inclusion in Ghana

Table 3: Comparative Analysis of Financial Inclusion Indices

Year	Financial Inclusion Index (Before Digitization)	Financial Inclusion Index (After Digitization)	Change
2000	20% (estimated)	N/A	N/A
2005	25% (estimated)	N/A	N/A
2010	29% (Findex)	N/A	N/A
2011	29% (Findex)	N/A	N/A
2014	35% (estimated)	58% (Findex, formal accounts)	+23%

Year	Financial Inclusion Index (Before Digitization)	Financial Inclusion Index (After Digitization)	Change
2015	40% (estimated)	65% (Findex, mobile money)	+25%
2018	45% (estimated)	70% (Microfinance Index score)	+25%
2019	50% (estimated)	75% (Findex, mobile money)	+25%
2020	55% (estimated)	80% (Findex, mobile money)	+25%
2021	58% (Findex, formal accounts)	82% (Findex, mobile money)	+24%
2022	N/A	70% (Microfinance Index score)	N/A

The table 3.2.1 illustrates the evolution of financial inclusion indices in Ghana before and after the digitization of payment systems. The estimated percentages before digitization showcase a steady increase over the years. Notably, after the introduction of digitization, the Financial Inclusion Index experienced significant positive changes. For instance, between 2014 and 2015, the index rose by +25%, indicating a substantial impact with the advent of mobile money. The subsequent years continued to witness positive changes, with a peak of +25% observed in 2018, 2019, and 2020. The data suggests a consistent and positive influence of payment digitization on enhancing financial inclusion in Ghana. The variations in the estimated percentages and the formal indices (Findex, Microfinance Index) highlight the evolving nature of financial inclusion metrics and the diverse impact of digitization on different aspects of financial services.

Table 4: Regression Analysis Results

Predictor Variable	**Beta Coefficient**	**p-value**
Payment Digitization	2.323	0.002

Table 3.2.2 presents the results of the regression analysis, examining the predictor variable "Payment Digitization" and its impact on financial inclusion. The beta coefficient of 2.323 is indicative of a positive relationship between payment digitization and financial inclusion. This suggests that, on average, for every unit increase in the digitization of payment systems, the financial inclusion index is expected to increase by 2.323 units. The p-value of 0.002 is below the conventional significance threshold of 0.05, indicating that the relationship is statistically significant. Therefore, the results provide empirical evidence supporting the hypothesis that payment digitization has a significant positive effect on the achievement of financial inclusion in Ghana.

Summary Findings

The findings of this study reveal a compelling relationship between demographic variables and the adoption of digital financial services in Ghana. The positive correlation observed between age, education, and income with digital adoption aligns with existing literature. Previous research has emphasized the significance of demographics in shaping technology adoption patterns (Rogers, 2003; Venkatesh & Davis, 2000). The positive influence of education on digital adoption resonates with studies highlighting the role of education in enhancing technological literacy and acceptance (Lee & Lee, 2017). Additionally, the study reaffirms the positive correlation between higher income levels and increased digital adoption, in line with the notion that economic capacity facilitates technology adoption (Agbemabiese et al., 2018). These findings collectively underscore the importance of understanding demographic nuances in designing effective strategies for promoting digital financial services.

The study's findings illuminate the positive impact of payment digitization on the achievement of financial inclusion in Ghana, aligning with broader global trends. The observed increase in financial inclusion indices after the implementation of payment digitization is consistent with studies emphasizing the transformative role of digital financial services in expanding access to formal financial tools (GSMA, 2019; Suri & Jack, 2016). The positive changes in the financial inclusion landscape, particularly the significant growth in mobile money adoption, mirror global initiatives promoting digital financial inclusion (Better Than Cash Alliance, 2020; World Bank, 2017). The regression analysis, with a significant beta coefficient for payment digitization, supports the argument that the adoption of digital payment methods contributes substantially to the broader goal of financial inclusion (Davis, 1989; Lee &

Lee, 2017). These findings underscore the pivotal role of payment digitization in advancing financial inclusion and align with global efforts to leverage digital technology for inclusive financial practices.

The findings of this study make a substantial contribution to the global literature on financial inclusion and payment digitization. By exploring the specific case of Ghana, the research adds a nuanced perspective to the broader discourse. The study acknowledges the interconnectedness of demographic variables and digital adoption, aligning with global trends (Venkatesh & Davis, 2000). The positive correlation observed in Ghana echoes findings in other contexts, emphasizing the universality of certain relationships in the adoption of digital financial services (Lee & Lee, 2017). Furthermore, the study's focus on financial inclusion indices and payment digitization contributes to the ongoing global dialogue on leveraging digital technologies for inclusive financial practices (Better Than Cash Alliance, 2020; World Bank, 2017). The synthesis of existing studies also enriches the literature by highlighting diverse findings and addressing gaps in understanding barriers to digital payment adoption among specific groups (Wong & Chen, 2020). Overall, this research extends the global conversation on financial inclusion and payment digitization by providing context-specific insights.

The study's findings not only contribute to existing literature but also provide robust empirical evidence supporting the achievement of financial inclusion indices in Ghana. The observed positive correlation between demographic variables and digital adoption, coupled with the significant impact of payment digitization on financial inclusion, reinforces the idea that a holistic approach involving both demographic factors and digital initiatives is instrumental in enhancing financial inclusivity (GSMA, 2019; Suri & Jack, 2016). The study's alignment with global initiatives and goals for financial inclusion emphasizes its relevance in the broader context of sustainable development (Better Than Cash Alliance, 2020; World Bank, 2017). The evidence presented, both in demographic correlations and the positive changes in financial inclusion indices post-digitization, serves as a valuable reference for policymakers and practitioners seeking effective strategies to promote financial inclusivity in developing economies like Ghana.

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The impact of GNP, economic growth rate and interest rate on financial market performance: A comparative study between the Saudi and the Egyptian Financial market

Mostafa Salah Elmokadem
Hoda Ahmed Ibraheem Abdelnabi
Arab East Collages Saudi Arabia

Keywords
Gross National Product, Growth Rate, Interest Rate, Financial Market, Stock Market Index.

Abstract

The aim of this paper is to reveal the impact of the economic variables (gross national product, growth rate and interest rate) on the performance of the Saudi and Egyptian financial markets as indicated by the trading market index. The problem of this study lies in analyzing the effect of quantitative economic variables on the performance of the financial markets in the Kingdom of Saudi Arabia compared to Egypt. The hypothesis used the descriptive and the statistical methodology.

The research reached that the economic variables explain 94% of the changes that occur in the Saudi financial market, and 57% of the changes that occur in the Egyptian financial market. The interest rate had a negative impact on the Saudi and the Egyptian financial markets, and the growth rate and gross national product have a positive impact on the Saudi and the Egyptian financial markets. The most important recommendations are linking the tools of economic policies to the analysis of financial markets, providing liquidity for the financial system, and reducing compulsory reserve requirements in banks in order to achieve stability in financial markets.

Introduction

Financial markets play a very important role in economic life, especially in developed and developing countries. Rather, they are considered one of the pillars of the economic system, through the functions that stock exchanges perform, such as mobilizing savings, allocating investment, and others. There is a close relationship between economic variables and the performance of the financial markets, as some studies have dealt with the relationship between the movement of trading in the stock market on the one hand, and the movement of macroeconomic variables on the other hand (Ali and Balhamri, 2015). A study (Al-Jarrah and Muhammad Abdullah, 2011) indicated that the Kingdom Saudi Arabia is characterized by a unique relationship between the government budget and monetary policy (the central bank), which leads to an increase in the volume of money (Money Stock). The reason for this close relationship is that in the absence of a developed financial market, the only source of financing the budget deficit, or depositing surplus revenues, will be through the Monetary Agency, which will affect monetary policy. As a result of the fluctuation in oil prices, the country's decision-makers resorted to activating the role of the stock market to support development and economic growth (Nasr Taha, 2016).

On the other hand, we find that the Egyptian economy before the 90s, despite its application of the economic openness program, which relied on market forces and its indicators, and assigning the management of the economy to state ownership of most of the means of production over various economic activities. Dependence on market forces, which led to a decrease in the gross domestic product (Namareq, 2017).

Many studies have highlited the existence of a relationship linking the development of the performance of the stock market and economic growth, and in general the Arab financial markets remain in their entirety newly established, limited in their performance and deficiencies in the legislative frameworks regulating their work compared to developed countries and emerging markets (Saleh, Saray, 2017). This study comes in sub-headings that start with the conceptual framework and previous studies, the methodological framework, then the applied study, and finally the conclusion.

First: the conceptual framework and previous studies:

Defining the variables of the study represented in gross national product, economic growth, interest rate, and financial markets. This is done by studying the concept of each variable, its types and indicators of its measurement.

Gross National Product (GNP):

The difference between the gross domestic product and its national counterpart is that the first counts what was produced within the national borders regardless of the nationality of the producer, and the national counterpart counts what was produced by national resources wherever they are on the surface of the earth . Thus, it can be obtained from the first by adding what is called net factor income, that is, by adding the income of national resources that are abroad and subtracting the income of foreign resources that are inside, (Qablan, 2021). Gross domestic product can be calculated at market prices or by the expenditure method. It is the sum of final expenditures at purchase prices, including exports, valued at delivery prices on ships (FOB) minus imports. It includes government final consumption expenditure, which is the value of what the government spends on producing goods and services, i.e. it is equal to The value of the government's total production minus the total value of sales and self-consumed, taking into account that the total value of government production is equal to the sum of the value of intermediate consumption of goods and services, employee compensation values, depreciation of fixed capital, and net indirect taxes. (Alghanim, 2004). The national product is measured in two ways: (Manual of National Accounts, 2005)

Spending method = consumer spending + total investment spending + government spending + ve net exports.

- Market price method = national income + net indirect taxes
- Net indirect taxes = indirect taxes - production subsidies

Economic Growth

The concept of economic growth is a quantitative concept that expresses the increase in production in the long run, and defines economic growth as: “the increase achieved in the long run in the country’s production.” We can also refer to the concept of economic expansion as the circumstantial increase in production, and therefore we can say that economic growth is a platform for successive economic expansion. Growth can also be accompanied by economic progress if the growth of the national product is greater than the growth rate of the population, or it may not be accompanied by economic progress if the growth rate of the national product is equal to the population growth rate, while if the population growth rate is higher than The rate of growth of the national product, then the growth is accompanied by a regression of the economy (Dabla, 2004).

On the other hand, Simon Kazant (who won the Nobel Prize in Economics in 1971) defines economic growth as: “a long-term rise in the possibilities of supplying increasingly diverse economic goods to the population, and these growing capabilities are based on advanced technology and the institutional and ideological adaptation required for it.” The important thing in this definition is that it narrows the gap between economic growth as an automatic act and economic development as a voluntary act. Sustainable economic growth is the result of policies, institutions, and structural and scientific changes (Ahmed, 2013).

Economic growth is defined as an increase in gross domestic product, and this increase usually results from a combination of population growth and increased production per capita, and therefore any increase in gross domestic product is usually accompanied by economic growth defined as a process of rising per capita GDP (Raditsky, 2003). More precisely, growth can be defined by the increase in the total internal income of the country with all that it achieves in terms of the increase in per capita real income, (Maqawsi, Jamouni, 2010).

Development is a comprehensive concept that has many economic, social, cultural, religious and moral aspects, not only an increase in per capita income, and the rate of economic growth is equal to the rate of growth of total income minus the rate of population growth. The real economic growth rate is calculated by deducting the rate of inflation from the rate of increase in individual monetary income (Attiyah, 1999).

The study used the terms economic growth and economic development as synonyms, but he often distinguishes between them, so the first is used to refer to manifestations or indications of economic progress, particularly the increase in real national income or average income, and the second is used to refer to the basic changes that lead to progress. In particular, the change in the economic structure, which usually accompanies the growth of real income in the long run, such as the change in the ratio of industrial or agricultural output or output from the services sector to the total national product, the change in the ratio of workers in agricultural production to the total number of workers, and the change in the ratios of saving and investment to national income. And in the prevailing type of productive art, (Abdul Wahed, 2007).

It is measured by output growth and per capita income growth (Harrison, Charles, 1966).

The national product: It is a measure of the outcome of productive activity and calculating its growth rate is what is termed the growth rate. A country has its own national currency, and therefore it is not possible to compare the growth achieved in different countries according to this metric, and therefore one international currency is not often used to evaluate the national output of different countries, in order to facilitate comparison between the growth rates achieved in them.

Average per capita income: This is the most widely used and valid criterion for measuring economic growth in most countries of the world. However, in developing countries there are difficulties in measuring per capita income due to the lack of accuracy of population and individual statistics. There are two ways to measure the rate of growth at the individual level, namely:

The simple growth rate method: measures the rate of change in average real income from year to year.

The central growth rate method: measures the annual growth rate of income as an average over a relatively long period of time.

Types of Growth Rates: (Bin Albar, 2011)

A- Extensive Croissance: This type of growth is represented by the fact that income growth takes place at the same rate as population growth, meaning that per capita income is static.

B- Intensive economic growth: This type of growth is represented in the fact that income growth exceeds population growth, and thus per capita income increases.

One of the measures of growth rate is the increase in real national income in the long run, i.e. by excluding the change in value and cyclical fluctuations in national income. The criterion of economic growth is often taken as the increase in national income attributed to the increase in population, i.e. the increase in average real income (Abdul Wahed, 1993).

Interest Rate

The interest rate is the price of usage of investor's capital in an agreed upon time limit, and that price varies according to the period, whether it is monthly or annual, and according to the amount borrowed. The longer the borrowing period, the greater the risk potential. Accordingly, the interest rate is determined by the agreement of the lender and the borrower and based on supply and demand, because an increase in the supply of capital will lead to a decrease in the interest rate and vice versa. Accordingly, the amount of money and its turnover rate have a role in the amount of money offered, just as the financing, conservative and speculative motives have a role in determining demand. On money (Ali, Al-Essa, 2004).

In addition, the interest rate is the return on investing money for a specific period of time in return for the lender's waiver of disposing of his money throughout the period of calculating the return, which is often annual. The interest rate is the price paid by the Central Bank on deposits of commercial banks, whether it is an investment for one night or for a period of one month or more. This rate is an indication of the interest rates of commercial banks, which should not be less than the rate of the central bank, and the interest rate helps the central bank to control the money supply in circulation by changing this rate up and down in the medium term. Raising interest means curbing borrowing and thus reducing the liquidity ratio in the market, which leads to lowering the rate of inflation (high prices) (Shaways, 2011).

Interest rates are determined based on the forces of supply and demand. If the demand rates increase for what is offered in terms of funds, it will lead to a rise in interest rates and at the same time it will work to reduce the lending rates in the economic circle. Interest rates are affected by the size of their rise and fall within the different financial markets, where the financial markets are interconnected because of the movement of funds within these markets. The interest rate responds to the forces of supply and demand. At the same time, markets with low interest expel capital, which results in a decrease in its supply, and this is a factor in the rise in the interest rate. The prosperity of the economic situation also results in a rise in interest rates, as interest rates tend to rise in every period in which economic institutions need financing in response to the increase in production required by the state of economic recovery, so the demand for capital increases, which raises the price (Omar and others., 2008).

Stock Market

Financial markets are not much different in essence from other markets, as products are bought and sold through them. But rather than exchanging vegetables, clothes, or computers for a local or national currency, financial markets focus on the buying, selling, and holding of securities and financial instruments in their various forms. Financial markets have expanded greatly over the past few decades, and now many types of financial instruments are offered. Thus, securities are generally known as a place where sellers and buyers of securities meet (Shawks, 2015).

It is also defined as “the markets that work to transfer savings from the surplus units and they and the investors to the deficit units and they are the borrowers in an organized manner with the aim of obtaining a return with a degree of risk through the issuance and trading of long and medium-term financial instruments (Abu Khalaf, 2018).

It is also defined as :“that market that enables investors to trade among themselves in the securities that were previously issued in the primary market, (Khudairy, 2020 AD). Stock markets is that market in which long-term financial investment instruments such as stocks and bonds are traded. Its importance in encouraging capital investment and providing long-term financing to projects that need a long period, and it is divided into two types of markets (Ben Daas, 2018).

First- Present or spot markets: Dealing in these markets is in medium and long-term financial assets, and its main function is to collect savings and then distribute them towards long-term investment. These markets are divided into (the primary market and the secondary market).

Second- Futures markets: They are markets in which an agreement is made on the price and the asset sold or bought immediately, provided that the receipt or delivery takes place later. Wide interest, as derivatives are considered one of the important developments in the forms of investment, (Abu Musa, 2010).

Indices vary in their objectives and methods of construction in the financial market, where two types of indices are used. First, general indices, which measure the state of the market in general, such as the Dow Jones index and the Standard Endowment index. sectoral indices: which measure the market condition in relation to a specific sector, such as the Nasdaq Composite Index, which is an index 500 American industrial companies whose shares are exchanged through the platform, (Latif, Saad, 1998).

Market index: “It is an average numerical value by which the outcome of the positive and negative changes in the stock prices of the companies included in the index is measured. It is used to express the performance of the market as a whole or a sector thereof if the sample is representative of a specific sector only and not the reason for the performance of the stocks of the companies included in its calculation.” (Body Wakin) that it is an indicator that measures stock prices in general and on a daily basis. This is done by calculating the sum of stock prices multiplied by the size of the company in the market. The result is positive when the number of high-priced stocks is higher than the number of low-priced stocks during the same day (Bodie Z, Marcus, 1995).

The following can be detailed in the market index for the following types: (Bodie Z, Marcus, 1995)

Price-weighted market index:

It is about average sum of the stock prices in the financial market divided by the number of companies represented and selected by the market according to indicators related to the performance and impact of the shares of these companies in the market, such as the TASI market.

• Index weighted by market value:

It is the index that is weighted by the market value of the shares, taking into account the number of shares of the selected company, i.e. the capitalization rate of the shares and the share price of each company in the market.

• Indicator weighted with equal weights:

This index is based on the assumption that the investment should be in equal amounts in the stocks that make up the index, and thus we give equal weights of the invested amounts for each selected stock.

• Index based on relative prices:

It is based on the idea of determining the relative return for each share of the stocks that make up the index, as the relative return is calculated by dividing the share price the next day minus the share price on the first day by the price on the first day.

Literature review

Many studies have dealt with the relationship between economic variables and financial markets, Some study the relationship between the general index of the Saudi capital market and the variables of the Saudi national economy represented in gross domestic product(Mareer, 2002), inflation rate, annual average interest rate, and total exports. , Total Imports Money Supply, Bank Credit, Total Demand Deposits in Foreign Currency, Total Demand Deposits in Local Currency, Capital Formation, Government Expenditure, Annual Average Oil Price, Annual Average Per capita Income, Total State Public Revenues, Total State Public Expenditure, Average Annual exchange rate, time variable. The study concluded that there are relationships of varying strength and direction between the variables of the Saudi national economy and each other. There are also strong correlations between the variables of the Saudi national economy and the general index of the Saudi capital market, and that the variables of the Saudi national economy explain (87) % of the total changes that occur in the index. General of the Saudi capital market. It concluded with a proposed model that measures the impact of economic variables on the general index of the Saudi capital market. As for the study (Deeb, 2002), it aimed to identify the most important factors affecting market values, including the domestic product. The study concluded that there is a statistically significant relationship between the gross domestic product and the market values of stocks. As for the study (Walter, 1989), which aimed to estimate the impact of economic variables on stock prices for three European countries: Germany, Switzerland, and Britain, based on quarterly data during the period (1977-1985), the study dealt with the following economic variables (Gross National Product, Gross National Product, Money supply in its narrow sense, monetary base, real exports and industrial production, consumer prices, real wages, import prices, nominal interest rate, real interest rate, consumption rate, and exchange rate).The study concluded that British stock prices are affected by nominal wages and nominal interest rates. German stock prices are affected by consumer prices and narrow money supply, and German stock prices are affected by consumer prices, narrow supply, and nominal interest rates, while Swiss stock prices are affected only by real consumption.

Other studies dealt with the relationship between economic growth and financial markets, and the results of most of these studies came to support the positive role of the stock market in increasing the growth rate of per capita GDP and investment. And the positive impact of banking sector variables on gross fixed capital formation, (Mubaraki, 2015). And the study (Maqlaty, 2015), which concluded that there is a direct relationship between the growth rate and the performance of the capital market, and therefore the growth rate can be used to predict the movement of securities in the Saudi capital market. As for the study (Hussein, 2019), it examined the impact of economic growth on the market value and trading indicators in the Amman Financial Market during the period (1978-2013). Economic theory and many previous studies in the field judge the existence of a direct relationship between economic growth and financial market indicators, and therefore economic growth can be used as a basic variable to predict the movement of securities in the Amman Stock Exchange.The study (Hassan al-Mawla, 2011) aims to study indicators that measure the liquidity of the stock market and its impact In economic growth, I concluded that the liquidity provided by the stock market does not have a significant effect on the economic growth of the research sample countries. in some countries.

The study (Alburaythin, 2016) indicated that there is a strong relationship between financial markets and interest rates, and this relationship results from considering the role played by the financial market as nothing but an extension to the role played by companies in the economic arena. The specter of vulnerability to fluctuations in interest rates, meaning that the relationship is positive in periods and negative in some periods, which requires policy makers to have an insight into the effectiveness of monetary policy operations (through changes in interest rates) to stimulate financial markets. And the study of (McMillan, 2005), which aimed to explain the relationship between the stock market index, output and interest rates in the stock market in the United States of America. The study found that there is a positive correlation between the stock price and industrial production and that there is a negative correlation between the stock and interest rates. The study (Boyer & Filion, 2004) aimed at estimating the relationship between oil sector stock returns as a dependent variable and independent variables such as interest rates, market returns and oil prices. Using the Generalize method, the study found that the returns of this sector are positively consistent with market returns and oil prices, and in any case, these returns are inversely in line with interest rates.

Saudi money market

The financial market arose in Saudi Arabia with informal beginnings in the fifties, and the situation continued until the government put in place the basic regulations for the market in the 80s. Under the "Capital Market Law" issued by Royal Decree No. (M/30) dated 6/2/1424 AH, the Capital Market Authority was established. It is a governmental body with financial and administrative independence and reports directly to the Prime Minister. The Authority shall supervise the regulation and development of the financial market, and issue the regulations, rules and instructions necessary to implement the provisions of the Authority.

The financial market system with the aim of providing an appropriate climate for investment in the market, increasing confidence in it, ensuring appropriate disclosure and transparency of the joint-stock companies listed in the market, and protecting investors and securities dealers from illegal activities in the market. (https://www.saudiexchange.sa)

The Saudi stock market is one of the newly emerging markets. Dealing with it began when the first joint-stock company in the Kingdom of Saudi Arabia - the Arabian Motors Company - was established in 1354 AH (1935). With the rapid growth of the Kingdom's economy and the Saudization of foreign banks, the establishment of joint-stock companies and banks accelerated, which reached 122 companies by the end of the first half of 2008. The trading of shares in the Saudi market was initially carried out directly and immediately between the seller and the buyer, and with the continuation of growth. An electronic system known as the “Tadawul” system was launched in the year 1422 AH (2002) that allows for immediate registration, trading, clearing and settlement of shares, and is directly linked to Saudi commercial banks and receives buying and selling orders and Shares And then execute deals and transfer and transfer ownership of shares in an automated and accurate manner. In the year 1424 AH (2004) the Financial Market Law was approved, and one of its most prominent features was the establishment of the (Capital Market Authority) to undertake the tasks of regulating and developing the market, regulating the issuance and monitoring of securities, protecting investors, achieving justice, sufficiency and transparency, regulating and monitoring the disclosure of information and others. The system also included the establishment of a market for trading securities in the name of the Saudi Stock Exchange (Tadawul System), (Capital Market Authority, Financial Investments and Stock Markets, 2022).

The most important main market indices in the Kingdom of Saudi Arabia The index ((TASI)) is an index that measures the level of performance in the Saudi stock market. Its name is composed of the first letters of the name of the index in English, All Tadawul, and the number is calculated as an average weighted TASI (Index Share) for the stock prices of companies operating in the market. It is one of the most important market indices. It is a leading index for all stocks in the market, and includes all eligible stocks listed on Tadawul. It includes The methodology for calculating the index is the securities available for trading in Tadawul The indices with an upper limit (the main market index TASI and the parallel market index Nomu upper limit) include a maximum limit applied to all components of the index based on the weights of companies determined by their market value The indices with the upper limit are used

To limit the control of large companies over the index, the value of the indices with the upper limit is calculated according to the following equation: (Saudi Stock Exchange, Tadawul Indexes Methodology)

Index value = (sum of today's free float cap market values/previous day's sum of cap free float market values) x index value for the previous day).

Where: the market value of the upper limit of the free float shares = the sum of (the market value of the free float shares of company A x the coefficient of the upper limit) + (the market value of the free float shares of company B x the coefficient of the upper limit) + ... and so on for all the companies included in the index.

Upper Limit Coefficient: It is a derivative coefficient used to reduce the free market value in an index. The weights of all components of the index remain under a maximum limit, which is applied at the component level. With the application of the upper limit coefficient, a ceiling is placed on the weights of large companies and the surplus weight is distributed among the remaining index components so that the total weight of the index components remains at 100%.

Egyptian financial market

The establishment of the Alexandria Stock Exchange In the year 1883, the (first futures) exchange was established in Alexandria. In 1899, during the reign of Khedive Abbas II, the Stock Exchange moved to a new building on Muhammad Ali Street. In the year 1902, the Syndicate of Brokers was established, and its law became the regulator of transactions in the stock exchange. The beginning of the Cairo Stock Exchange in the year 1903, a company in the name of the Egyptian Company for Banking Business and the Stock Exchange was formed as a limited liability company from some capital owners and brokers for this purpose. During the year 1903, the old building of the Ottoman Bank (which is now the Groppi Building - Adly Branch) located on Al-Maghrabi Street was chosen as the official headquarters of the company. Then the Securities Brokers Syndicate set some rules to regulate the affairs of the profession, including the system of accepting brokers in the stock exchange, the conditions for accepting securities for dealing and their registration in Price schedules, controlling the principles of transactions, adjudicating disputes between brokers and examining complaints filed against them by the public. And during the year 1908, Cairo became a real trading platform through which the interested public could monitor the movement of stock trading. This building was built in front of the French Consulate. Then the issuance of the first law to regulate the stock exchanges on November 8, 1909, (www.egx.com).

Among the main market indices: On the Egyptian Stock Exchange, the EGX 30 Index (formerly known as the CASE 30 Index) is an index that was designed and calculated by the Egyptian Stock Exchange, which began publishing its data as of February 2, 2003 through data promoters, stock bulletins, and the Stock Exchange website on the Internet. , and newspapers. Then, the Egyptian Stock Exchange launched an index of equal weights EGX70 - EWI EGX70 on February 02, 2020, with the aim of diversifying tools for measuring market performance in front of different categories of investors, and in line with international best practices in the field of managing stock market indices. Each company listed in the EWI EGX70 index gets the same relative weight, which is about 43.1% on the first day of the periodic review (The Egyptian Stock Exchange, Egyptian Stock Exchange Index Rules, 2022).

Second: The methodological framework of the study:

Study problem and questions:

The problem of this study lies in studying and analyzing the impact of financial variables on the performance of the financial markets in the Kingdom of Saudi Arabia compared to Egypt, and based on the above, the researcher can formulate the research problem in the following research question: What is the impact of financial variables on the performance of the Saudi capital market compared to the Egyptian capital market?

Several sub-questions emerge from this research question, which the study answers, as follows:

1. Does the gross national product have a major role in influencing the performance of the Saudi and Egyptian capital markets?
2. Does economic growth have a major role in influencing the Saudi and Egyptian capital markets?
3. Does the interest rate have a major role in influencing the Saudi and Egyptian money market?

Study form:

To answer the questions of the study, the model is tested that reflects the performance of the Saudi and Egyptian capital markets, so that the study model is that the performance of the capital market is expressed by the value of the capital market index, whether Saudi or Egyptian, and it is a function in which a group of economic variables are as follows:

Saudi stock market index model

The mathematical form of the proposed model for estimating the study model and estimating the parameters of the model to test the study hypotheses is as follows:

$$MI = \alpha + \beta_1 * GNP + \beta_2 * INT + \beta_3 * EG + \mu$$

whereas:

MI: stands for Market Index. α: Refers to the coefficient of the fixed limit, which represents the minimum performance of the money market "according to the market trading index."

β: Parameters of regression of economic variables on the index of the trading market

GNP: Gross National Product.

INT: denotes the interest rate (rate). EG: economic growth.

μ: indicates the random error limit (residual) and expresses the effect of other variables affecting the dependent variable that were not included in the model.

Objectives of the study

In the light of defining the problem of the study, the study aims to reveal the impact of the change in the selected economic variables, which are the gross national product, the growth rate and the interest rate, on the performance of the Saudi and Egyptian financial markets in terms of the index of the trading market.

The Hypotheses

The hypotheses of the study under test are represented in a number of research hypotheses, which were formulated in the main hypothesis:

There is no difference in the impact of economic factors on the performance of the money market in the Saudi market compared to the Egyptian market.

And sub-hypotheses:

a. There is no statistically significant effect of the interest rate on the Saudi money market index and the Egyptian money market.

c. There is no statistically significant effect of the economic growth rate on the Saudi finance market index and the Egyptian finance market.

Dr. There is no statistically significant effect of the gross national product in the Saudi finance market index and the Egyptian finance market.

The methodology

This study follows the descriptive analytical approach. The qualitative analysis describes the relationship between macroeconomic variables and the performance of financial markets, while clarifying the characteristics of this phenomenon, as the phenomenon of macroeconomic variables and financial markets and the relationship between them was described, with an exposure to their characteristics, while the quantitative expression gives us a numerical description that shows the level of the phenomenon. For example, "Factors Affecting the Amman Financial Market and the Doha Financial Market" (Al-Amly, 2022).

Third: the findings of the study and the discussion

The following are the results of data analysis and loan testing, where the study variables are first described for each of the trading market index, growth rate, interest rate and inflation rate in addition to the gross national product variable, then the results of estimating the models and tests of the study hypotheses are presented.

Descriptive statistics of variables:

The ready-made statistical programs and packages were used, represented by the E-views program and the SPSS program. The statistical description of the variables and data analysis came through the indicators of the arithmetic mean, minimum, maximum and standard deviation for each of the trading market index, growth rate and interest rate, in addition to the variable of gross national product.

Table No. (1) Description of the study variables during the period (2011-2020)

Statistical properties		The stock market (indexMI).	interest rate (INT)	growth rate (EG)	(national product GNP).
Average	Saudi	7,245,689	0.014530	0.02550	726.8700
	Egypt	9360.059	0.133300	0.03644	280.1210
minimum	Saudi	5,798,390	0.006900	-0.0414	590.3000
	Egypt	3,622,350	0.098000	0.01760	216.7800
maximum	Saudi	8605.340	0.026300	0.10000	833.54 10
	Egypt	15023.76	0.196000	0.05560	325.2000
standard deviation	Saudi	934.7138	0.007201	0.03780	64.52715
	Egypt	3,942,187	0.031669	0.01331	32.37485
coefficient of difference	Saudi	12.90027	49.55953	148,255	8.87740
	Egypt	42.11712	23.75769	36.5340	11.55745
skewness	Saudi	0.216983	0.576327	0.20671	-0.91254
	Egypt	0.146141	0.945430	-0.0209	-0.551189
kurtosis	Saudi	1.920314	1.713973	3.20310	2.942246
	Egypt	1.593815	2.683046	1.69489	2.591700
Garcupera statistic	Saudi	0.564187	1.242700	0.08840	1.389281
	Egypt	0.859493	1.531587	0.71043	0.575810
M. Garcupira morale	Saudi	0.754203	0.537219	0.95676	0.499254
	Egypt	0.650674	0.464965	0.70102	0.749833
The number of years		10	10	10	10

Source: prepared by the researcher based on the results of data analysis.

Table (1) shows the following:

1. When comparing the Saudi and Egyptian trading market index during the years (2011-2020), we note that the general average performance of the Saudi trading market index during the study period is estimated at (7,245.689) million Saudi riyals, with a minimum of (5,798.39 million riyals) in the year (2019) and a maximum ((8,605.34) in the year (2014), with a standard deviation of (934.7138) million riyals, and that the skew coefficient was estimated at (0.216983), which is very close to zero, which indicates that the data has little skew, as was the kurtosis coefficient (1.920314), which is close to (3), and this indicates the moderation of the data distribution of the Saudi stock market index under study, and this confirms that the Garco Pira statistic to measure the level of moderation of the data distribution was estimated at (0.564187) at a significant level (0.754203).As for the Egyptian stock market index, we find that the general average The performance of the Egyptian stock market index during the study period is estimated at (9,360.059) million, with a minimum of (3,622.350) million pounds in the year (2012) and a maximum of (15,023.76) in the year (2018), with a standard deviation of (3,942.19) million pounds, and the torsion coefficient was estimated at (0.146), which is very close to zero, which indicates that the data has a slight distortion, as was the kurtosis coefficient (1.59), which is close to (3), and this indicates the moderation of the data distribution of the Egyptian stock market index under study, and confirms that the statistic Jarko Bira to measure the level of moderation of data distribution was estimated at (0.86), with a significant level (0.65), And since the time series for each of the Saudi and Egyptian trading market indices for the sake of further comparison. The coefficient of difference can be used to compare the dispersion of the Saudi and Egyptian trading market indices, and the index that has a larger coefficient of difference is more dispersed than the other, from the above table we find that the coefficient of difference for the Saudi market trading index It is equal to (12.9) while the coefficient of difference for the Egyptian market trading

index is equal to (42.1) and it is noted that the coefficient of difference for the Egyptian market trading index is greater than the coefficient of difference for the Saudi market trading index, which indicates that the change in price will be at a faster pace in the Egyptian trading market.

2. When comparing the interest rate in the Saudi and Egyptian markets, it is noted that the general average interest rate in the Kingdom of Saudi Arabia during the study period is estimated at (0.015) with a minimum of (0.69%) in the year (2011) and a maximum of (2.63%) in the year (2019) , and with a standard deviation (0.007), and the skewness coefficient was estimated at (0.576), which is very close to zero, which indicates that the data has little skewness, as was the kurtosis coefficient (1.714), which is close to (3), and this indicates the moderation of the distribution of private data The interest rate in the Saudi economy under study, and this confirms that the Jarko Pira statistic to measure the level of moderation of data distribution was estimated at (1.24) at a significant level (0.537).As for the interest rate in the Republic of Egypt, we find that the general average of the interest rate in the Egyptian economy during the study period It is estimated at (0.133), with a minimum of (9.8%) in the year (2020) and a maximum of (19.6%) in the year (2017), with a standard deviation of (0.032), and that the torsion coefficient is estimated at (0.945), which is very close to zero, which indicates The data has a slight distortion, as the kurtosis coefficient reached (2.68), which is close to (3), and this indicates the moderation of the distribution of interest rate data in the Egyptian economy under study, and this confirms that the Jarko Bira statistic to measure the level of moderation of the data distribution was estimated at (1.532) at a significant level of (0.46), As for the coefficient of difference for the interest rate in the Kingdom of Saudi Arabia equals (49.56) while the coefficient of difference for the interest rate in the Republic of Egypt is equal to (23.76) and it is noted that the coefficient of difference for the interest rate in the Saudi economy is greater than the coefficient of difference for the interest rate in the Egyptian economy, which indicates that the dispersion in The Saudi interest is greater than the dispersion in the Egyptian interest rate.

3. The growth rate of the Saudi and Egyptian economies during the period (2011-2020) Table (1-4) shows that the general average of the growth rate in the Saudi economy during the study period is estimated at (0.026) with a minimum of (-4.14%) in the year (2020) with a maximum of (10%) in the year (2011), with a standard deviation of (0.0378), and the skewness coefficient was estimated at (0.20671), which is very close to zero, which indicates that the data has little skewness, as was the kurtosis coefficient (3.2031), which is close to (3), and this indicates the moderation of the distribution of the data on the growth rate in the Saudi economy under study, and confirms that the Jarko Pira statistic to measure the level of moderation of the data distribution was estimated at (0.0884) at a significant level (0.957).As for the growth rate in the Egyptian economy, we find The general average of the growth rate of the Egyptian economy during the study period is estimated at (0.036) with a minimum of (1.76%) in the year (2011) and a maximum of (5.56%) in the year (2019), with a standard deviation of (0.013), and the torsion coefficient is estimated at (-0.021), which is very close to zero, which indicates that the data has a slight distortion, as was the kurtosis coefficient (1.69), which is close to (3), and this indicates the moderation of the distribution of data on the growth rate in the Egyptian economy under study, and confirms that The Jarko Pira statistic to measure the level of moderation of data distribution was estimated at (0.719) with a significant level of (0.701). From the table above, we find that the coefficient of difference for the growth rate of the Saudi economy is equal to (148.26), while the coefficient of difference for the growth rate of the Egyptian economy is equal to (36.53). The growth of the Saudi economy is greater than the coefficient of difference for the rate of growth of the Egyptian economy, which indicates that the change in the growth of the Saudi economy will be at a faster rate than that of the Egyptian economy.

4. Compare The gross national product in the Saudi and Egyptian economies during the period (2011-2020). In the year (2019), with a standard deviation (64.527), and the skewness coefficient was estimated at (-0.913), which is very close to zero, which indicates that the data has little skewness, as was the kurtosis coefficient (2.94), which is close to (3), and this Refers to the moderation of the distribution of the data of the Saudi gross national product under study, and this is confirmed by the Jarko Bira statistic to measure the level of moderation of the data distribution estimated at (1.39) with a significant level of (0.49).As for

the development of the gross national product of the Egyptian economy, we find that the general average of the national product The Egyptian total during the study period is estimated at (280.12) with a minimum of (216.78) in the year (2011) and a maximum of (325.2) in the year (2016), with a standard deviation of (32.37), and the torsion coefficient is estimated at (-0.55), which is very close to zero, which indicates that the data has a slight distortion, as was the kurtosis coefficient (2.59), which is close to (3), and this indicates the moderation of the distribution of data on the gross national product in the Egyptian economy under study, and this confirms that the Jarko Bira statistic is used to measure the level of moderation of the distribution The data was estimated at (0.58), with a significant level (0.75). From the above table, we find that the coefficient of difference for the gross national product in the Saudi economy is equal to (8.88), while the coefficient of difference for the gross national product in the Egyptian economy is equal to (11.56) and it is noted that the coefficient of difference for the Saudi gross national product is less than the coefficient of difference for the gross national product in the Egyptian economy, which indicates the change in the output of the Egyptian economy will be faster than that of the Saudi economy.

Testing the stability of the time series of the study variables

Often, time series data is affected by the presence of a general trend that affects all variables. This effect may be in the same direction or in an opposite direction, which leads to instability. The instability characteristic is related to the passage of time on the internal variables of the model. Time series may have Stable trend TS or stable divergence DS.

The stability of the time series was tested using the Phillips-Peyron test, and the following table shows the results of the Phillips-Peyron test for all model variables in the level and at the first difference with categorical and without categorical, and with a vector and secant.

Table No. (2): Testing the stability of the variables using the Phillips-Peyron test

variable		Level			First difference			Second difference			Comment on the stability test result
		Breaker	Vector and breaker	Not breaker	breaker	Vector and breaker	Not breaker	breaker	Vector and breaker	Not breaker	
critical value	5%	**-3.259**	**-4.108**	**-1.988**	**-3.321**	**-4.246**	**-1.996**	**-3.403**	**-4.450**	**-2.006**	
	10%	**-2.771**	**-3.515**	**-1.600**	**-2.801**	**-3.590**	**-1.599**	**-2.842**	**-3.701**	**-1.598**	
The stock market index (MI).	Saudi	**-2.568**	**-2.103**	**1.038**	**-2.536**	**-1.698**	**-2.878**	**-2.151**	**-1.103**	**-2.686**	at the second difference I (2)
	Egypt	**-0.429**	**-7.531**	**-1.211**	**-7.717**	**-6.755**	**-3.311**	**-**	**-**	**-**	at the first difference I(1)
interest rate (INT).	Saudi	**-1.654**	**-1.131**	**-0.449**	**-2.270**	**-1.889**	**-2.581**	**-3.534**	**-6.027**	**-**	at the second difference I (2)
	Egypt	**-5.338**	**-0.535**	**-0.361**	**-1.223**	**-1.373**	**-1.404**	**-2.526**	**-3.549**	**-2.632**	at the second difference I (2)
	Egypt	**-1.888**	**-0.021**	**0.091**	**-0.181**	**0.849**	**-1.296**	**-1.161**	**-1.753**	**-1.479**	Unstable even at the second
growth rate (EG).	Saudi	**-1.435**	**-5.279**	**-3.360**	**-3.188**	**-**	**-**	**-**	**-**	**-**	Stable in plane I(0)
	Egypt	**-1.957**	**0.922**	**0.081**	**-0.162**	**0.784**	**-1.269**	**-1.231**	**-1.906**	**-1.523**	Unstable even at the second

Gross National Product (GNP).	Saudi	**-2.793**	**-2.361**	**0.693**	**-2.466**	**-1.907**	**-3.429**	**-1.215**	**-0.012**	**-1.303**	Unstable even at the second
	Egypt	**-2.520**	**-1.798**	**0.872**	**-1.484**	**-0.644**	**-1.444**	**-1.663**	**-1.873**	**-1.922**	at the second difference I (2)

Source: prepared by the researcher based on the results of the statistical analysis.

The stability of the time series is determined by comparing the absolute value of the values calculated for the test with the critical values (tabular values) at the level of significance (5%) and (10%). If the calculated value is greater than the tabular value, the series is stable, and vice versa, through the results The Phillips Peron (PP) test in Table 2 shows us the following results

* As a result of the stability of the variables of the Saudi stock market index model:

Through the results of the test, we find that the variable of the growth rate of the Saudi economy and the rate of Saudi inflation have stabilized at the level with the presence of a categorical and vector with the function, and therefore it is integrated from the degree of zero, while the variables of the study represented in (trading market index, interest rate) have settled at the second difference, so it is Integrated of the second degree, while the Saudi GNP variable did not stabilize even at the second difference, whether the function included a categorical or included a categorical and a general trend or without a categorical and without a general trend.

* As a result of the stability of the variables of the Egyptian market index model:

With regard to the data of the variables of the Egyptian trading market index model, we find that the Egyptian trading market index variable has settled at the first difference with the presence of a vector and a secant in the function, which means that it is integrated of the first degree, while the study variables represented in (interest rate, gross national product) in the Egyptian economy has settled in the second teams, so it is integrated from the first degree. While the growth rate in the Egyptian economy did not stabilize even at the second difference, whether the function included categorical or included categorical and a general trend or without categorical and without a general trend.

The results of estimating the study model.

Model estimation means finding the numerical values of the coefficients of the independent variables that show the nature and size of the relationship between the independent variables and the dependent variable using one of the estimation methods. To test the hypotheses of the study, multiple linear regression models were estimated using the method of least squares, which is characterized by linearity, efficiency, adequacy and impartiality, by following the method of squares. Ordinary least squares (OLS) for estimation, and the weighted least squares (WLS) method for addressing standard problems of the model.

The following is the estimation of the study models according to the hypotheses proposed for the study, while making sure of the conditions for estimating the model to ensure that the model is free of standard problems such as the problem of autocorrelation of error limits, the problem of multiple linear correlation between the independent variables in the model, the problem of variance and the problem of normal distribution of error limits.

Estimating the Saudi stock market index model

The mathematical form of the proposed model for estimating the study model and estimating the parameters of the model to test the study hypotheses is as follows:

The mathematical form of the Saudi stock market index model $MI = \alpha + \beta_1 * GNP + \beta_2 * INT + \beta_3 * EG + \mu$

The results of estimating the model using the ordinary least squares method. We notice that the model suffers from the problem of variance, as the probability value of the F-test was (0.0471). To treat the variance problem, the model was estimated using the weighted least squares method (WLS). The following table shows the results of the model estimation.

Table No. (3): Results of estimating the Saudi Market Index model using the (WLS) method

estimated model MI = 6786.198 + 2.48 * GNP − 70352.93 * INT + 11339.94 * EG					
variants	**regression coefficient**	**standard error**	**t statistic**	**Moral level**	**Pivot values for VIF**
fixed limit	6786.199	1587.84	4.273856	0.0052	NA
national product	2.48015	1.96244	1.263810	0.2532	6.304002
interest rate	*-0.070352*	*0.019794*	-3.554224	0.012	4.945765
growth rate	11.33994	3.213119	3.529262	0.0124	9.394089
Model estimation quality coefficients					
The modified coefficient of determination (AdjR2).		**The level of significance of the (modelF).**		**Predictability(Theil)**	
0.939478		0.000141		0.046363	
Testing the regression model estimation conditions					
Brosch statistic of variance (BPG).		**GarcupiraProb.(JB)**		**Darbin WatsonDW Test**	
0.7923		0.578912		1.73292	

Source: prepared by the researcher based on the results of the statistical analysis.

After completing the process of estimating the numerical values of the model's parameters through realistic data, the stage of evaluating the estimated parameters comes. What is meant by evaluating the estimated parameters is to determine whether the values of these parameters have a meaning or significance from the economic and econometric point of view (Atiyah, Abdel Qader, 2004).

Evaluation of the model in terms of the standard criterion: The researcher aims, through the standard criterion, to know the extent to which the hypotheses of the used standard methods are matched, and through the estimation results shown in Table (3), the estimation conditions of the regression model can be tested, as we note that the estimated model does not suffer from a correlation problem Multiple linear according to the inflation coefficient of variance test, where we find that all the axial values of the independent variables in the model are less than (10), which indicates that there is no problem of multiple linear correlation in the estimated model. The probability of the test is (0.58), which is greater than the level of statistical significance (0.05). The results of the Broch-Bagen and Godfrey test also indicated the homogeneity of the model's residuals, as the probability value of the test reached (0.79), which is greater than the level of statistical significance (0.05), which indicates that the model's residuals do not It suffers from the problem of difference in variance. The results of the Durbin-Watson statistic also indicated that the model's residuals do not suffer from the autocorrelation problem, as the value of the Durbin-Watson statistic reached (1.73), which is close to the standard value (2), which indicates that there is no autocorrelation for the model's residuals, and accordingly Estimation results can be accepted.

Evaluation of the model in terms of statistical and economic criterion: The model is evaluated according to the statistical criterion by evaluating the explanatory ability of the model and evaluating the significance of the model's features, while the evaluation of the model in terms of the economic criterion is done by testing the extent to which the estimated features' signals match the presumed prior signals of the estimated features, and by evaluating The quality of model reconciliation We find that the estimated model explains (94%) of the changes that occur to the Saudi financial market trading index, where the value of the modified determination coefficient was (0.94), which indicates the quality of the model estimate, and the value of the liquidity coefficient for Thayil was equal to (0.046), which is very close from zero, which indicates a high ability of the estimated model to predict, and by evaluating the estimated parameters, the following is evident:

1. The Saudi Stock Exchange Index has a positive value, as the value of the constant was (6786.199) at a significant level (.0052).

2. Changes in the value of the Saudi gross national product do not help explain changes in the Saudi stock market index, as the significance level reached (0.25), which is greater than the level of statistical significance (0.05) and (0.10), which indicates that there is no statistically significant relationship Between changes in the national product of the Saudi economy and the change in the Saudi stock market index.

3. Changes in the interest rate help explain changes in the Saudi stock market index at a significant level (0.0120), and the value of the interest rate parameter was (-0.07), which indicates an inverse relationship between the interest rate in the Saudi economy and the Saudi stock market index.

4. The change in the growth rate helps explain the changes in the Saudi trading market index has a level of significance of (0.0124), and the value of the growth rate parameter was (11.34), which indicates the existence of a direct relationship between the growth rate of the Saudi economy and the Saudi trading market index.

Estimating the Egyptian stock market index model

The mathematical form of the proposed model for estimating the study model and estimating the parameters of the model to test the study hypotheses is as follows:

The mathematical form of the Egyptian stock market index model

$$\mathbf{MI} = \alpha + \beta_1 * \mathbf{GNP} + \beta_2 * \mathbf{INT} + \beta_3 * \mathbf{EG} + \mu$$

The following table shows the results of model estimation.

Table No. (4): Results of estimating the Egyptian stock market index model using the weighted least squares method (WLS).

estimated model $LOG(MI) = 8.466 + 0.0026 * GNP - 2.953 * INT + 25.25 * EG$					
variants	regression coefficient	standard error	t statistic	Moral level	Pivot values forVIF
fixed limit	8.466091	1.018529	8.312073	0.0002	NA
national product	0.002646	0.00451	0.58671	0.5788	1.851277
interest rate	-2.953005	4.272744	-0.691126	0.0153	2.148030
growth rate	2.525267	1.160337	2.176323	0.0724	2.674157
Model estimation quality coefficients					
The modified coefficient of determination (AdjR2).		(The level of significance of the model F).		Predictability(Theil)	
0.568172		0.046187		0.016582	
Testing the regression model estimation conditions					
Brosch statistic of variance(BPG).		GarcupiraProb.(JB)		Darbin WatsonDW Test	
0.5857		0.510830		2.305978	

Source: prepared by the researcher based on the results of the statistical analysis.

After completing the process of estimating the numerical values of the model's parameters through realistic data, the stage of evaluating the estimated parameters comes.

Evaluation of the model in terms of the standard criterion: we note that the estimated model does not suffer from a multiple linear correlation problem according to the variance inflation coefficient test, where we find that all the pivotal values of the independent variables in the model are less than (10), which indicates that there is no multiple linear correlation problem in the model The estimator, as well as the Garcupera statistic, indicates that the model residuals follow the normal distribution, as the probability value of the test reached (0.51), which is greater than the level of statistical significance (0.05). It is greater than the level of statistical significance (0.05), which indicates that the residuals of the model do not suffer from the problem of difference of variance. Also, the results of the Durban-Watson statistic indicated that the residuals of the model do not suffer from the problem of autocorrelation, as the value of the Durban-Watson statistic reached (2.31), which is close to The standard value (2), which indicates that there is no autocorrelation of the remainder of the model, and therefore the estimation results can be accepted.

Evaluation of the model in terms of statistical and economic criterion: By evaluating the quality of model reconciliation, we find that the estimated model explains (57%) of the changes that occur to the Egyptian financial market trading index, where the value of the modified determination coefficient was (0.568), which indicates the quality of the model estimate, and the value of the liquidity coefficient came Thile is equal to (0.017), which is very close to zero, which indicates a high ability of the estimated model to predict, and by evaluating the estimated parameters, the following is evident:

1. The initial value of the Egyptian trading market index is a positive value, as the value of the constant reached (8.47) at a significant level (0.0002)، which indicates that the intrinsic or initial value of the Egyptian trading market index is a positive value.

2. The change in the Egyptian national product does not help explain the changes in the Egyptian trading market index, as the significant level of the Egyptian national product parameter reached (0.58)، which indicates that there is no statistically significant relationship between the Egyptian national product and the Egyptian trading market index during the study period.

3. The change in the interest rate of the Egyptian economy helps explain changes in the Egyptian trading market index, as the significant level of the interest rate parameter reached (0.0153), which indicates a statistically significant relationship between the interest rate in the Egyptian market and the Egyptian trading market index during a period the study.

4. The change in the growth rate of the Egyptian economy helps explain the changes in the Egyptian trading market index, where the probability value was (0.0724), statistically significant at the level of statistical significance (10%), which indicates the existence of a statistically significant relationship between the growth rates of the Egyptian Economy and the Egyptian stock market index during the study period.

The following is a comparison of the results of estimating the Saudi and Egyptian trading market index models

Table No. (5): Comparing the results of estimating the Saudi and Egyptian trading market index models using the method of least squares

weighted (WLS).

variants	Saudi stock market index model		Egyptian stock market index model	
	regression coefficient	Moral	regression coefficient	Moral
fixed limit	6786.199	0.0052	8.466091	0.0002
national product	2.48015	0.2532	0.002646	0.5788
interest rate	*-0.070352*	*0.019794*	-2.953005	0.0153
rate growth	11.33994	0.0124	2.525267	0.0724

Source: prepared by the researcher based on the results of the statistical analysis.

Through the results of Table No. (5), we note that the gross national product did not have any effect on the Saudi and Egyptian financial markets, and that both (the interest rate and the growth rate) had a significant impact on the Saudi financial market and the Egyptian trading market, as the economic growth rate It affects positively, while the interest rate affects negatively.

After studying the performance of the Saudi finance market and the Egyptian finance market and analyzing and measuring the impact of some economic variables represented in the variable (interest rate, economic growth rate, gross national product) on the performance of the finance market as measured by the Saudi finance market index and the Egyptian finance market index during the study period (2011-2020 AD) hypotheses will be discussed as follows:

The main hypothesis: There is no difference in the effect of economic factors on the performance of the finance market in the Saudi market compared to the Egyptian market.

Through the results of the estimation received for the models of the trading market in the Saudi market and the trading market in the Egyptian capital market, the hypothesis is accepted, which states that there is no difference in the impact of economic factors on the performance of the finance market, as measured by the Saudi market index from the Egyptian market.

The following is a discussion of the sub-hypotheses:

a. There is no statistically significant relationship between the interest rate and the Saudi finance market index, and the Egyptian finance market

Through the results of the analysis, it is noted that there is a negative effect of the interest rate on the Saudi trading market index, as the value of the interest rate parameter in the estimated model was (-0.07) with a negative sign and a significant level (0.01), which indicates the existence of an inverse relationship between the interest rate in the Saudi economy and the index. The Saudi trading market during the study period, and the value of the interest rate parameter in the Egyptian trading market model was (-2.95) and the probability value (0.0153) less than the level of statistical significance even at the level of significance (5%), which indicates the existence of a relationship between the interest rate in the economy Therefore, the changes in the interest rate in the Egyptian economy explain the changes that occur in the Egyptian money market, and then the null hypothesis is rejected and the alternative hypothesis is accepted, meaning that there is a statistically significant relationship between the interest rate and the Saudi finance market index, and the Egyptian finance market

B. There is no statistically significant relationship between the economic growth rate and the Saudi finance market index and the Egyptian finance market

The results of the analysis revealed that there is a positive effect of the growth rate on the Saudi trading market index, where the value of the economic growth parameter in the Saudi trading market model was (11.34), significant at a significant level (0.0124), which indicates the existence of a statistically significant direct relationship between the growth rate in the economy. Saudi Arabia and the Saudi trading market index during the study period, and the effect of the growth rate in the Egyptian economy on the Egyptian trading market was (2.53) at a significant level (0.0724 m), which indicates the existence of a direct statistically significant relationship between the growth rate of the Egyptian economy and the Egyptian trading market index, which indicates There is a statistically significant direct relationship between the economic growth rate and the Egyptian stock market index at the level of significance of 10%, then the null hypothesis is rejected and the alternative hypothesis is accepted, meaning that there is a statistically significant relationship between the economic growth rate and the Saudi stock market index and the Egyptian finance market.

C. There is no statistically significant relationship between the gross national product and the Saudi finance market index and the Egyptian finance market.

Through the results of the analysis, the researcher concluded that the gross national product did not have any real impact on the Saudi and Egyptian finance markets during the study period, as the probability value for it in the Saudi finance market model was (0.2532) and (0.5788) in the Egyptian finance market model, which is greater. From the level of statistical significance even at the level of significance ((10%), which indicates that there is no statistically significant relationship between changes in the national product and changes in the finance market index. Then the null hypothesis is rejected and the alternative hypothesis is accepted, meaning that there is a statistically significant relationship between the national product, The total and the index of the Saudi and the Egyptian finance markets.

Findings and discussion

In order to study and in-depth analysis of the Saudi finance market and the Egyptian finance market and to analyze and measure the impact of some economic variables represented in the variable (interest rate, economic growth rate, gross national product), on the performance of the finance market as measured by the Saudi finance market index and the Egyptian finance market index during the study period (2011-2020 AD), where the study began with a descriptive analysis of the study variables, then tests to detect the stability of the variables using the Phillips-Peron test, and concluded that (the growth rate of the Saudi economy in the Saudi economy) is stable at the level, while the two variables (trading market index, interest rate) Stable at the second difference, while the variable (Saudi gross national product) did not stabilize even at the second difference, whether the function included a categorical or included a categorical and a general trend or without a categorical and without a general trend. As for the stability of the variables of the Egyptian trading market model, the variable (Egyptian trading market index) is stable at the first difference, while the variables (interest rate, gross national product) are stable at the second difference, while the variable (growth rate) in the Egyptian economy did not stabilize even at The second difference is whether the function includes a secant or includes a secant and a general direction or without a secant and without a general direction.

Then the model was estimated and problems were addressed, and then the hypothesis was accepted, which states that there is no difference in the effect of economic factors on the performance of the money market, as measured by the Saudi market index compared to the Egyptian market. The value of the adjusted determination coefficient (R2) for the estimated Saudi trading market model explains (94%) of the changes that occur to the Saudi capital market, as measured by the market trading index. and the value of the coefficient of determination Adjusted (R2) of the estimated Egyptian trading market model explains (57%) of the changes that occur to the Egyptian capital market, as measured by the market trading index.

Conclusion

The study concluded that the interest rate has a negative impact on the Saudi trading market index and the Egyptian trading market, and that the rate of economic growth and gross national product have a positive impact on the Saudi trading market index and the Egyptian trading market.

Recommendations

Multiple shocks affected economic activity globally (COVID-19 pandemic, Ukraine war), which led to a contraction of economic output in most countries, and policies varied according to the financial capacity of each country, and according to the problems facing countries, and after studying the variables that affect the performance of financial markets, the study recommends the following :

1. The necessity of linking economic policies with an analysis of markets and their expected impacts.
2. The need to reduce the negative impact of each of the interest rates on the Saudi trading market index and the Egyptian trading market.
3. The need to enhance the positive impact of each of the economic growth rate and gross national product on the Saudi trading market index and the Egyptian trading market.
4. The necessity of providing liquidity to the financial system, easing credit conditions, and reducing bank's compulsory reserve requirements in order to achieve stability in financial markets.

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Factors deterring the progress of aspiring Women Entrepreneurs in North Chennai, India

Ameeta Fernando
A. Siluvai Raja
Loyola Institute of Business Administration (LIBA)
Loyola College Campus, Chennai, India

Keywords
Indian women entrepreneurship, Bottom of the Pyramid, Financial Literacy, Government Schemes, Micro-finance, SHG

Abstract

Vyasarpadi (Chennai, Tamil Nadu, India) was considered a difficult locality to dwell in, given its history of crime and illegal activities. The women living here, have faced the brunt of the situation in more ways than one.

Purpose: Although today, the scenario has changed, it has been quite a challenge for the women of Vyasarpadi to realize their career dreams amidst the social issues that prevail. This study aims to understand the factors that are holding them down. The primary objective of this research is to determine if these women are willing to go the extra mile to pursue and achieve their business aspirations, through training programmes that are intended to empower them.

Design & Methodology: During an intervention with the Self-Help Groups in Vyasarpadi, a survey was conducted on the factors that affect the career prospects of these women with the objective of identifying solutions that can catapult them in the right direction. Around 85 women from the locality attended the intervention and discussed the roadblocks in realizing their entrepreneurial aspirations.

Results & Findings: By and large, the findings reveal that most women are ready to break their social stigma and inhibitions, age and family constraints to explore new venues for bettering their standard of living, independence, and financial/social status. The other two factors namely financial limitations (added to a lack of knowledge of government schemes) and lack of management training play a role in discouraging women from pursuing business opportunities.

Implications & Conclusion: Empowering women who are at the bottom of the pyramid takes planning and execution of deliberate measures from the State and Central Governments, implemented through transparent mechanisms and monitored rigorously and periodically through systematic audits. The paper concludes with recommendations for the future to uplift women in the bottom of the pyramid and transform them into entrepreneurs.

Introduction

For decades, Vyasarpadi has been considered notorious and infamous for crime and bloodshed (Selvaraj, 2012). Situated in North Chennai and known for its rowdy gangs, it was the seat of crime for several years. It is simple to assume that the women in the area would have faced the brunt of such crime and violence for a considerable period. Life is a battle for the women from the bottom of the pyramid in the North Chennai locality of Vyasarpadi. Shuttling between household chores, small labours for a negligible income, raising children and grandchildren, managing the family income, standing in queues for rationed goods, putting up with difficult familial ties and relationships, evading the talk and judgements from the society around them: their day-to-day living realities put several of these women through existential crises several times within the same day. Strong as they are, what weighs them down emotionally is the fact that most of them are equipped with the ability and adeptness to acquire new skills and start new business initiatives but are not able to pursue their dreams due to various reasons.

These women already have the skills that are demanded of managerial roles. Whether it is financial planning, people management, or handling operations and logistics efficiently, their day-to-day experiences have finetuned these abilities that would make them excellent managers. However, while they innately possess these qualities, there are several hurdles that they need to overcome in order to fulfil their aspirations. The uptick in women entrepreneurs can be clearly seen in recent times, but as long as there are planners, there must be provisions to aid them in their endeavours. This study identifies the reasons that are challenging the rise of these businesswomen and proposes possible solutions to the concerns that shroud their career opportunities.

Literature Review

Women Entrepreneurship in India

In a paper titled "What Decides Women Entrepreneurship in India?", Khokhar (2019) reports that affordable credit and participation in decision-making processes are factors that significantly enhance entrepreneurship for women in India. On the other hand, he says that the female literacy rate is not a significant contributor to this aspect. The study also reveals that there is no significant connection between infrastructure and entrepreneurship in the case of women (Khokhar, 2019).

In their paper "A Study on Trends Visible in Women Entrepreneur in India and Globally", the authors write that there has been considerable progress in the development-driven training given to women entrepreneurs within public policy and academic programs (Sulekha Munshi, 2011). While progress in terms of women beginning to dream of an enterprise of their own is definitely a positive trend, the transition from aspirations to reality remains a challenge when push comes to shove.

A study done by Ritwik Saraswat and Remya Lathabhavan indicate that in India, women-owned businesses are still a minority and the challenges faced by women entrepreneurs are often and significantly different from the hurdles faced by their male counterparts (Saraswat & Lathabhavan, 2020). The report brings out the dire need in the Indian context, especially in the rural systems, for women to be trained and incubated to realize their aspirations to start and own businesses for an increase in their socio-economic status.

Another study indicates that the biggest hurdles that deter the realization of business dreams of Indian women are their weak financial position, the difficulties in balancing work and domestic duties, absence of family support, and low literacy rate (Gulia, 2022).

Women Entrepreneurship in Chennai, Tamil Nadu

In the paper titled "Major Issues and Challenges of Women Entrepreneurship in India - A Literature Review", the authors report that although Tamil Nadu features in the list of Indian states where the number of women entrepreneurs is high, entrepreneurship among Indian women remains disturbingly low despite the efforts by the Government to motivate women to start enterprises (Jayadatta S., 2021).

In another paper on the "Economic Problems of Women Entrepreneurs in Chennai Sub Urbans", the authors indicate that although women have definitely taken a step forward in terms of entrepreneurship initiatives, Indian women have a long way to go and are confronted by various inhibitions such as personal, financial and infrastructural problems (TeluSuvarna, 2019).

In a report on aspiring women entrepreneurs' awareness on the schemes offered by the government featuring financial help and training programmes, some very interesting patterns emerged which are discussed in detail by the authors. The findings of the study also reveal that women are more likely to become entrepreneurs before marriage (G. Lakshmi Priya, 2021).

Specific research on the entrepreneurial initiatives by women at the bottom of the pyramid in Chennai is limited due to the stricture of the theme.

Objectives of the Study

In his book, "The Fortune at the Bottom of the Pyramid", C.K. Prahalad studies and discusses the ways and means through which poverty can be eradicated in developing economies through profit-making endeavours. While this has always been a challenge for everyone with the goal yet to be achieved, Prahalad's strategies give us an opportunity to view social entrepreneurship through a different lens, thereby creating a profit-for-all situation (Prahalad, 2005). Following his lead, an initiative was devised and implemented to promote entrepreneurship opportunities among the weaker and marginalized sections of society, such as single women, domestic helpers, street vendors, transpeople and youth from the sections of society generally perceived as being backward to empower them and understand the factors that are preventing them from pursuing entrepreneurship as well as the remedial measures for the situation. One of the primary goals of the endeavour was to study the challenges faced by women in this region in terms of starting their own businesses.

The objectives of the present study are to identify:

1. The reasons why they are not able to pursue these entrepreneurship initiatives.
2. The domains (such as Tailoring, Catering, Beautician, Handicraft, Technology, etc.) in which the women of Vyasarpadi are interested in running businesses.
3. Their willingness to enrol in training programmes that will help them realize their business initiatives.
4. The strategies that social outfits and organizations would have to implement to empower the women from these Self-Help Groups to start their businesses.

Methods and Material

The study was carried out during an intervention held for the women through the Self-Help Groups (SHG) of the area. The intervention was aimed at motivating them to empower themselves through training programmes that would help them be financially independent. There were 85 women who attended the intervention. A simple and easy-to-understand questionnaire typed in Tamil was circulated among the women, and for those who were unable to read/understand, guidance was provided. The women were informed about the purpose of the study, and their consent was sought before the answers were elicited from the participants. Out of the attendees, 75 willingly participated in the survey and those who were hesitant were not pursued further. The questions were in the form of multiple-choice questions, and the answers were entered into Excel sheets for further analysis.

The following analyses were performed on the data, given the nature of the study and the profile of the participants:

1. Descriptive analytics for demographics
2. Chi-square test for categorical variables
3. Analysis of Variance

Challenges in Data Collection

There are several hurdles for researchers who would like to study the realities in the lives of people at the bottom of the pyramid: lack of education, and lack of infrastructure and facilities, to name a few. Especially while dealing with women at the bottom of the pyramid coming from recently transformed localities such as Vyasarpadi, the following concerns were the barriers to collecting more data from a larger pool of women:

1. Most of the women we worked with are uneducated or have dropped out of school. This means that any tool measuring their views and perspectives should be designed in the local language with very basic and comprehensible questions. While filling in the survey tool, help was provided to ensure that they understood the question and marked the relevant answer.

2. While several NGOs and voluntary groups visit places like this and offer to help, nothing drastic has happened to change their lives for the better; some of the women are indifferent when it comes to sharing information and, in a way, frustrated when asked anything beyond very simple information.

3. Even those of them who have mobile phones, have very basic ones with no internet access/Wi-Fi and hence the survey had to be conducted in the traditional print format with the group of women being walked through the purpose of the survey and convinced of the intention to provide need-based training, in business management aspects.

4. Most of these women are hard-pressed for time, to say the least. They are shuttling between household chores for their own families and the part-time work that they do as domestic helpers or labourers in some small enterprise; some of them mentioned that they had to take their grandchildren to school and bring them back (due to early marriages many of them turn into grandmothers of school going children before they reach the age of 50). Hence, it becomes very difficult to sit them down with a list of questions, the benefits of which may not outweigh the costs, according to them.

Results & Discussion

The women who participated in the survey were from different SHG in and around Vyasarpadi. The average monthly income of the households of the 75 women was found to be INR 13, 152.77.

Descriptive Statistics

The significant findings from a descriptive analysis on the responses furnished by the participants have been furnished below.

1. *Deterrents to Entrepreneurial Initiatives of Women in North Chennai*

Over 38% of the women have indicated that they are not able to pursue their passions due to financial constraints. They do not have sufficient capital to invest in the resources and raw materials that are required to run a business. Additionally, most of them are not aware of the Government schemes and other opportunities that are in place to fund such micro-enterprises.

The second highest deterrent to these initiatives, according to these women, is a lack of training in management skills, domain expertise, financial concepts, technology elements and people skills. About 32% of the women surveyed fall into this category. Providing training for these women on the pivotal aspects of management and business administration could be a solution to their problems.

Time constraints, become a barrier to the establishment of their businesses. Over 18% of women mention that they do not have sufficient time to pursue their career opportunities. This could be because of the time that they spend working as domestic helpers in households, which is additional to their own chores such as cooking, cleaning, and taking care of their school/college-going children or working adults in their households.

The priority for most of these women seems to be taking care of the needs of the family, and they put their own prospects on hold due to their desperation to see their children in good stead in terms of education and career. Though only about 13% of the women said that lack of family support was the reason for them not initiating any business activity, this may be closely connected to the previous reason, which says they have enough time only to take care of familial needs, thus indicating a clear priority. Counted together, more than 30% of women attribute their lukewarm attitude towards pursuing business initiatives to familial reasons. Some of them openly mentioned that family members do not want them to look out for career options since it could mean that there would be no one to cook and do other household chores. Poor self-confidence seems to be a very unlikely deterrent to this aspect, since most of the women appear to be quite confident about their capabilities and are highly motivated in terms of career pursuits.

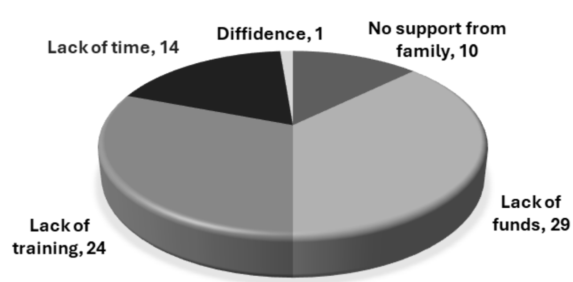

Figure 1: Reasons for reluctance in starting a business

Business of Interest

As is evident from the below figure, a large section of the women in Vyasarpadi (44%) were interested in opening tailoring units. Most of them know tailoring but are not quite well-informed as to how to go about doing the business. They were not able to estimate the size, the investment and the challenges that go into running the business. Though they are very eager to learn, they lack a general sense of direction when it comes to handling a business on their own. Some of them are already involved in tailoring for their own and their family’s needs.

The second most popular mini-business prospect for them is catering (25%). Since most of them know cooking and/or are occupied in neighbouring households for cooking, they are comfortable with the idea of implementing a catering idea as their business initiative. Furthermore, about 14% of them were interested in handicrafts such as wire bags, decorative items, and household goods, and around 10% were interested in acquiring computer skills.

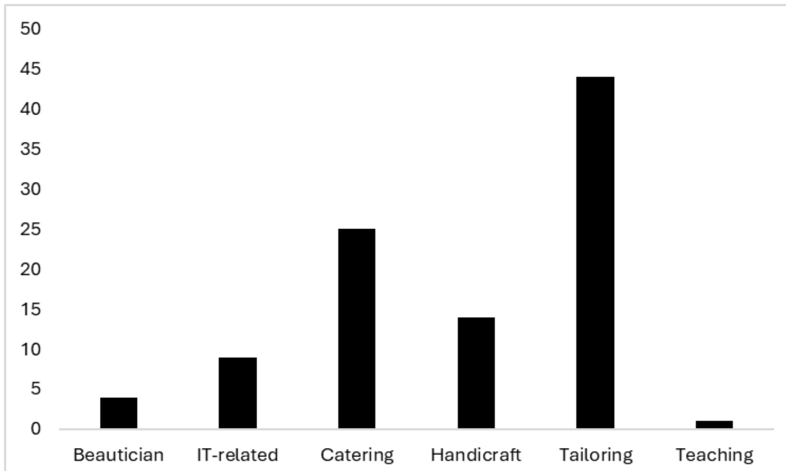

Figure 2: Business Interest

When asked if they would require training in their domain of interest, most of the women felt that they have sufficient domain skills, be it catering or tailoring. However, they felt that they needed training in management skills, namely, human resource management, supply chain management, finance basics and accounting skills, use of technology in small enterprises, time management, soft skills, people management and so on.

Interest in training-enabled business start-up

When asked if they would be interested in undergoing business administration and management training, 86% were eager to sign up for training in their area of interest and management concepts. While some of them felt that they lacked the orientation to pursue their area of interest, some others expressed that they have not yet even explored the various domains in which they could be interested.

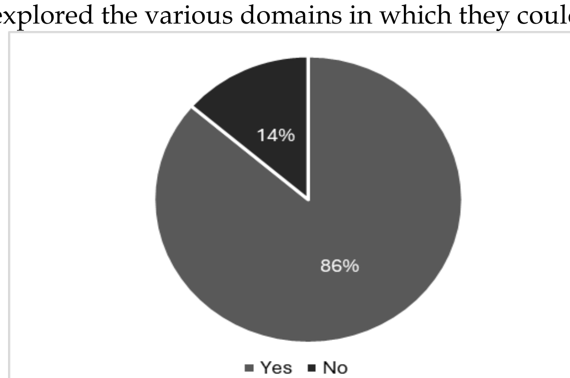

Figure 3: Interest in Business Management Training

The reasons for the lack of interest of some women who opted out of training could be attributed to the fact that some women see age and family duties as barriers to training. Thus, a test was performed to check if age and family size influence the interest that women show in signing up for training programmes. The assumption here was that the higher the number of family members, the greater the amount of workload in household duties.

Eagerness shown by women to start businesses

When asked about their interest in starting a mini business of their own, most of the women (93%) were open to the idea and were, in fact, eager to start a business on their own.

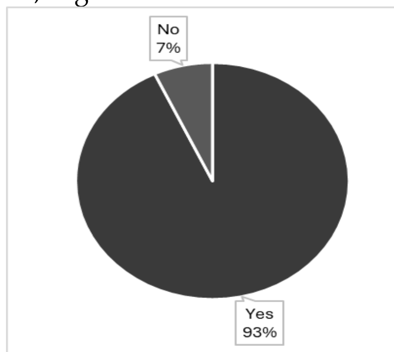

Figure 4: Interest in Entrepreneurial Initiatives

And when asked about the outcome they were expecting in the event of their entrepreneurial aspirations coming to fruition, most women expected to feel independent (financially, emotionally, socially) after starting their own business (38%). Overcoming their present financial crisis in the family was a close second (37%).

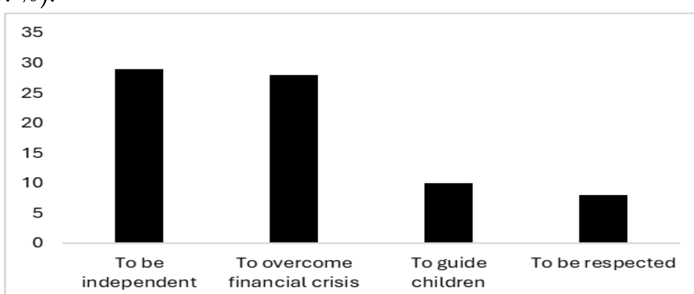

Figure 5: Why do you want to start a business?

Chi-Square and ANOVA Results

1. *Effect of Age and Family Size on Interest in starting a business*

To ascertain if there is a relationship between the age groups of the women and their interest in business start-ups, a Chi-Square Test was performed between the women's age groups and their interest in starting a business. The p-value (p=0.8957) indicates that **there is no significant relationship between age groups and their interest levels**. Irrespective of their age, women are very keen on pursuing business start-ups and are willing to take up training to nurture their entrepreneurial skills.

Likewise, an ANOVA that was performed to check if family size has a role in the eagerness women exhibited to become entrepreneurs (p= 0.2752) revealed that there was **no statistically significant relationship between the size of their families and their interest in starting a business.**

2. *Effect of Age and Family Size on the Reasons for starting a business*

A one-way ANOVA performed between the outcome they expect from starting a business and the women's age (p=0.334) indicates that **age does not have a bearing on the reasons** why these women would like to pursue entrepreneurial initiatives.

In a similar test done to determine the association between monthly income and reason for aspiring to become an entrepreneur, the results (p=0.494) indicate that the **monthly income does not affect the outcome they expect from their business initiatives**.

However, when a one-way ANOVA was performed to check if family size had a bearing on their motivation to pursue business, the results (p=0.033) indicate that **family size does seem to influence the type of difficulty that women want to overcome** (financial crisis, dependency, perceived lack of respect from others, not able to guide children) through business activities.

This is in fact evident from the table below that indicates the number of women who aspire for different outcomes from starting a business relative to their family size. We find that women from bigger families (3-member or 4-member families) are highly motivated to become independent and/or overcome financial instabilities. Women from 4-member families especially seem very focussed on overcoming these obstacles through entrepreneurial undertakings.

Motivation to start a business					
Family Size	To be independent	To be respected	To guide children	To overcome financial crisis	**Total**
2	4	1		2	7
3	10	1	2	3	16
4	12	2	5	17	36
5	3		1	5	9
6			2		2
7				1	1
Total	29	4	10	28	71

Table 1: Family Size Vs Motivation to start a business

It can be assumed from this table that women from families that have a size below 3 (2-member families) may not yet have felt the pressure of financial crisis, depending on the age of the spouse and self, the plans they have for children, the income of the spouse etc. It is likely that women from families which have more than 4 members may have an elder child who is already earning or on the verge of bringing in an income, which may lead to less pressure for the women to seek business opportunities.

Recommendations

It is evident from the results above that none of the parameters that one would think would deter women from entering business matter anymore: not age, family background, or even educational status. Women, irrespective of their age, their background and family responsibilities are willing and open to the idea of starting businesses in their own limited capacities. The real issue seems to be rooted in the fact that they do not have sufficient opportunities to receive orientation and training to pursue their business goals, the only other factor being financial constraints. The following strategies will help any NGOs or social outreach outfits to cater to the needs of the women in North Chennai:

Awareness creation on Government schemes

One concern emerged with the conversation with the women in North Chennai. They were not aware of the schemes initiated by the government (Centre and State) that could either fund their businesses or help them in any other way. The Government of India has put in place several such schemes such as the Mudra Loan for Women, Annapurna Scheme (specifically for women who would like to start a catering business), Bharathiya Mahila Bank Business Loan (that offers women entrepreneurs loans up to ₹20 Crores for working capital requirements, business expansion, or manufacturing enterprises) (Bajaj Finance, 2022) and so on.

Details of these schemes and the processes to avail them are available in The Women Entrepreneurship Platform (WEP), a portal that is hosted by the Government of India for this purpose specifically (Government of India, 2022). Additionally, the Tamil Nadu State Government has also put in place several schemes for women such as the Special Literacy Programme for Women, Additional Capital Subsidy for women, SC/ST, differently abled and transgender entrepreneurs, TABCEDCO/TAMCO schemes for people from the economically backward classes and so on (Spirit of Chennai, 2022). Apart from this, there are forums such as Women Entrepreneurs India that handhold and mentor women who are eager to start their own enterprises (Women Entrepreneurs India, 2022). These portals share several success stories of women who have had very humble beginnings and have been significantly successful in their careers (She at Work, 2022).

Training on Business Administration and Management

A fine-tuned business management course (like a mini-MBA) programme which covers management principles, including financial concepts, basics of accounting, technology for entrepreneurs, human resource management, marketing and advertising techniques, supply chain fundamentals, operations and logistics, people management, business communication etc, taught in Tamil (gradually making them articulate and communicative in English too) will greatly serve the purpose of transforming women in North Chennai (domestic helpers, street vendors etc) into businesswomen. Additionally, these women will also need motivational and inspirational sessions with case studies on successful women entrepreneurs, which could be built into the curriculum of such a mini-MBA programme. While there could be several challenges in implementing these kinds of programmes, since there will be very little profit to the institution that offers such courses, this programme could be considered as an Institutional Social Responsibility (ISR) of such business schools to realize their own commitment to society and could, in fact, help in their brand building.

Micro-financing Initiatives

As the only way out for these women to escape the clutches of poverty is through economic sustainability, micro-financial aid to the beneficiaries could be initiated and strengthened to lift this segment out of poverty and empower them economically. Private micro-finance institutions are not within reach as they charge 16%-20% interest on loans. A nominal interest model (with the support of the State and Central governments and banks) will encourage the women to start businesses and benefit from them. While options are available, awareness about these options is minimal among these women, as mentioned earlier. Campaigns on financial literacy, as well as proper implementation and execution of low-interest micro-finance models, could pave the way for these under-privileged women.

Incentives for Small Businesses in preferred domains

As discussed previously, the women in this area are greatly interested in pursuing ventures in tailoring, catering, and handicrafts. In addition to loans and financial aids, the government could explore options like subsidies for utilities that are required for running such businesses (water, electricity, etc.) as well as tax-related benefits. Introduction of such incentives might be the thing that could convince the women that the benefits that they would reap from the endeavour are worth the cost of time and domestic responsibility.

Limitations & Future Scope

1. The study covers a very small geography of North Chennai. But this locality is significant to a study of this nature, since it represents women who are in the bottom of the pyramid and who aspire to succeed as entrepreneurs.
2. The study was carried out during an intervention and therefore is limited in terms of sample size. Data was collected from the women who were willing to participate in the study during the intervention. A bigger sample may provide different insights.

Conclusion

This study was the first of its kind to analyse in detail the problems that plague the aspiring businesswomen of the Vyasarpadi region of North Chennai. The primary challenges identified by this study in terms of women entrepreneurship are the constraints posed by capital and training. Implementing the recommendations made in this paper would be of great help in creating more self-made leaders and, apart from boosting the local economy, would be a step in the right direction towards addressing the gender imbalance among entrepreneurial ventures. Awareness of existing government schemes and initiatives led by organizations and NGOs, in addition to the facilitation of micro-financial aid, would greatly neutralize the first challenge. Furthermore, introducing the concept of Institutional Social Responsibility with a focus on training these women could greatly enhance their confidence and motivate them further to start their own ventures.

In sum, while these women already possess the determination to succeed and an abundance of managerial qualities, they face several challenges that, at times, may even be self-imposed. To even the scales and to create new leaders and entrepreneurs, it is necessary to first understand the issues mentioned above, scale it to larger geographical regions, and take the steps necessary to better the lives of Indian women who live at the bottom of the pyramid.

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FastFunds: A machine learning-driven personal loan approval prediction mobile App

Samuel Akwasi Danso
Isaac Osei Nyantakyi
Dept. of Computer Engineering
Ghana Communication Technology University, Accra, Ghana

Justice Odoom
School of Computer Science and Technology
Southwest University of Science and Technology, Mianyang, China

Emmanuel Attah Kumasi Amponsah
Dept. of Computer Engineering
Ghana Communication Technology University, Accra, Ghana

Diana Danso
Principal Superitendent -Ghana Education Services- Kumasi,Ghana

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Machine Learning, Loan Approval, KNN, SVM, Mobile App, NFC.

Abstract

The loan approval processes in financial services require precision and efficiency to minimize risks and ensure customer satisfaction. This study addresses the challenge of accurately predicting loan approvals by developing a mobile application that leverages machine learning algorithms. Six machine learning models—Logistic Regression, Decision Tree, Random Forest, Support Vector Machine, K-Nearest Neighbors, and Feed Forward Neural Network—were evaluated using key metrics such as accuracy, precision, recall, specificity, F1-score, geometric mean, and balanced accuracy. Among these, the Feed Forward Neural Network demonstrated the highest accuracy at 94.72%, followed by the Support Vector Machine and KNearest Neighbors, which also showed strong performance across multiple metrics. This research highlights how machine learning strategies can significantly improve the accuracy of loan approval predictions on mobile platforms. The mobile application developed through this work aims to enhance the operational efficiency, accessibility, and user engagement of financial institutions.

Introduction

The identification of risks is impeded by the interconnected financial accounts of individuals, organizations, banks, and governments [6]. Many debtors are failing to repay their loans, which is causing financial organizations to experience significant difficulties. This problem impedes the capacity of these institutions to assist individuals and enterprises and damages their finances. Loan approval is an essential procedure for banks, as they heavily depend on loans. Conversely, it is more challenging to evaluate loan applications and mitigate loan default risks. Machine learning algorithms are capable of effectively managing vast quantities of data intended for loan

approval forecasting. Deborah et al. (2023). The precision and efficacy of loan approval processes can be enhanced by the rapid expansion of machine learning (ML). Machine learning algorithms have the capacity to analyze extensive data sets to identify patterns and insights that may be overlooked by humans. Loan defaults can be accurately predicted through comprehensive borrower data analysis, which enhances decision-making. Risk management and client interaction for financial institutions could be revolutionized by a mobile application for personal loan approval that employs machine learning algorithms.

In [7], the World Bank indicates that approximately 1.7 billion low- and middle-income adults are unable to access formal financial services. This scenario is being transformed by mobile technology, which provides new opportunities for financial inclusion. For example, in Kenya, mobile money platforms like

M-Pesa have led to a significant increase in financial inclusion, with 65% of the population using mobile money by 2019, compared to just 2% in 2012.

In recent years, the financial industry has increasingly adopted machine learning (ML) techniques to handle large datasets and make predictive decisions in real-time. However, despite these advancements, many financial institutions still struggle with loan default rates due to inefficiencies in the traditional approval process. Mobile technology presents an opportunity to revolutionize loan processing by enabling faster and more accurate predictions through advanced machine learning algorithms.

Literature review

Leveraging machine learning and deep learning techniques to forecast loan defaults, researchers [1] utilized a dataset from the Lending Club [8-16] and applied several models, including Decision Trees, Random Forest, Logistic Regression, KNearest Neighbors, and a deep learning model (Feedforward Neural Network). The main strength of the study lies in its extensive use of various machine learning and deep learning models, providing a comprehensive analysis of multiple methodologies to identify the most effective approach for forecasting loan defaults. The dataset was preprocessed using efficient techniques, which involved handling missing values and categorical features, both of which are crucial for improving model performance. However, the exclusive use of the Lending Club dataset raises concerns about the generalizability of the model's performance. Its applicability to other datasets or real-world scenarios with different characteristics remains uncertain.

The authors in [2] conducted a study comparing logistic regression and random forest models for predicting loan approvals. Statistical techniques, such as confidence intervals and power analysis, were used, with results showing logistic regression had a higher accuracy (81.30%) than random forest (75.6%). The primary advantage of the study lies in its comparative methodology, which analyses the variations in performance between two widely used algorithms in loan prediction, providing a more comprehensive understanding of algorithmic performance. Utilizing statistical techniques such as confidence intervals, p-values, and power analysis enhances the credibility and scientific rigor of the findings. However, the study seems to have a limited reach, as it solely analyses two models. Integrating a wider range of machine learning or deep learning models could enhance the overall comprehension of the capabilities and constraints of predictive analytics in the field of finance. The study is based on a sample size of " n=10," which may not accurately represent the data. Increased and more varied datasets can enhance the reliable extrapolation of the results. The report does not specify if the models' parameters were altered or adjusted, which can significantly affect their performance.

The authors in [3] aimed to improve financial institution decision-making processes using machine learning-driven loan approval prediction. The study employed preprocessing techniques to cleanse the dataset and utilized various classification algorithms to predict the probability of loan approval. The correctness of the model is assessed by the utilization of KFold cross-validation and baseline modelling. Although the paper presents impressive accuracy rates, it fails to address the performance of these algorithms on different datasets or in varying economic circumstances. The report could provide more details regarding the specific features utilized and the process by which they were derived from raw data. The study primarily examines traditional machine learning models, although more exploration of deep learning methods could yield superior results.

The authors in [4] focused on detecting fraudulent loan applications through six machine learning models: decision tree, KNN, SVM, random forest, AdaBoost, and logistic regression. KNN had the best performance, achieving 83.75% accuracy. The primary advantage of the study is in its evaluation of different machine learning algorithms to determine the most efficient method for identifying fraudulent loan applications. This methodology allows for a comprehensive analysis of the various approaches that can be used to achieve this objective. The paper does not describe how the models were evaluated beyond the initial accuracy test. For example, cross-validation, precision-recall analysis, and ROC curves would provide a more in-depth understanding of each model's performance and reliability. While the study discusses" Analytics Vidhya" data collection, there is no information about the dataset's diversity and representativeness. Details on the magnitude, variety, and completeness of the data would aid in determining the strength of the study's conclusions. Although the study analyses six models, its main focus is on accuracy. Other metrics, such as F1-score, precision, and recall, are also important for a

thorough study, particularly in a problem domain like fraud detection, where false positives and false negatives can be quite costly.

The authors in [5] applied SVM and logistic regression to predict loan status. The study used data from Kaggle, which included client demographics, and aimed to help financial institutions make more informed loan approval decisions. Several studies have explored machine learning algorithms in predicting loan defaults. This paper introduced a robust methodology for managing data, which encompassed preprocessing and feature engineering. These steps are crucial to attain a high level of accuracy in the model. Despite the widespread usage of Logistic Regression and Support Vector Machines, the study lacks any novel methodologies or significant improvements to these established models. This limitation may hinder its potential to advance the field of financial analytics.

Methodology

Our workflow begins with Data Collection, where relevant data is gathered from publicly available sources, such as Kaggle [17-18], which offers a rich repository of datasets for various machine learning tasks. The chosen dataset is often selected based on its relevance to loan approvals, containing key variables such as borrower demographics, financial history, and loan details.

Once the data is collected, it undergoes Data Preprocessing to ensure it is clean, consistent, and usable for machine learning models. This step is crucial, as raw data often contains missing values, inconsistencies, and outliers that can negatively impact model performance. Techniques such as imputation or removal are employed to handle missing values. Additionally, categorical variables are encoded into numerical formats, which makes them compatible with machine learning algorithms. Numerical features, such as income or loan amount, are normalized or scaled to ensure that no single feature disproportionately affects the model's learning process.

Next, the dataset is split into Training and Test sets, typically using an 80/20 split, where 80% of the data is used to train the models and 20% is reserved to test and evaluate the models' performance. Splitting the data ensures that the model is exposed to unseen data during testing, which helps to assess its generalization ability and prevent overfitting. Various machine learning models, including Logistic Regression, Decision Tree, Random Forest, K-Nearest Neighbor (KNN), and Feed-Forward Neural Network (FFNN), are then trained on the training dataset.

Following model training, each model is evaluated using multiple performance metrics such as accuracy, precision, recall, F1-score, specificity, geometric mean and balanced accuracy. Accuracy alone may not always provide the best indication of a model's performance, especially in cases of imbalanced datasets, where metrics like precision (the ability to correctly predict positive cases) and recall (the ability to detect all actual positive cases) are equally important. The F1score offers a balance between precision and recall, making it a key metric for models handling skewed data. Specificity measures the model's ability to correctly identify negative cases. Based on these metrics, the best-performing model is selected. This evaluation process is critical, as different models may excel in various aspects depending on the dataset and evaluation criteria.

Once the optimal model is chosen, it is integrated into a mobile application. For smooth integration, the selected model is often converted into a lightweight format, such as TensorFlow Lite, allowing it to run efficiently on mobile devices. This conversion ensures the model can make predictions quickly, even with limited computational resources available on mobile platforms. The application is designed to handle real-time inputs from users, offering immediate loan approval predictions.

This methodology, as abstracted in Fig. 1, offers a practical and efficient solution for predicting loan approvals using machine learning on a mobile platform. By leveraging advanced algorithms, the solution enhances both the user experience and the operational efficiency of financial institutions, providing quick and reliable assessments of loan applications.

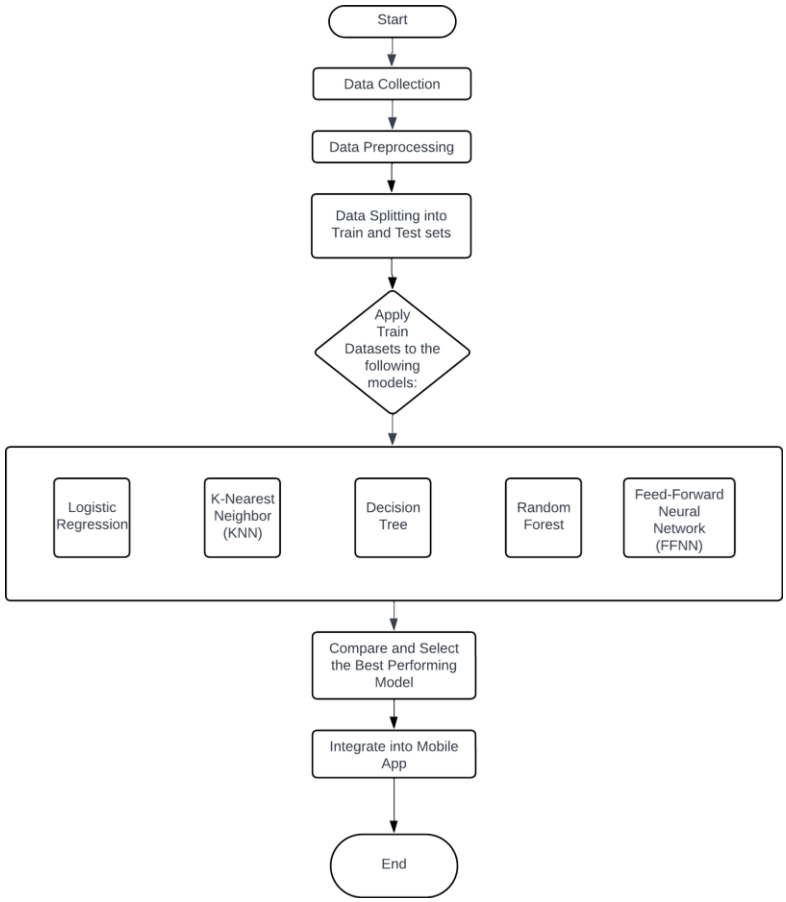


Fig. 1: Proposed Methodology.

A. Machine Learning Models

The following models were implemented and tested on the dataset:

- Logistic Regression: A widely used statistical model for binary classification tasks. It predicts the probability of a binary outcome by applying a logistic function to a linear combination of the input features.
- Decision Tree: A non-parametric model that splits the dataset into subsets based on the most significant features, eventually arriving at a decision by traversing through the branches.
- Random Forest: An ensemble method that builds multiple decision trees and aggregates their results to improve prediction accuracy.
- Support Vector Machine (SVM): This constructs hyperplanes in a multi-dimensional space to classify data points. It is effective in high-dimensional spaces and suitable for cases where the number of features exceeds the number of observations.
- K-Nearest Neighbors (KNN): A simple, nonparametric algorithm that classifies a data point based on the majority class of its k-nearest neighbors.
- Feed Forward Neural Network (FFNN): A deep learning model that consists of multiple layers of neurons, where each layer is fully connected to the next. FFNN can capture complex patterns in the data.

Each model was evaluated based on accuracy, precision, recall, specificity, F1-score, geometric mean and Balanced.

B. Model Training

- Data Splitting: The dataset (X train, y train) is used to train the machine learning models. The dataset comprises a set of features (X train) and their related labels or targets (y train). The features encompass data such as the borrower's credit score, income level, loan amount, and other pertinent financial attributes. The target variable, y train, usually represents the result, such as whether the loan was repaid successfully or defaulted. The testing dataset, consisting of features (X test) and labels (y test), replicates the structure of the training dataset. This allows for evaluating the model's accuracy, precision, and recall using new and unseen data.

- Data Scaling: Prior to training, it is crucial to standardize the features in the training dataset (X train). Scaling is an essential preprocessing step in numerous machine learning algorithms, especially those that are influenced by the magnitude of input features, such as SVMs, knearest neighbors, and neural networks. Scaling was important because it ensured equal contribution of all features to the result and prevented features with larger ranges from overpowering the training process. Additionally, it accelerated the convergence of machine learning algorithms when the features have a comparable scale and are distributed close to a normal distribution.
- Scaling Method: The StandardScaler function from the preprocessing module of Scikit-learn was utilized. The scaler was first used on the training data (X train) to obtain the scaling parameters (such as mean and standard deviation in the case of StandardScaler). Later, it was used to convert both the training and testing datasets. To minimize overfitting and erroneous performance ratings, it was crucial to just apply the scaler to the training data and not transfer any information from the test set.
- Training and Evaluation: After scaling the data appropriately, different models were trained using the training dataset. The performance of these models was evaluated on a scaled testing dataset using problem-specific metrics such as recall, precision, accuracy, and F1 score for classification tasks.

C. Mobile App Design

The mobile app, developed using Flutter, is designed to enhance the operational efficiency, accessibility, and customer engagement of financial institutions by providing real-time predictions of loan defaults on the go. Users can input borrower information, receive accurate loan default predictions, manage past predictions, and obtain immediate feedback with detailed explanations and suggestions, as outlined in Fig. 2. Additionally, the app integrates NFC technology to streamline

the fund receiving process, improving transaction convenience for users.

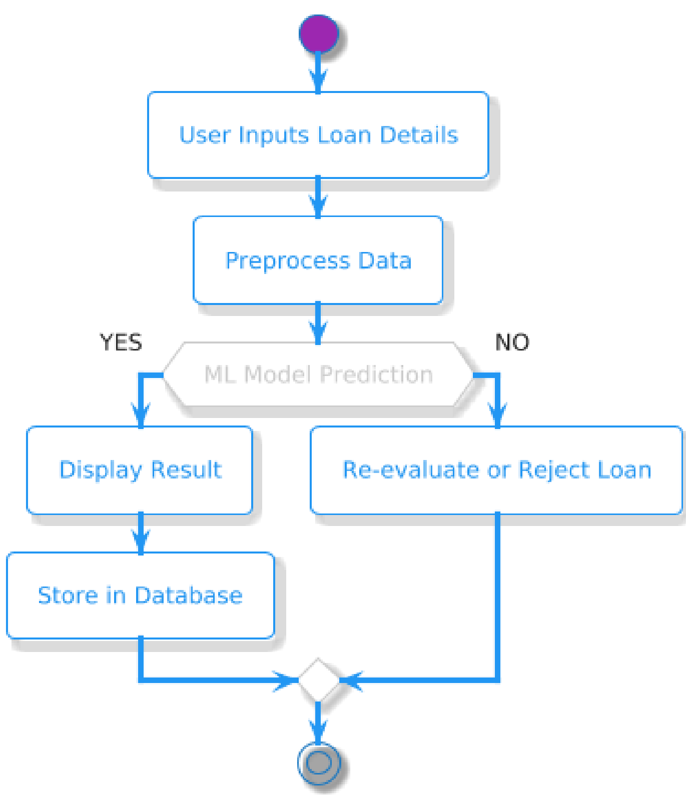


Fig. 2: Flowchart of Loan Request

Fig. 2 illustrates the step-by-step workflow of the loan prediction process within the app. The process begins with the user inputting loan details. This input is then subject to Data Preprocessing, which includes crucial validation checks to ensure data accuracy and completeness. Following preprocessing, the data is fed into a machine learning model for prediction. Based on the prediction outcome, the app either displays the result and stores it in the database for future reference or prompts a re-evaluation or rejection of the loan application if the prediction results are unsatisfactory. This flowchart provides a visual understanding of how the application manages data to ensure accurate loan predictions.

Results and analysis

A. Model Results

The results from the evaluation of the models are summarized in Table I. Among all models, the Feed Forward Neural Network (FFNN) achieved the highest accuracy of 94.72%, followed closely by the Support Vector Machine. The Decision Tree algorithm, while interpretable, performed less effectively due to its tendency to overfit the training data. As shown in Fig. 3, the accuracy of the FFNN was evaluated across 6 epochs, displaying slight fluctuations before stabilizing around the highest accuracy value.

TABLE I: Model Evaluation Results

Model	Acc (%)	Pre	Recall	Spe	F1	Geo	IBA
LR	94.07	0.94	0.93	0.95	0.93	0.94	0.88
DT	81.99	0.85	0.86	0.78	0.86	0.81	0.67
RF	84.83	0.87	0.87	0.82	0.87	0.85	0.72
SVM	94.07	0.94	0.93	0.95	0.93	0.94	0.88
KNN	92.70	0.93	0.92	0.94	0.92	0.93	0.86
FFNN	94.72	0.94	0.93	0.96	0.93	0.95	0.89

The superior performance of the Feed Forward Neural Network (FFNN) and Logistic Regression is evident in metrics such as accuracy, specificity, and F1-score. FFNN achieved the highest specificity (0.96) and a strong F1-score (0.93), highlighting its effectiveness in correctly identifying true positives and negatives, while minimizing false positives. Logistic Regression also performed well, with a specificity of 0.95 and an accuracy of 94.07%, demonstrating a balanced performance across key metrics. These results indicate FFNN's potential for mobile integration, particularly when optimized for efficiency using TensorFlow Lite. Additionally, Support Vector Machine (SVM) delivered competitive performance with faster prediction times, making it ideal for computationally efficient applications.

The FFNN's accuracy across different epochs, as depicted in Fig. 3, illustrates the learning behavior of the model during training, where the accuracy dipped in the early stages but improved significantly in subsequent epochs.

B. Model Integration

The TensorFlow Lite model file (.tflite) was integrated into the mobile app's codebase. The integration involved using the TensorFlow Lite interpreter, which is responsible for running the model on the mobile device. This interpreter was embedded into the app, allowing the best performing model (FFNN) to make predictions directly on the device.

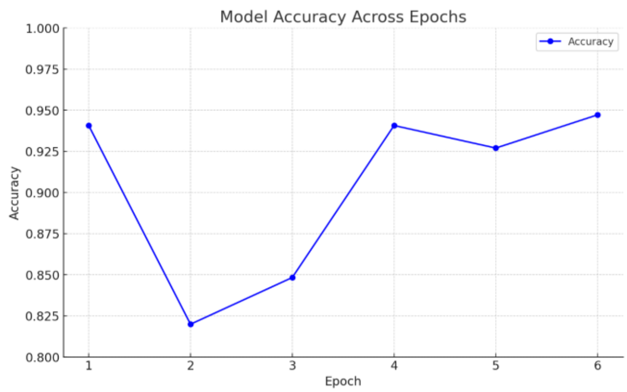


Fig. 3: FFNN Accuracy Graph.

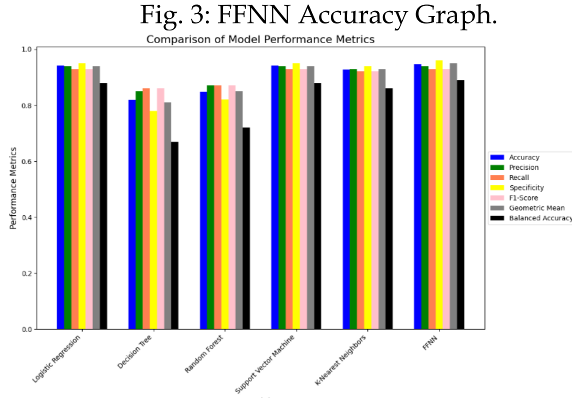


Fig. 4: Performance indicators of various models

The app is designed to collect user inputs relevant to loan approval (such as income, loan term etc.) through the user interface. These inputs are preprocessed to match the format required by the FFNN model. Once the user inputs are collected, they are passed to the TensorFlow Lite interpreter, which feeds them into the FFNN model for prediction. The model processes the input data and returns a prediction, indicating whether the loan is likely to be approved or not.

C. Mobile App Results

Fig. 5 illustrates the home screen of the mobile application" FastFunds Capital." Upon logging in, the user is welcomed by name, along with a summary of their account details. The main features accessible from the home screen include Transactions, Transfer, Request Loan, and Loan History. These options provide quick access to essential financial functions, such as viewing transaction history, transferring funds, applying for loans, and checking past loan requests. The balance section is displayed in a secure manner, ensuring the user's financial data is protected, with an option to hide or display the balance. This intuitive layout enhances user experience by offering a simple yet comprehensive dashboard for managing loans and other financial operations.

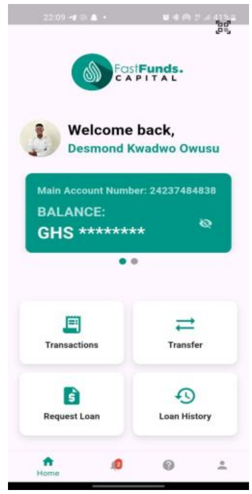


Fig. 5: Main Page of Mobile App

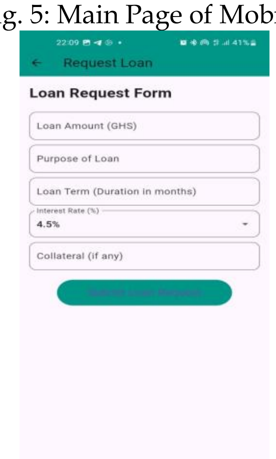


Fig. 6: Loan Request Form

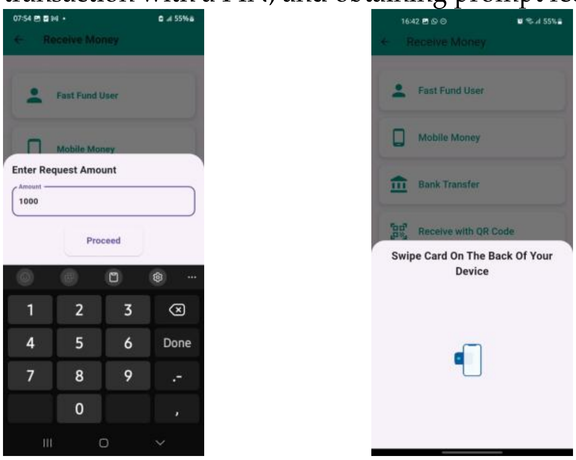
Fig. 6 presents the Loan Request Form screen of the mobile application. This interface allows users to request a loan by filling in critical details such as the loan amount, purpose of the loan, loan term (in months), interest rate, and any collateral if applicable. The form is designed to be simple and user-friendly, ensuring that all necessary information is captured before submission. Once the required fields are completed, the user can submit the loan request by tapping the" Submit Loan Request" button.

Fig. 7 shows the Loan Request Result pop-up that appears after a user submits a loan application. Upon successful submission, the app evaluates the loan request using the integrated machine learning model. In this instance, the result indicates that the user qualifies for the loan, and they will receive an approval message shortly. This real-time feedback enhances the user experience by providing immediate and clear communication regarding the status of their loan request. Users are reassured about their loan qualification before receiving further confirmation through the app's notification system.

Fig. 7: Loan Prediction Results

D. NFC Integration

The integration of NFC technology into the mobile application is specifically engineered to provide a smooth and effective experience for users that require monetary transactions. By enabling customers to begin contactless transactions with minimal input, it streamlines the fund receiving process. The interface facilitates users in entering the appropriate amount, scanning their NFC card, securely validating the transaction with a PIN, and obtaining prompt feedback as shown in Fig.8 and Fig. 9.

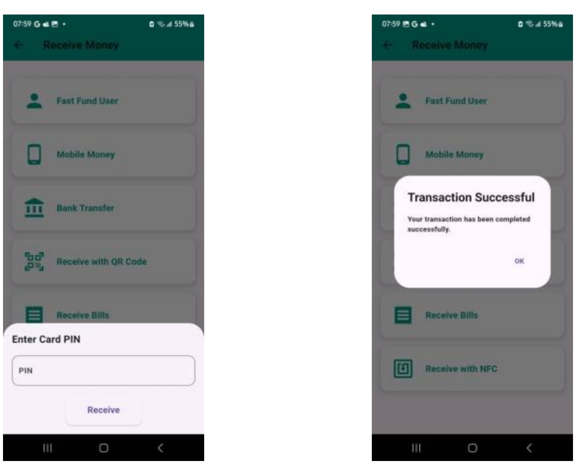


(a) Amount form (b) Swipe card

Fig. 8

Conclusion

This paper demonstrated the effectiveness of using machine learning models for predicting personal loan approvals on a mobile platform. The Feed Forward Neural Network outperformed other models in terms of accuracy and specificity. The integration of NFC technology for secure transactions adds an additional layer of trust and usability for users. The models were evaluated on a fixed dataset, which may not sufficiently capture the breadth of real-world scenarios, thus limiting the generalizability of the results. Future work can focus on improving the diversity of datasets, exploring hybrid models that merge the advantages of different machine learning techniques to enhance overall prediction precision and reliability, and optimizing resource consumption for mobile environments.



(a) Enter Pin (b) Successful Transaction

Fig. 9

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Financial management in family businesses: challenges and strategies for sustainability

Bosiljka Srebro
The Academy of Applied Studies Polytechnic
Beograd, Republic of Serbia

Keywords
financial management, family business, financial sustainability

Abstract
A substantial share of businesses globally are structured around family ownership and management. History is filled with remarkable success stories of family businesses, making it a subject that continues to attract the interest of researchers. Because of family involvement, the goals and objectives of a family business often differ significantly from the firm-value maximization goal typically associated with publicly traded and professionally managed non-family firms. Identifying the key financial challenges for family businesses is a very complex issue. This paper aims to address these issues. Financial sophistication is increasingly becoming a necessity. The research team selected a set of 70 family businesses that operate in the Republic of Serbia. The author captured the relevant information for this research by sending out a survey to each family member and each non-family director or executive. Key challenges in financial management within family businesses have been identified.

The Introduction

Family businesses represent an intriguing phenomenon, characterized by exceptional resilience as they are continuously passed down from generation to generation. Family enterprises, whether operational companies, family offices, or a combination of both, form the foundation of the American and global economy. Family businesses play a crucial role in shaping the dynamics and strength of the European economy, as well as in preserving long-term stability and sustainability (Siakas et al., 2014). These enterprises encompass various industries and regions, ranging from first-generation start-ups to multigenerational firms with family offices. Their role is vital, as they represent the backbone of economies in the most developed countries and significantly contribute to economic and social development at both national and global levels..

Family businesses, as a dominant form of business organization on a global level, play a significant role in economic development and the enhancement of family well-being, both in financial and qualitative terms. These businesses transfer essential knowledge and skills necessary for effective management and leadership of the family business to future generations of owners, ensuring its long-term sustainability and success. Sustainability is a key aspect of family businesses, which strive for long-term survival across multiple generations. Therefore, these companies usually avoid risky strategies aimed at short-term profits (Purwani et al., 2025).

Family businesses are present in all sectors of commercial activity, and their specific advantages allow them to thrive best in environments where they can be fully utilized. While management scholars view the firm as the primary driver of growth and development, the shift in analytical focus redirects that role to the family. As a result, the ultimate measure of success becomes the family's ability to create value and, ultimately, wealth.

Literature review

The significance of family businesses in contemporary society, along with their unique characteristics, increasingly motivates scholars to explore various aspects of family business (Leenders & Waarts, 2003). Family business is a very broad issue and a point of convergence for several research fields, ranging from psychology, history, economics, anthropology, and other social sciences to management, consulting, and business administration disciplines (Colly, 2003). Contemporary research on family businesses is predominantly descriptive, while the prescriptive approach is rarer. Most literature relying on the prescriptive approach primarily focuses on enhancing family relationships rather than improving business performance (Sharma et al., 1997).

Tsoutsoura (2021) provides an overview of the existing literature on management practices in family firms, the most prevalent form of corporate ownership worldwide. It summarizes the existing evidence indicating that family firms are less likely to adopt structured management practices, particularly "dynastic" family firms that combine family ownership and control. Family businesses are inherently complex due to the specific dynamics within the owning family. This dynamic not only shapes business outcomes but also influences growth, development, and transitional processes over time (Olson et al., 2003). The findings of the research by Polat and Benligiray (2022) demonstrate that the professionalization of family businesses has a positive impact on their financial performance, with the professionalization of employees playing a key role in this process. Maintaining sustainability and achieving business success require continuous analysis of factors that may affect the stability, efficiency, and development of family businesses. (Orellana et al., 2025).

According to the findings of Filbeck and Lee (2000), larger and established family businesses that have an external board of directors or a non-family member in the role of making financial decisions are more likely to employ sophisticated financial management techniques compared to smaller enterprises. In today's competitive environment, family businesses face more challenges than ever. Paisner (1999) emphasizes that only one-third of family businesses maintain their status into the second generation, and only 10% survive to the third generation. While a significant portion of this failure rate may be attributed to issues unique to family businesses (such as succession issues), financial management matters are also vital to the success of family enterprises, utilizing sophisticated financial analysis techniques employed by many of their competitors (Filbeck and Lee, 2000).

The financial and accounting practices should be tailored to the needs of the controlling family. The same study further suggests that family firms are likely to employ less short-term oriented financial management practices than non-family firms. Moreover, compared to non-family firms, financial managers should have a more traditional role in family firms, focusing on key financial management tasks and advising the controlling family, while not having the power of strategic decision-making (Hiebl, 2012). The intrinsic characteristics of family firms support the assumption that their accounting choices differ from those of non-family firms. Family ownership has potential effects on a wide range of accounting choices, such as earnings management, conservatism, and financial disclosure. The strong ties of family firms to the context in which they operate and the potential social, economic, cultural, and political consequences of their decisions raise questions about the influence of the cultural environment on their accounting choices (Ferramosca and Ghio, 2018).

Effective financial management is crucial for the long-term sustainability and growth of family businesses (Gallo et al., 2004). Their specific structure presents numerous challenges, including the unclear boundary between family and business assets, emotional factors in financial decision-making, and the complexity of succession and ownership transfer. A sustainable approach to finance requires clearly defined budgeting processes, diversification of capital sources, professionalization of management, and transparency in decision-making. Successful family businesses find a balance between tradition and innovation, ensuring stability and long-term value for future generations.

Financial management in family businesses faces numerous challenges in the contemporary business environment. One of the key issues is the delineation of family and business finances, as the overlap of personal and company resources can complicate objective decision-making and jeopardize the financial stability of the enterprise. Additionally, limited access to capital poses a significant challenge, given that family firms often rely on internal sources of financing, which can slow their development and innovation. Furthermore, succession and the transfer of ownership require careful planning to avoid potential conflicts within the family and ensure the long-term sustainability of the business. The professionalization of management further complicates governance, as aligning family values with the need for professional leadership can lead to nepotism and a lack of objectivity in making key decisions.

Family businesses must adapt to increasingly complex regulatory and tax requirements, which necessitates additional knowledge and strategic planning to avoid legal and financial risks. Digitalization and technological innovations are becoming key factors of competitiveness, yet traditionally managed firms often face challenges in embracing new technologies and modernizing business processes. Furthermore, maintaining family harmony plays a crucial role in the stability of the business, as disagreements among family members regarding financial and strategic decisions can jeopardize its long-term sustainability. To ensure stable growth and long-term success, family firms must develop clear financial management strategies, enhance transparency, and professionalize their operations.

Research methodology

Descriptive statistics were applied for data analysis in this study, with the arithmetic mean (mean) and standard deviation (SD) calculated for numerical variables, while categorical variables were represented by the number of respondents who selected specific answers along with their percentage distribution. Pearson's correlation coefficient was used to examine associations between numerical variables. The independent samples t-test was used to compare two groups, while ANOVA was applied to compare multiple groups and identify significant differences. All data were analyzed using the software tool SPSS (IBM SPSS Statistics), version 20.

Results

Demographic characteristics of respondents and profile of family businesses

A total of 97 respondents participated in the empirical research conducted using the questionnaire method. The sample consists of 48.5% (47) female respondents and 51.5% (50) of male respondents. When it comes to the age structure, 11.3% (11) of the respondents are under 25 years old, while 23.7% (23) belong to the age group of 25 to 34. The largest percentage consists of the respondents aged 35 to 44, of whom there were 33 (34.0%), while 23 (23.7%) respondents are between 45 and 54 years old. The age group from 55 to 64 is represented by 5 (5.2%) of the respondents, while the fewest respondents are 65 and older — only 2 (2.1%). When it comes to the educational structure, 26 (26.8%) respondents have completed high school, while 21 (21.6%) have obtained a bachelor's degree. 37 (38.1%) of the respondents completed master's studies, and 12 (12.4%) respondents have a doctorate. There is 1 (1.0%) respondent in the "Other" category. The demographic characteristics of the respondents are shown in Table 1.

DEMOGRAPHIC CHARACTERISTICS	N (%)
Gender	
Female	47 (48.5%)
Male	50 (51.5%)
Age	
Less than 25 years old	11 (11.3%)
25-34 years old	23 (23.7%)
35-44 years old	33 (34.0%)
45-54 years old	23 (23.7%)
55-64 years old	5 (5.2%)
65 and above	2 (2.1%)
Education level	
High school	26 (26.8%)
Undergraduate studies	21 (21.6%)
Master studies	37 (38.1%)
Doctorate	12 (12.4%)
Other	1 (1.0%)

Table 1. Demographic characteristics of the respondents

In addition to the demographic characteristics of the respondents, the characteristics of the family businesses in which the respondents are employed were also analysed (Table 2). The size of the company in which the respondents are employed varies, with most companies employing between 50 and 249 employees — a total of 40 (41.2%). 28 (28.9%) companies have less than 10 employees, while 27 (27.8%) belong to the category of small companies (10-49 employees). Only 2 (2.1%) of the companies have 250 or more employees. Most of the companies are engaged in trade — a total of 39 (40.2%), while 29 (29.9%)

companies are in the service sector. The manufacturing companies account for 16 (16.5%) of the sample, while 13 (13.4%) of the companies are classified in the "Other" category. The length of the company's operation indicates that the largest percentage, 45 (46.4%), has been in business for between 11 and 20 years. Companies that have been operating for 5-10 years constitute 26 (26.8%) of the sample, while 18 (18.6%) companies have a business tradition of less than 5 years. Only 8 (8.2%) companies have been in operation for more than 20 years.

PROFILE OF THE FAMILY BUSINESS	N (%)
Company size	
Less than 10 employees	28 (28.9%)
10-49 employees	27 (27.8%)
50-249 employees	40 (41.2%)
250 or more employees	2 (2.1%)
Type of activity	
Manufacturing	16 (16.5%)
Trade	39 (40.2%)
Service	29 (29.9%)
Other	13 (13.4%)
The length of the company's operations	
Less than 5 years	18 (18.6%)
5-10 years	26 (26.8%)
11-20 years	45 (46.4%)
More than 20 years	8 (8.2%)

Table 2. Characteristics of the Family Business

Regarding the roles within the company, the largest percentage of respondents are employees who are not family members, totalling 39 individuals (40.2%). Employed family members make up 20 (20.9%) of the sample, while 19 (19.6%) of the respondents perform executive director or managerial functions. The successors, i.e., representatives of the second or subsequent generation, constitute 11 (11.3%) of the respondents, while there are 8 (8.2%) founders. The distribution of respondents concerning their allocation in the company is shown in Chart 1.

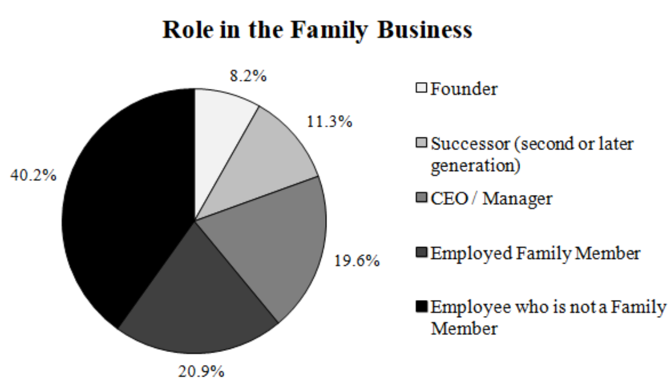

Chart 1. The role of respondents in the family business

Financial aspects of the company

Financial management in family businesses can significantly affect the stability and long-term viability of the business. The results of the research show that the largest number of companies finance their operations from personal capital and family savings, which is the case with 40 (41.2%) respondents. Bank loans are used by 14 (14.4%) companies, while investors and business partners appear as a source of financing in 15 (15.5%) cases. State subsidies and incentives are used by 4 (4.1%) companies, while the "Other" option was chosen by 24 (24.7%) respondents (Chart 2).

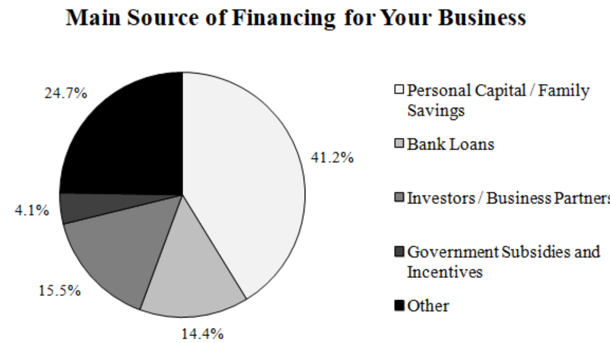

Chart 2. The main sources of company financing

Furthermore, the results of this research indicate that in the majority of companies, financial management is conducted by an external consultant or accountant, as evidenced by 39 (40.2%) of the respondents. In 33 (34.0%) of the companies, the financial management is conducted by a family member with formal financial education, while in 16 (16.5%) companies, this function is performed by a family member without formal education in the field of finance. The option "Other" was chosen by 9 (9.3%) respondents. As for budgeting, the majority of companies, 65 of them (67.0%), operate with a clearly defined formal budget, which can contribute to greater financial stability and better cost control. Nevertheless, a significant number of respondents (17.5%) indicated that their company operates without a formal budget, while 15.5% of companies budget only a portion of their activities. The analysis of financial statements is a crucial tool for monitoring and controlling the financial performance of a company. The research has shown that nearly half of the respondents (49.5%) regularly conduct financial statement analysis, while 34 (35.1%) companies analyse their finances on a monthly basis. This indicates a relatively high level of financial awareness among the respondents. On the other hand, 10 companies (10.3%) conduct analysis only once a year, while 5 (5.2%) respondents indicate that the analysis of financial statements is not conducted at all. According to the data obtained from the questionnaire, 39 (40.2%) companies use specialized software such as ERP, QuickBooks, or SAP, while 45 (46.4%) respondents manage finances through basic Excel spreadsheets. However, 13 (13.4%) companies still maintain financial records manually, which may indicate a need for improvement in digitalization in financial management. When it comes to external sources of financing, 37 (38.1%) companies have successfully obtained funds in the last five years, while 14 (14.4%) have attempted but did not receive approval. However, the largest number of respondents, 46 (47.4%), did not apply for external funding. Regarding the established formal financial management system, 57 (58.8%) companies indicate that they have one, while 19 (19.6%) do not have a defined system. Furthermore, 21 (21.6%) respondents are not sure if their financial management system exists in a formal form, which indicates the need for better internal communication and clearly defined processes within the company. The financial aspects of the family companies of the respondents in this research are shown in Table 3.

FINANCIAL ASPECTS OF THE COMPANIES	N (%)
Who manages the finances in your company?	
A family member without formal financial education.	16 (16.5%)
A family member with formal financial education	33 (34.0%)
External consultant / accountant	39 (40.2%)
Other	9 (9.3%)
Does your business have a formal budget?	
Yes	65 (67.0%)
No	17 (17.5%)
Some of the activities are budgeted, but not all	15 (15.5%)
How often do you conduct an analysis of financial statements?	
Monthly	34 (35,1%)
Annually	10 (10.3%)
Regularly	48 (49.5%)
Almost never	5 (5.2%)

Do you use any software for financial management?	
Yes, specialized software (ERP, QuickBooks, SAP, etc.)	39 (40.2%)
Yes, but only basic Excel tables.	45 (46.4%)
No, everything is recorded manually.	13 (13.4%)
Have you sought external funding in the last 5 years?	
Yes, we have successfully received funding	37 (38.1%)
Yes, but we have not received approval	14 (14.4%)
No, we have not sought it	46 (47.4%)
Do you have a formal financial management system established?	
Yes	57 (58.8%)
No	19 (19.6%)
I have no knowledge of that.	21 (21.6%)

Table 3. Financial management and analysis of financial aspects in family companies

Based on the conducted questionnaire about the greatest financial difficulties faced by companies, the answers of respondents were analysed on a scale from 1 (*no impact*) to 5 (*very great impact*). Based on the respondents' answers, it was shown that high tax costs represent the greatest financial challenge for companies. In this category, as many as 27.8% of respondents rated their influence as high (rating 4), and 13.4% as very high (rating 5). On the other hand, the results of the questionnaire show that most of the financial difficulties faced by companies are of medium intensity, with the highest percentage of grade 3 being unpredictable inflows and outflows of money (41.2%), difficulties in accessing financing (50.5%) and inadequate cost control (51.5%). Chart 3 shows the percentage of respondents' answers about the degree of influence of various financial difficulties on their operations.

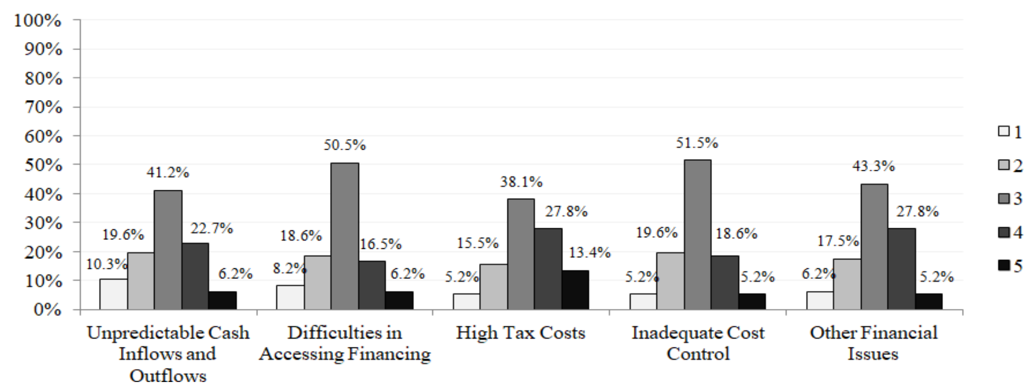

Chart 3. Assessment of the impact of financial difficulties on the company's operations

The results show that product/service development and employee training and development are recognized as the most important factors for sustainable operations. In the area of product/service development, 32.0% of respondents rated its importance as high (score 4), while 20.6% gave the highest score 5. Similarly, for employee training and development, 25.8% of respondents rated its importance as high (score 4) and 20.6% as very high (score 5). Most of the other areas of investment were rated as moderately significant, with the highest score of 3 going to marketing (50.5%), followed by technology and automation (46.4%) and the "Other" category (46.4%). Chart 4 shows the percentage distribution of respondents' answers about the key areas for investment for sustainable business.

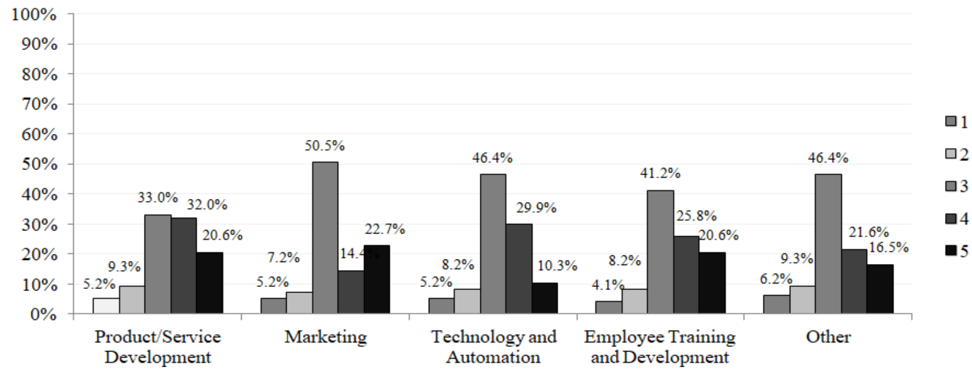

Chart 4. Key investment areas for sustainable business

When it comes to key obstacles to the sustainability of family businesses, the results show that lack of financial discipline is one of the biggest challenges, with 28.9% of respondents rating its impact as high (score 4) and 13.4% as very high (score 5). In addition, a significant obstacle is the lack of professional managers, where 23.7% of respondents gave a rating of 4, while 12.4% rated the impact as very high (rating of 5). Legacy issues and high dependence on one market or client were mostly rated as obstacles of medium intensity, with the highest percentage of rating 3 being given to these two categories - 49.5% and 46.4%. Chart 5 shows the percentage distribution of respondents' answers about the key obstacles for investment for sustainable business.

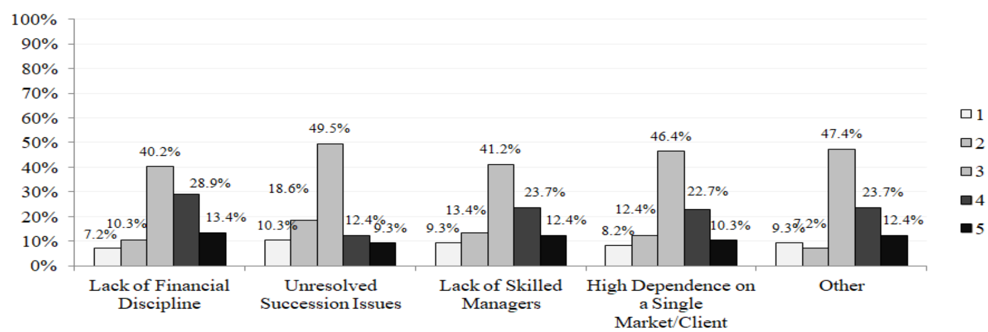

Chart 5. Key obstacles to the sustainability of a family business

In response to the question regarding which strategies are crucial for the long-term sustainability of companies, the results indicate that most strategies hold moderate significance, with product/service diversification strategies (53.6%) and increased financial transparency (56.7%) being the most frequently rated with a score of 3. Conversely, investment in new technologies and management training have been recognized as important factors for long-term success, with 23.7% of respondents rating investment in technologies as very important (score of 5), while 22.7% assigned the same rating to training and professionalization of management. Chart 6 shows the percentage distribution of respondents' answers about the key strategies for the long-term sustainability of the company.

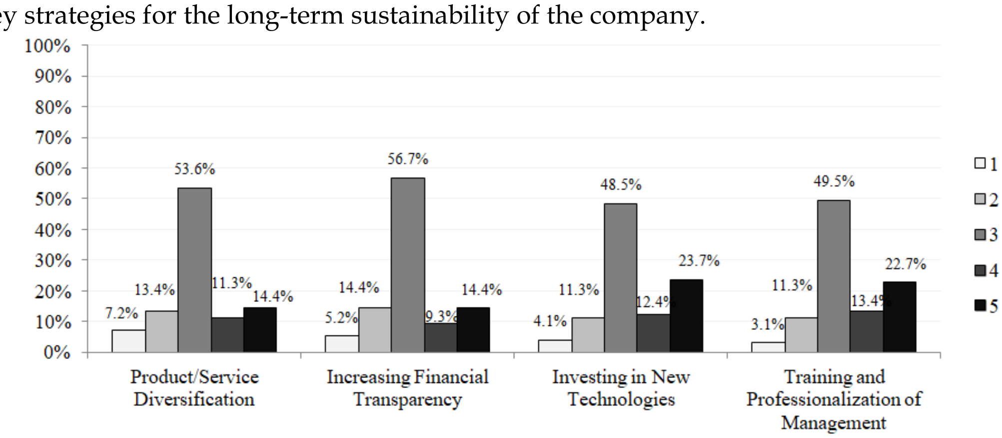

Chart 6. Key strategies for the long-term sustainability of the company

When it comes to challenges in business, the results show that emotional decision-making is one of the most impressive factors, given that 42.3% of respondents rated its impact as high (grade 4). Further, management challenges were recognized as a significant problem, with 34.0% of respondents rating their impact as 4, and 13.4% as 5. In contrast, challenges such as succession planning, lack of financial expertise, and resource allocation conflicts were predominantly rated as 3, indicating their moderate impact. Chart 7 shows the percentage of respondents' answers about the degree of influence of various financial difficulties on their operations.

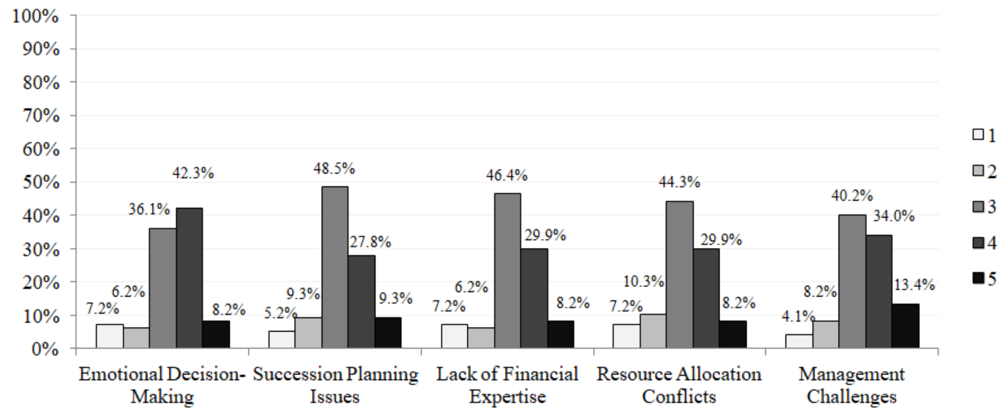

Chart 7. Assessment of the impact of challenges on the company's operations

The connection between financial aspects and the intensity of financial difficulties

In order to see the overall intensity of the financial difficulties faced by companies, for each respondent, the scores assigned to individual difficulties by the respondents were summed up: unpredictable inflows and outflows of money, difficulties in accessing financing, high tax costs, inadequate cost control and other financial issues. In this manner, a summary score was formed that represents the overall assessment of the financial burden, with the minimum score value being 5, while the maximum value reaches 25. The average value of this score was 15.25±4.103.

The analysis of variance (ANOVA) conducted on the obtained data revealed significant differences in the financial distress score depending on certain financial aspects of the companies (Table 4). Among the analysed factors, the frequency of financial statement analysis (p=0.043) emerged as a significant factor, with companies that regularly analyse financial statements having a lower average financial difficulties score (14.33±4.515) compared to those that conduct the analysis annually (16.30±3.232) or rarely (18.80±2.489). These results indicate that regular monitoring of financial statements may contribute to the reduction of financial problems.

Further, a significant difference in financial difficulties was observed among companies depending on whether they sought external financing in the last five years (p=0.009). Businesses that did not seek external financing had a significantly lower financial difficulty score (13.96±4.541) compared to those that successfully obtained funding (16.65±3.268) or attempted but were not approved (15.78±3.400). These results suggest that companies that relied on internal sources of financing have fewer financial difficulties than those that depend on external sources.

The existence of a formal financial management system (p=0.035) also showed a significant difference in the financial difficulty score, with companies without a formal system reporting a higher financial difficulty score (17.00±3.930) compared to those with an established system (15.24±4.063). These results indicate that companies with structured financial management manage financial challenges more successfully.

financial aspects of the companies	Mean±SD	
Who manages the finances in your company?		
A family member without formal financial education.	17.25±2.111	
A family member with formal financial education.	14.12±4.519	p=0.094
External consultant / accountant	15.33±4.074	
Other	15.44±4.447	
Does your business have a formal budget?		
Yes	15.14±4.123	
No	15.76±3.754	p=0.852
Some of the activities are budgeted, but not all	15.13±4.501	
How often do you conduct an analysis of financial statements?		
Monthly	15.70±3.555	
Annually	16.30±3.232	**p=0.043**
Regularly	14.33±4.515	
Almost never	18.80±2,489	
Do you use any software for financial management?		
Yes, specialized software (ERP, QuickBooks, SAP, etc.)	14.41±4.296	
Yes, but only basic Excel tables.	15.57±3.890	p=0.229
No, everything is recorded manually.	16.31±4.070	
Have you sought external funding in the last 5 years?		
Yes, we have successfully received funding	16.65±3.268	
Yes, but we have not received approval	15.78±3.400	**p=0.009**
No, we have not sought it	13.96±4.541	
Do you have a formal financial management system established?		
Yes	15.24±4.063	
No	17.00±3.930	**p=0.035**
I have no knowledge of that.	15.25±4.103	

Table 4. Correlation between the financial aspects of the company and the level of financial difficulties

The connection between financial aspects and the intensity of financial difficulties

In order to see the obstacles to the sustainability of family businesses, for each respondent, scores were assigned to individual challenges: lack of financial discipline, unresolved succession issues, lack of professional managers, high dependence on one market or client, and other obstacles. A summary score representing the overall assessment of sustainability challenges was formed, where the minimum value of the score is 5, while the maximum value reaches 25. The average value of this score was 15.25±4.103.

Analysis of variance (ANOVA) indicated significant differences in the summary score of obstacles to the sustainability of family businesses depending on certain financial aspects of business (Table 5). One of the factors that proved to be significant is the frequency of analysis of financial reports (p=0.024). The results show that companies that regularly analyse financial statements have a lower average score of obstacles (14.52±4.192) compared to those that do it monthly (17.17±4.317) or very rarely (18.40±4.037).

In addition, significant differences in the perception of obstacles have been identified in relation to seeking external financing over the past five years (p=0.008). Companies that did not seek additional financial resources reported a lower level of obstacles (14.54±4.435) compared to those that successfully obtained financing (17.46±3.790) or applied but did not receive approval (15.28±4.445).

On the other hand, factors such as the method of financial management (p=0.240), the existence of a formal budget (p=0.182), the use of financial management software (p=0.316), and a formal financial management system (p=0.313) did not show statistically significant differences in the overall score of obstacles. Although the companies where finances are managed by a family member without formal education had a slightly higher barrier score (17.06±2.144) compared to those where finances are managed by a professional (14.79±3.838), this difference was not pronounced enough to be considered statistically significant.

financial aspects of the companies	**Mean±SD**	
Who manages the finances in your company?		
A family member without formal financial education.	17.06±2.144	p=0.240
A family member with formal financial education.	14.79±3.838	
External consultant / accountant	16.31±5.048	
Other	14.67±5.567	
Does your business have a formal budget?		
Yes	15.66±4.162	p=0.182
No	14.65±4.54	
Some of the activities are budgeted, but not all	17.466±4.88	
How often do you conduct an analysis of financial statements?		
Monthly	17.17±4.317	**p=0.024**
Annually	15.60±4.141	
Regularly	14.52±4.192	
Almost never	18.400±4.037	
Do you use any software for financial management?		
Yes, specialized software (ERP, QuickBooks, SAP, etc.)	16.18±4.553	p=0.316
Yes, but only basic Excel tables.	15.89±4.233	
No, everything is recorded manually.	14.08±4.251	
Have you sought external funding in the last 5 years?		
Yes, we have successfully received funding	17.46±3.790	**p=0.008**
Yes, but we have not received approval	15.28±4.445	
No, we have not sought it	14.54±4.435	
Do you have a formal financial management system established?		
Yes	16.08±4.250	p=0.313
No	16.26±3.679	
I have no knowledge of that.	14.48±5.182	

Table 5. The connection between the financial aspects of companies and the level of barriers to the sustainability of family businesses

A statistically significant moderate positive correlation has been established between financial difficulties and barriers to the sustainability of family businesses (r=0.468, p=0.000) (Chart 8). These results suggest that companies facing greater financial difficulties simultaneously experience more pronounced challenges in their sustainability. In other words, more intense financial problems are associated with greater obstacles to the long-term stability of the company, which underscores the importance of effective financial management and strategic planning.

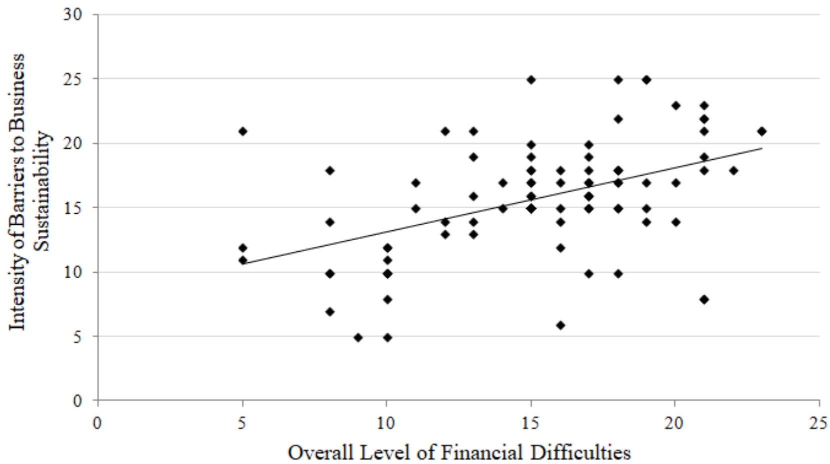

Chart 8. The connection between financial difficulties and the challenges of sustainability in family businesses

Discussions and conclusions

The family business represents the most widespread business model globally and is a key source of growth, development, and social and economic stability. Its significance cannot be overlooked, whether in academic circles or among business practitioners. As the dominant form of entrepreneurship, family businesses constitute the majority of companies and function as a driving force of the economy, simultaneously representing a sustainable alternative in the business world, both for the public and policymakers. The findings emphasize the importance of increasing research on the specifics of financial management in family businesses.

Limitations and direction for future research

It is essential to provide adequate financial education and training for family business managers to ensure effective management of the resources entrusted to them, and consequently, long-term financial sustainability. However, the lack of focused research on these aspects may hinder the identification of practical educational needs in the area of developing financial skills and their successful implementation, which can limit the implementation of new programs and their impact on family business managers. Therefore, future research could focus on the development of specialized financial management programs taking into account all the specificities of family business.

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The influence of soft skills, technical skills, and innovation on the learnability of educators and their overall performance

Vidhu Gaur
Management Development Institute, Guragon, India

Keywords
Soft skills, technical skills, innovation, educators

Abstract
This study analyses the effects of hard and soft skills on teachers' innovative capabilities and performance. A random sample of 300 teachers from the Higher Education Institutes of the NCR has been taken, out of which 211 valid replies for the study has been considered. Hard and soft skills positively and considerably affect teachers' innovation capabilities, both directly and indirectly. Furthermore, teachers' innovative abilities improved their performance significantly. The study advocates using organizational learning and hard and soft skills to improve teachers' innovation and performance. This methodology encourages adaptability and innovation to prepare instructors for Education.

Introduction

Educational issues arise from Industrial Revolution drastic developments. This era requires highly qualified, flexible, adaptable, and responsive human resources to rapid and unanticipated changes. HEI's must be adaptable to adapt to economic, social, political, and technical changes in the education sector. HEI's must create a pleasant, innovative environment to succeed in this competitive global market. Teachers and their workplaces must collaborate to improve creativity and performance. Innovation and adaptability are essential for communities to compete in knowledge-driven economies. Thus, strategically improving teachers' knowledge and abilities is essential for educational institutions' long-term growth and innovation.

To remain competitive and flexible, HEI's must empower and involve teachers as significant contributors to school achievement. HEI's must become true organizational learning environments where instructors drive change and progress. HEI's in fast-changing environments need organizational learning to empower instructors. Such learning environments allow the institutes to develop flexible human resources that educate pupils for the global talent competition. Organizational learning is essential to modern education because HEI's develop the workforce and improve society.

Intellectual capital—teachers' and HEI's' knowledge and expertise—is a transformative asset that determines educational institutions' economic and strategic significance in Industrial Revolution. This paradigm change in education emphasizes teacher knowledge and abilities over buildings, land, and infrastructure. These intangible resources are productive and sustainable, defining education's future. Education development increasingly relies on intellectual capital to foster innovation, adaptation, and global competitiveness.

This study examines how teachers' hard and soft skills affect their innovative capabilities, highlighting the importance of organizational learning. Innovative teaching approaches are built on teachers' hard skills—technical proficiency and subject-specific knowledge—and soft skills—communication, adaptability, and teamwork.

The study shows how organizational learning mediates how HEI's can help instructors innovate. Understanding this dynamic is crucial in India's fast changing educational landscape, where HEI's must adapt to a knowledge-driven economy. This research is important for educational policymakers and school administrators because it shows how teacher development—both hard and soft skills—can boost innovation.

An organizational culture of learning can boost these talents and create a cycle of continual development and growth in HEI's. Educational institutions may become global competitors by educating their professors and students with the skills they need to succeed in the modern world. This study emphasizes intellectual capital as a strategic driver for future-ready education, supporting Industrial Revolution 7.0 goals.

Literature review

Several scholars have noted that hard skills are easily documented and structured. This knowledge is easily stated (Haamann & Basten, 2018) and often incorporated in HEIs as institutional knowledge (Afsar, Masood & Umrani, 2019). Hard skills can be created, documented, and transmitted across educational activities and units (Lombardi, 2019). A good school culture helps teachers learn hard skills. Hard Skills might be generalized or specific. Rainsbury et al. (2002) define hard skills as technical competencies needed for workplace duties. Tsotsotso et al. (2017) and Fan, Wei & Zhang (2017) found that IQ affects certain cognitive functions. Project management hard skills include methods, procedures, tools, and approaches.

Hard Skills are visible in conduct and performance. Assessments or evaluations measure technical or practical tasks. These talents include calculating, analyzing, designing, modeling, and critical thinking. Hard talents also require science, technology, and technological expertise. Teachers need lesson planning, classroom management, group discussions, learning spaces, and writing skills (Muqowim, 2012). Widoyoko (2009) divides hard talents into academic and vocational. Academic talents include defining, calculating, explaining, analyzing, forecasting, comparing, and drawing conclusions from data and facts. These skills are straightforward to measure and crucial for teaching and learning.

Knowledge is divided into hard and soft skills (Polanyi, 1966). Soft skills are personal knowledge that is hard to formalize or share. Soft skill transmission usually needs personal interaction (Lee, 2019). These talents come from deeds, experiences, beliefs, idealism, and emotions (Boske & Osanloo, 2015; Kawamura, 2016; Hartley, 2018).

Soft skills are personal knowledge gained through diverse and unpredictable experiences and circumstances. Soft talents are harder to describe than hard skills (Mohajan, 2016; Prasarnphanich et al., 2016; Addis, 2016; Cairo Battistutti, 2017; Zang, 2015; Spraggon & Bodolica, 2017). The SECI model (Socialization, Externalization, Combination, and Internalization) helps develop and use soft skills.

Teachers' soft skills are needed to promote knowledge-sharing, continual learning, and innovation in Education 4.0. Management and use of tacit knowledge can make HEIs more innovative and competitive. HEIs can foster collaboration and innovation by embedding and sharing teachers' tacit knowledge (Ma et al., 2018; Ferreira., 2018; Borges., 2019; Ferraris., 2018; Guo., 2018; Tsai & Hsu., 2019; Swierczek., 2019; Cantwell & Zaman., 2018). In a continuously changing environment, HEIs may lead educational excellence by managing soft skills.

Knowledge is divided into hard and soft skills (Polanyi, 1966). Soft talents are internal to people's cognitive frameworks and difficult to externalize or document. Due to their tacit nature, soft skills are difficult to develop and impart without direct personal connection. An individual's behaviors, experiences, values, emotions, and idealism shape these skills (Boske & Osanloo, 2015; Kawamura, 2016; Hartley, 2018).

An institution's crisis resilience depends on organisational learning (Starbuck, 2017). It supports important qualities including desire, discipline, decision-making, and alignment, which increase an organization's ability to adapt and grow in difficult situations. Organizational learning is a key performance indicator of an institution's success. It methodically builds knowledge resources to support growth and assure educational institution continuity (Qi & Chau, 2018).

The ability to obtain, manage, and use knowledge distinguishes schools. Strong organizational learning frameworks help HEIs turn individual knowledge into collective expertise, giving them a competitive edge. Organizational learning builds knowledge that helps educational institutions implement strategic projects. This keeps HEIs flexible and ready for changing educational needs. HEIs can stimulate innovation, cooperation, and continuous improvement to achieve sustainable development and excellence by integrating organizational learning into their operations.

In the Industrial Era 4.0, teacher innovation skills give HEIs a competitive edge (Malik, 2019; Muscio & Ciffolili, 2019; Durana et al., 2019; Lund & Karlsen, 2019; Haseeb, 2019; Jakhar, 2018; Hamada, 2019). These abilities are essential to competitive strategies (Culot, et al., 2019) and Industry 4.0 (Stachova, 2019).

In addition, they are an essential part of 21st-century management practices (Gunasekaran et al., 2019) and offer several commercial benefits, improving organizational resilience and adaptation.

Innovation is one of the most important internal resources for educational institutions to perform well. It helps HEIs excel and stay ahead in a changing world. Innovation is crucial to education by enhancing quality and solving current issues (Klaeijsen et al., 2017). HEIs can equip teachers to adapt to current educational paradigms by encouraging innovation, keeping their institutions relevant and future-ready.

The impact of hard and soft skills on teachers' innovation

Industry 4.0 is marked by increased competition and sustainability concerns. Teacher innovation drives business sustainability and improves organizational effectiveness. Organizational knowledge culture—tacit knowledge and hard skills—affects performance. Leadership, employee involvement climate, knowledge sharing, knowledge search, collaborative culture, and knowledge processes have all been studied to affect teacher innovation abilities (Samsir, 2018; Schuckert et al., 2018; Villaluz & Hechanova, 2019).

This study examines how hard and soft skills affect teachers' innovation competences in schools, particularly in light of Industrial Revolution 4.0. Hard and soft skills improve teachers' innovative ability (Ganguly et al., 2019; Aulawi, 2018; Rumanti, 2018, 2019; Torres & Liang, 2016; Li, 2019). Various investigations have indicated that soft skills positively and significantly affect teacher innovation (Perez-Luno et al., 2018). These findings focus on corporate organizations, but other studies imply that formal and informal learning environments can greatly impact teachers' innovation capacities in education (Lecat et al., 2018). Given these findings, the following possibilities are proposed:
H1: Hard skills have an effect on teachers' innovation capability.
H2: Soft skills have an effect on teachers' innovation capability.

Impact of Organizational Learning on Teacher Innovation

Knowledge production affects teacher innovation and organizational success, therefore organizational learning is vital. A valuable learning culture is sustained when based on school innovation. Teachers' interactions help them transfer, exchange, and integrate existing and new knowledge, which boosts school intelligence and learning culture. An enthusiastic and engaged workplace helps instructors develop innovative skills (Bani-Melhem et al., 2018). Based on these literature findings, the following hypothesis is recommended for further study:
H3: Organizational learning has a direct effect on teachers' innovation capability.

Impact of Teachers' Innovation Capability on Performance

To overcome local and global competition, organizations must improve their flexibility, reactivity, efficiency, and creativity (Asbari et al., 2019; Purwanto, 2020). This is due to rising demand for innovative products, services, and improved internal procedures and behaviors for all employees. Prior research has shown that tackling these difficulties requires a shift from efficiency to innovation. More research is needed on how to coordinate people to boost organizational creativity and performance (Sopa et al., 2020). Furthermore, Asbari et al. (2020) believe that internal processes must develop performance-enhancing innovations. Prameswari et al. (2020) believe that employee innovation indirectly affects organizational value through market and financial positioning. Sopa et al. (2020) underline that innovation improves teachers' performance and show that HEIs that prioritize teacher innovation are more productive and competitive in the global education market. These observations suggest the following hypothesis:
H4: Teachers' innovation capability has a direct effect on teachers' performance.

Effect of the HEI's Learning:

Honeycutt (2000) describes knowledge management as managing intellectual capital. This concept came from the realization that intellectual or knowledge-based assets, not physical ones, are what make an organization competitive today and in the future. Organizational learning is used to apply knowledge management techniques and processes to create value and competitive advantage. Hard skills, soft skills,

and organizational creativity are linked by organizational learning. Knowledge and skills are inputs, organizational learning is the main process, and organizational innovation is the main result.
Hypotheses for future study are based on the literature:
H5: HEI's learning mediates hard skills and teacher innovation.
H6: HEI's learning mediates soft skills and teacher innovation.

Metrics of Variability

This research was quantitative. Educational institutions distributed questionnaires to all teachers to collect data. Six items from Hendarman & Cantner (2017) assessed hard skills. A four-item Hendarman & Cantner (2017)-adapted tool measured soft skills. An adapted five-item measure from Jiménez-Jiménez and Sanz-Valle (2011) assessed organisational learning. Innovation capability was tested using a five-item scale from Lee & Choi (2003), and performance was assessed using a four-item instrument from Grace et al. (2016). Semi-open questions about respondents' identities were used, while closed-ended questions used a Likert scale with five response options: strongly agree (SS) with 5, agree (S) with 4, somewhat agree (KS) with 3, disagree (TS) with 2, and strongly disagree (STS) with 1. Smart-PLS version 4.0 was used to process data using Partial Least Squares (PLS).

Sample

Data were collected using simple random sampling from a population of 300 teachers across five private senior high HEI's in Delhi/NCR. Of the distributed questionnaires, 211 valid responses were returned, representing 70.05% of the sample.

Results and discussion

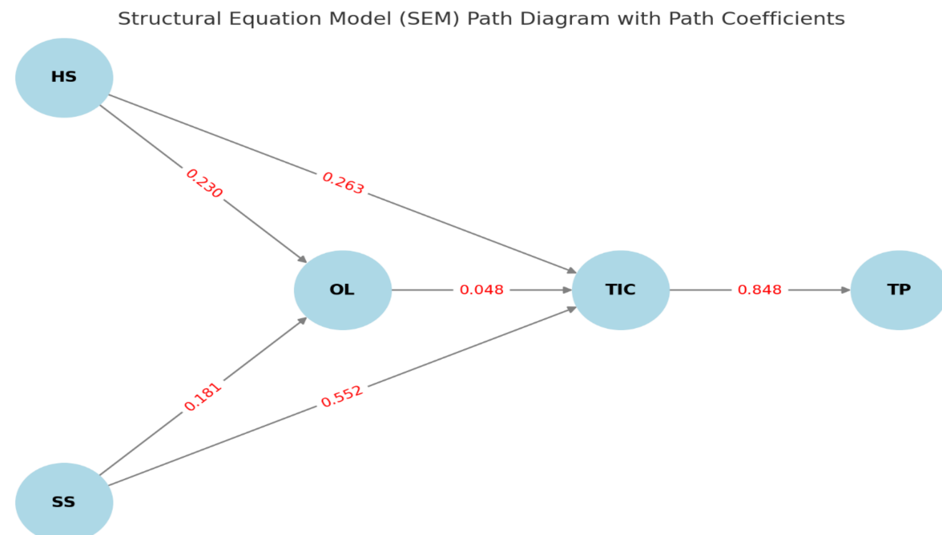
Validity and Reliability

Testing models analyse convergent validity, discriminant validity, and composite reliability. To evaluate the study hypothesis, all PLS model indicators must meet convergent, discriminant, and reliability requirements. These factors can be assessed using PLS results. Convergent validity is assessed by evaluating indicator loading factors. Most scholarly sources say latent constructs are legitimate when factor loading is 0.5 or higher (Chin, 1998; Hair et al., 2010; Ghozali, 2014). This study sets the Average Variance Extracted (AVE) for each construct at a value greater than 0.5, the minimum acceptable loading factor (Ghozali, 2014).

Table 1. Items, Loadings, Cronbach's Alpha, CR, and AVE

Variables	Items	Loading	Cronbach's Alpha	CR	AVE
Hard Skills (HS)	HS1	0.700	0.867	0.960	0.691
	HS2	0.725			
	HS3	0.814			
	HS4	0.841			
	HS5	0.712			
	HS6	0.722			
Soft Skills (SS)	SS1	0.879	0.906	0.963	0.748
	SS2	0.872			
	SS3	8.874			
	SS4	0.901			
Organizational Learning (OL)	OL1	0.901	0.936	0.807	0.869
	OL2	0.955			
	OL3	0.945			
	OL4	0.909			
	OL5	0.910			
Teacher's Innovation Capability (TIC)	TIC1	0.912	0.935	0.946	0.824
	TIC2	0.897			
	TIC3	0.921			
	TIC4	0.920			
	TIC5	0.824			

Teacher's Performance (TP)	TP1	0.834	9.938	0.959	0.875
	TP2	0.899			
	TP3	0.971			
	TP4	0.909			



The discriminant validity test assures that each thought of a latent variable is unique from others. A model has excellent discriminant validity when the squared AVE (Average Variance Extracted) value of each exogenous construct (diagonal value) is greater than its correlations with other constructs (values below the diagonal), according to Ghozali (2014). The squared AVE value from the discriminant validity test is evaluated using the Fornell-Larcker Criterion, below.

Table2. Discriminant Validity Table

Variable	HS	SS	OL	TIC	TP
HS	**0.831**	0.650	0.550	0.500	0.450
SS	0.650	**0.865**	0.600	0.580	0.520
OL	0.550	0.600	**0.932**	0.570	0.510
TIC	0.500	0.580	0.570	**0.908**	0.700
TP	0.450	0.520	0.510	0.700	**0.935**

The model passes the discriminant validity test in Table 2. According to the Fornell-Larcker criterion, all constructs have square root AVE values greater than their correlation values with other latent constructs.

Construct Reliability Test

Construct reliability is assessed using Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE).

Construct	**Cronbach's Alpha**	**Composite Reliability (CR)**	**Average Variance Extracted (AVE)**
Hard Skills (HS)	0.867	0.960	0.691
Soft Skills (SS)	0.906	0.963	0.748
Organizational Learning (OL)	0.936	0.807	0.869
Teachers' Innovation Capability (TIC)	0.935	0.946	0.824
Teachers' Performance (TP)	9.938	0.959	0.875

Cronbach's alpha and composite reliability measure construct dependability. Both measures should exceed 0.7, according to Ghozali (2014). Table 1 shows that all constructions have composite reliability and Cronbach's alpha values over 0.7. Thus, all constructs meet dependability requirements.

Hypothesis Testing

Partial Least Squares (PLS) uses the hypothesis test, or inner model test, to assess the significance of direct and indirect effects and the degree of exogenous variables' influence on endogenous variables. The model's structural integrity and variable relationships are examined in this test. The direct effect test examines how tacit knowledge and hard skills sharing improve organisational learning and teacher innovation. This analysis uses the partial least squares (PLS) technique with SmartPLS 4.0 to apply the t-statistic. This comprises a rigorous statistical method to assure findings correctness and reliability. R Square values, which show how much variance the independent variables explain, and significance test values, which corroborate the hypothesised correlations, are important findings of the bootstrapping approach. The table below gives more interpretation and analysis of these results.

Table 3 R-square Value

	R-Square	Adjusted R-Square
OL	0.724	0.720
TIC	0.737	0.727
TP	0.723	0.713

Table 4. Hypothesis Testing

Hypothesis	Relationship	Beta	SE	T-statistics	P-value	Status
H1	HS→TIC	0.263	0.079	2.979	0.027	Accepted
H2	SS→TIC	0.552	0.067	7.213	0.000	Accepted
H3	OL→TIC	0.197	0.081	2.387	0.025	Accepted
H4	TIC→TP	0.848	0.019	26.899	0.000	Accepted
H5	HS→OL→TIC	0.230	0,027	3.659	0.000	Accepted
H6	SS→OL→TIC	0.181	0.048	3.421	0.022	Accepted

- Hard skills (HS) and soft skills (SS) explain 72.7% of the variance in organizational learning (OL) with an R Square value of 0.727.
- This indicates that hard and soft skills predominantly influence OL, while other factors account for the remaining 27.3%.
- The R Square value for teachers' innovation capability (TIC) is 0.773, meaning that hard skills, soft skills, and organizational learning together explain 77.3% of the variance in TIC.
- The remaining 22.7% of the variance in TIC is attributed to factors not examined in this study.
- Teachers' innovation competence (TIC) accounts for 72.3% of the variance in their performance, as indicated by the R Square value of 0.723.
- Other external factors outside this research explain the remaining 27.7% of the variance in teacher performance.
- Table 4 provides a detailed analysis of the research variables, including T-statistics and P-values, to assess their significance.
- This table validates the hypothesized relationships between the studied variables, demonstrating their strength and relevance in the research.

Discussion

The research highlights that the sharing of hard skills significantly enhances teachers' innovative potential, both directly and through the mediating role of organizational learning. This suggests that educators who possess well-developed hard skills are more capable of implementing innovative practices within schools. Similar findings have been reported in commercial organizations by Perez-Luno et al. (2018), Terhorst et al. (2018), Boadu et al. (2018), and Che et al. (2019). Furthermore, soft skills were found to have a positive impact on teachers' creative abilities, both directly and through organizational learning. This underscores the importance of developing soft skills among teachers to foster creativity and innovation. The mediating effect of organizational learning between soft skills and innovation further reinforces the need to cultivate a learning-centric environment within schools.

This study also establishes that both hard and soft skills contribute to enhanced organizational learning. The findings indicate that a school's ability to foster a culture of learning is significantly influenced by the competencies of its educators. Qi and Chau (2018) found similar results in corporate organizations, highlighting the universal importance of skill development in promoting organizational learning.

Additionally, the study confirms that teachers who are capable of generating new ideas and innovations are among the most valuable resources in the digital age (Xu et al., 2018). Teaching and education play a crucial role in knowledge creation, dissemination, and intellectual property management (Al-Kurdi et al., 2018). A deficiency in teachers with strong hard and soft skills may impede innovation, competitiveness, growth, and adaptability in schools. Consequently, fostering the development of these skills among teachers is crucial for shaping the future of national education. Educators with advanced competencies and an innovative mindset will serve as valuable assets, contributing to societal progress and modernization.

Interestingly, while previous studies (Ibrahim et al., 2017; Albandea & Giret, 2018; Viviers, 2016; Escrig-Tena, 2018) suggest that soft skills have a stronger impact on innovation than hard skills, this study finds that hard skills significantly influence teachers' creativity. This discrepancy may be attributed to the demographic characteristics of the respondents, who are primarily located in major urban districts such as Noida, Ghaziabad, Gurugram, Greater Noida, Panipat, and Faridabad, where hard skills are highly valued.

Furthermore, the study reveals that organizational learning not only enhances teachers' creativity but also mediates the relationship between both hard and soft skills and innovation. Moreover, the results confirm that teachers' innovative capabilities positively influence their performance, aligning with the findings of Martinez-Costa (2018).

Finally, the study underscores the importance of schools leveraging past experiences while integrating teachers' hard and soft skills to enhance organizational learning. In the context of Education, fostering knowledge creation and sharing can significantly strengthen organizational learning. Higher Education Institutions (HEIs) must embrace these efforts to adapt to the rapidly evolving educational landscape and ensure sustained innovation in teaching and learning practices.

Implication:

- Hard skills sharing boosts teachers' innovation directly and through organizational learning.
- Improved hard skills enable teachers to innovate effectively in classrooms.
- Similar findings were observed in commercial organizations (Perez-Luno, Terhorst, Boadu, and Che).
- Soft skills enhance teachers' creativity and organizational learning.
- Soft skills play a crucial role in fostering instructors' creativity.
- Organizational learning highlights the importance of nurturing teachers' soft skills and creativity in schools.
- Hard and soft skills contribute to organizational learning.
- These skills help teachers organize classroom learning efficiently.
- Studies by Qi and Chau (2018) in company organizations reported comparable outcomes.
- Innovative instructors are among the most scarce and valuable resources in the digital age (Xu et al., 2018).
- Teaching and learning facilitate knowledge development and reuse, including intellectual property (Al-Kurdi et al., 2018).
- A shortage of teachers with hard and soft skills may hinder school innovation, competitiveness, growth, and adaptability.
- Training in hard and soft skills for teachers will impact national education.
- Advanced and creative teachers will contribute to societal progress and modernization.
- Previous research suggests that soft skills impact innovation more than hard skills (Ibrahim et al., 2017; Albandea & Giret, 2018; Viviers, 2016; Escrig-Tena, 2018).
- This study, however, indicates that hard skills significantly influence instructors' originality.

- The discrepancy may be due to the research respondents being located in Noida, Ghaziabad, Gurugram, Greater Noida, Panipat, and Faridabad, where hard skills are highly valued.
- Organizational learning enhances teachers' creativity and serves as a mediator between hard and soft skills and teacher creativity.
- Innovative educators demonstrate better performance (Martinez-Costa, 2018).
- Schools should integrate instructors' hard and soft skills with past experiences.
- Developing and sharing knowledge can foster organizational learning in Education 4.0.
- Higher Education Institutions (HEIs) must adopt such initiatives to adapt to the evolving educational landscape.

Conclusion & Limitations

HEIs must give teachers autonomy and knowledge exchange to make soft skills a predictor of creativity. This creates an organisational learning environment that boosts teacher competency and engagement. Knowledge management in HEIs works best when teachers perform well (Manaf et al., 2017). Researchers study knowledge, an important resource at HEIs. Hard and soft talents boost school achievement. Organisational learning creates school knowledge from individual knowledge. This study found that organisational learning helps teachers create knowledge. Teachers must prepare kids for a knowledge-based society.

This research is limited. First, it studies how hard and soft skills affect teachers' innovation directly and indirectly through organisational learning variables. The author advises further research and analysis to see if other factors affect instructors' inventiveness. Second, the research was done in schools, thus its findings may not apply to other industries. Therefore, for more substantial insights, this topic should be researched in various industries.

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Perspectives on the success prospects of the Small Enterprise Development and Finance Agency

Thobekani Lose
Luthando Jack
Nelson Mandela University, South Africa

Keywords
Small enterprise, SEDFA, SEDA, SEFA, entrepreneurship

Abstract
This study was an inquiry into a contemporary issue, the formation of the Small Enterprise Development and Finance Agency (SEDFA), following resolutions of the South African cabinet to merge the South African Development Agency (SEDA), the South African Small Enterprise Finance Agency (SEFA) and the Cooperative Development Bank (CDB). The purpose of the study was (1) to explore the prospects of success for SEDFA and (2) to determine what SEDFA can do to operate successfully. The study adopted a focus group discussion research design. It was based on the views of small enterprises in the Eastern Cape Province who were to benefit on the prospects of SEDFA, and what it should do to succeed. The study found mixed perspectives on the success of SEDFA, with some respondents suggesting that SEDFA may fail to impress as its predecessors did, while others took the view that it would definitely succeed if it operates differently. Respondents suggested the need to provide a supportive legal and policy framework, to support the entire small business ecosystem, and to promote both macro and micro level strategies for the success of small entities in South Africa.

Introduction

The Small Enterprise Development and Finance Agency (SEDFA) was established to address the limitations of the South African Development Agency (SEDA), the South African Small Enterprise Finance Agency (SEFA) and the Cooperative Development Bank (CDB). The role of SEDA and SEFA in helping small entities recover in the post-COVID-19 period has been complex given the devastating nature of the pandemic. These challenges include poor access to funding. SEDA (2024) reported that only 6% of surveyed MSMEs had received government funding, while 9% had obtained private funding. Small enterprises also lack access to appropriate markets for their products, have no clear market entry strategies, lack capacity to empower their employees for better enterprise performance, have poor technological capacity, and limited skills potential. As a result, expectations are high that SEDFA will perform better in capacitating small entities. There are high expectations that SEDFA will be more effective and will deliver better outcomes than what its constituents achieved as separate entities (SEDA, 2024).

This study seeks to provide an overview of strategic focus operations that can lead to the success of SEDFA. The study is meant to inform SEDFA at its inauguration on the strategic focus areas to attend to in order to achieve success and propel small enterprise success. Since the attainment of democracy, South Africa has recognised the central role of small enterprises in its economy and several policies have been developed to guide the small enterprise sector (Baloyi & Khanyile, 2022). The legal framework and policy framework for strengthening small enterprises is supremely defined by Section 22 of the Constitution of the Republic of South Africa (Act No.108 of 1996) (South African Government, 1996a) which gives everyone the right to practise in a trade, profession or occupation as regulated by law. The promulgation of the National Small Enterprise [previously Business] Act, No.102 of 1996 (South African Government, 1996b) which was further amended to the National Small Business Amendment Act (No. 29 of 2004) (The Presidency, 2004) provided for the formation of the Small Enterprise Development Agency (SEDA). South Africa's commitment to the development of a strong small enterprise ecosystem then later led to the formation of Small Enterprises Finance Agency (SEFA) in 2012 as a merger of three institutions, namely: (1) the South African Micro-Finance Apex Fund (Samaf), (2) Khula Enterprise Finance Limited and (3) structures from the Industrial Development Corporation (IDC). To ensure the effective administration of these systems and their coordination, the Department of Small Business Development (DSBD) was then formed in 2014.

Literature review

While general economic literature applauds the significant role of entrepreneurs in the economies of various countries, small enterprises experience several challenges that make it difficult for their contribution to be fully realised (United Nations Conference on Trade and development [UNCTAD], 2023). Some of these challenges include poor business skills, lack of financial resources, and competition from large enterprises as well as weak support from regulatory environment (Sagar, Anand, Varalaxmi, Singh & Raj, 2023). These challenges can be categorised as both macro and micro levels (Parker, 2020). At the macro level, the government has intervened through policies and institutions such as SEDFA, recently formed institutions to lead entrepreneurial success. Micro level interventions to advance small business growth and success have included strengthening entrepreneurship education in higher education institutions, provision of support through small enterprise incubators, as well as other small enterprise support institutions (Lose, 2019). Parker's (2020) study on small enterprise competiveness recognised that the lack of success for the South African small business ecosystem can be attributed to a weak economic situation, red tape and bureaucracy in the administration of the small business sector, the dominance of large enterprises, wide socio-economic inequalities, poor infrastructure, as well as an education system that does not adequately support entrepreneurship. The role of macro level initiatives such as that of SEDFA in enhancing entrepreneurial and small business growth is vital due to the vulnerabilities faced by small entities. In this way the operations of SEDFA require adequate scrutiny and enough support for the strengthening of the small business ecosystem in South Africa. In the view of Machado (2016), small enterprise growth and success is a unique phenomenon that deserves its own special consideration, and known theories of small enterprise growth need to be adapted. This means the success of such initiatives as SEDFA is based on having an appropriate model that is suitable to small entities. Small business entrepreneurs require good administration, resources, and capabilities for their success, and it is important for SEDFA to facilitate this (Lose, Bernard, & Jack, 2024.

The formation of SEDFA indicates a macro initiative to strengthen small enterprises. Macro level institutions are useful if they are capable of creating an environment that strengthens micro level needs of small business such as mentorship, technical support, skills and facilities (Muriithi, Ndegwa & Juma, 2018). The situation in South Africa is such that entrepreneurship and small business support is enhanced by small business accelerators and incubators (Sebake, 2024). SEDFA has to also ensure that the entire network involved in small business development is strengthened. This study is consistent with the work of Lubinski, Wadhwani, Gartner and Rottner (2018) who advocate for a new dimension in entrepreneurship research based on diverting attention from micro-level perspectives of entrepreneurship which focus on entrepreneurial opportunities, and turning to macro-dynamics which focus on societal transformation. This is relevant in South Africa where socio-economic inequalities are the highest globally. If real transformation is to be realised through entrepreneurship, then this has to be driven at the macro level. This study seeks to support the formation of SEDFA through providing empirical evidence on its prospects for success and the factors that may be critical for its success.

Methodology

This study followed the paradigm of constructivism to determine the factors and prospects of success of SEDFA. Accordingly, the study collected qualitative data. Qualitative studies that are informed by the constructivist paradigm tend to yield a large volume of data which results in deep understanding of a phenomenon (Abutabenjeh & Jaradat, 2018; Creswell & Creswell, 2018). It was essential in this study to ensure that in-depth data was collected to strengthen the results so that the success of SEDFA is enhanced and small enterprises can benefit in the interests of their viability. The study was conducted among small enterprise entrepreneurs who are expected to benefit from the activities of SEDFA. The small enterprises, as beneficiaries of SEDFA operations, have expectations which SEDFA has to fulfill for it to be described as successful. The small enterprises have received assistance from SEDA and/or from SEFA in the past. This made it possible for them to be in a position provide perspectives of what SEDFA needs in order to achieve satisfactory results. The small enterprise entrepreneurs who participated in this study were selected from the Eastern Cape. The Department of Small Business Development (DSBD) provided possible entrepreneurs to participate in the study via its database. Potential entrepreneurs were contacted by telephone using the DSBD database and forty small business entrepreneurs across the Eastern Cape Province indicated their willingness to participate.

The study used a focus group discussion technique to collect data. An online social communication group was established to agree on the date, time and venue for the focus group discussions. A community hall within the Eastern Cape was identified as an appropriate meeting venue for the focus groups discussions. The data collection process involved splitting the forty entrepreneurs into four groups of ten participants with a group leader. The four focus group discussions involving ten members were conducted on 1 July 2024. On 1 August, the entire group of forty met to finalise the results. The discussion questions were: In your opinion, (1) what are the prospects of success for SEDFA and (2) What should SEDFA do to operate successfully? The discussions took 30 to 45 minutes and notes were taken by a secretary during the discussions. Everyone contributed and a final summary was provided and agreed upon by each group. The final summaries were then the subject of confirmation and final discussion on the second day. The participants represented various small business entrepreneurship ventures that included food and drink retailing, crafts, small goods manufacturing, and various services. Each focus group had at least 3 females and there were 18 females compared to 22 males in the entire group. The focus group summaries for the four discussion groups are presented in the summary section.

Findings

The findings of the study can be grouped into major categories: firstly, the entrepreneurs' perspectives on SEDFA's prospects of success (associated with the question, 'What are the prospects of success for SEDFA?'); and secondly, factors necessary for the success of SEDA (associated with the question, 'What should SEDFA do to operate successfully?'). The results arising from these two categories are discussed in this section.

Discussion question 1: What are the prospects of success for SEDFA?

The summaries provided by group leaders pointed to mixed perspectives on the prospects of success for SEDFA. Generally, respondents felt that SEDFA has to follow a different approach which would be distinct from its predecessors. Its ability to act differently in a way that seeks to address past problems was frequently mentioned as a contributing factor for success. In the end, these results were interpreted to indicate that SEDFA will succeed or fail based on whether it takes a new approach that addresses the weaknesses of SEDA and SEFA, or if it operates as a continuation of SEDA and SEFA. These rewards were echoed by the Group 1 leader who was then supported and applauded by the entire group on Day 2 of the confirmation data collection.

The success of SEDFA depends on its ability to do things differently, starting with an appropriate vision for the success of all the SMEs in South Africa. Small businesses operate in different circumstances in South Africa, and it is vital for SEDFA to tailor-make its operations so as to address unique circumstances. If all small business enterprises are put in the same bracket of being small, then SEDFA may not be successful because unique factors will not be addressed. Therefore, SEDFA has great prospects of success if it simply takes each enterprise as unique. I also see SEDFA succeeding if it manages to spread its arms to every localised area, a ward, a village, a township or a location. The more branches it [has] at localised levels the more it is likely to succeed. A person should just find it very easy and convenient to meet a SEDFA official for assistance. Basically, SEDFA can succeed if [it floods] South Africa and [can] be everywhere where people are to make it easy for its services to be accessed and used.

The sentiments above demonstrated that SEDFA has good prospects of success if it simply strengthens its operations by thoroughly attending to unique situations and through a highly decentralised method of approach where it is easily accessible and where everyone can use its services everywhere. This general view provided by the Group 1 leader may be in contrast to the more pessimistic perspective that was provided by the leader of Group 2 who stated that:

I do not really think SEDFA has something new to offer. While it was formed to pursue a noble means, vision and mission, it may fail to implement this in practice. The formation of SEDA and SEFA back then was also a noble idea which was poorly implemented. Surely there is no guarantee that SEDFA will be different. Chances are high that we will continue with our old problems but being associated with a new institution.

Discussion question 2: What should SEDFA do to operate successfully?

It also emerged from the responses provided in this study that SEDFA needs to take a broad and holistic approach in handling matters for the success of small enterprises in South Africa. It was argued in the study that assistance that simply addresses the small entities may not be enough. Instead, SEDFA may have to focus on the entire small business ecosystem together with all the players such incubators and accelerators who are also players in supporting small entities. One focus group discussion leader stated that:

For SEDFA to succeed, it should first make the right objectives based on adequate situational analysis which looks at factors affecting the success of small enterprises as well as the reasons for the failure of SEDA and SEFA. These reasons should inform the focus for SEDFA. In particular, small enterprises should be prioritised as they significantly contribute to the economy. This means small enterprises must be seen within an ecosystem made up of government, small enterprise support institutions, private small enterprise support entities, and small business incubators and accelerators, educational institutions, large entities and the small enterprises themselves. Support for small entities only may not yield the required results because they do not operate in isolation. SEDFA should have a masterplan that assembles all economic players as an ecosystem of small enterprise growth.

In providing the response summary above, the focus group leader concurred with the work of Lubinski et al. (2018) who argued that government departments using macro-level policies to ensure entrepreneurial growth should seek to achieve transformation through engaging the broad system of components involved and that are relevant for success.

A prominent factor for the success of SEDFA was also provided by another focus group leader as follows:

SEDFA cannot operate entirely on its own and solve the problems that small enterprises face. It is important for SEDFA to be simply the focal institution that coordinates various sectors in small business success such as higher education institutions and private small enterprise support institutions. The question of skills and business management knowledge affect the success of small business. Many entrepreneurs lack the skills and management knowledge to adequately manage small business[es], leading to their collapse. Large private entities should also be coordinated to support small entities as key conduits in their value chain (Lose, 2023). These links are vital.

It also emerged from the study that there is need to strengthen the regulatory framework and environment to promote the operations of SEDFA. Some respondents stated that it was necessary to have a thorough study of the operational environment for SEDFA and create a favourable and supportive legal and policy framework for SEDFA to attain its objectives. Specific laws and policies to strengthen and support SEDFA will enhance its operations, as suggested by another focus group leader:

As you know, SEDFA is a macro level initiative for reviving small enterprises. Such initiatives need strong government support through appropriate legal and policy systems that can promote its smooth operation. Without a strong legal and policy framework, SEDFA will find various obstacles on its way and may fail to deliver the expected performance.

Discussion of findings

This study explored the prospects of success for SEDFA and what it may need to do in order to be successful. The study was based on the views of small business entrepreneurs. While studies on the operations of SEDFA are still emerging, the results of this study support earlier findings that small enterprises face numerous challenges, and that both macro level and micro level initiatives are essential for the success of SEDFA to vitalise the small enterprise sector (Bruwer & van den Berg, 2017; Omoruyi, Olamide, Gomolemo.& Donath, 2017; Davids, Tengeh & Duffett, 2021). In view of these various challenges, the study has found significant support for the formation of SEDFA and for promoting its operations to ensure that the small enterprise sector remains fully viable and continues to contribute to the success of the economy. The findings of this study also suggest the need for a holistic approach in promoting small enterprises (Lose, 2016). This entails using various theoretical frameworks that strengthen both micro level and macro level initiatives for small enterprise development. Earlier work such as that of Baloyi & Khanyile (2022) on initiatives to improve MSME funding as well as that of Parker (2020) on the view that the small business sector and ecosystem is where holistic attention on the success of various institutions and strategies for small business development should be focused are vindicated in this study.

Future research and recommendations

The study recommends strengthening of existing systems for the viability of small enterprises, and the strengthening of SEDFA. In particular the legal and policy framework for the operations of SEDFA may need to be carefully considered so that it is supportive and appropriate. Future research is required to keep appraising SEDFA operations, to identify obstacles in its operations and to suggest solutions to challenges that it may face. Future research may also collect views from various stakeholders within the small business ecosystem. A model for the effectiveness of the South African Small Enterprise Development *and* Finance Agency (SEDFA) should be developed.

Conclusion

This study investigated the prospects of success for SEDFA as well as what is required for its success. Generally, it found that SEDFA should be a macro level initiative that is expected to improve the small business sector, thereby making it imperative to support it and ensure that it attains its mission. It was also found in this study that the micro level strategies for small business success remain vital and both levels have a significant impact on small business support.

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Risk management practices and performance of non-financial firms in Nigeria

Adesanmi Timothy Adegbayibi
Michael O. Adelowotan
Mohammed Kayode Ajape
Department of Accountancy, University of Johannesburg, South Africa

Keywords
Non-financial firms, risk management committee, return on assets and risk management committee size.

Abstract

Purpose of the Research*: This study investigates the effect of risk management practices on the financial performance of quoted non-financial firms in Nigeria. The study analyses the effect of meeting, gender diversity, independence and size of risk management committee on return on assets.*

Design/methodology*: A sample of quoted 40 non-financial firms on the Nigerian Stock Exchange (NGX) cutting across several subsectors and with audited annual reports from 2012 to 2022 was selected.*

Results/findings*: The findings demonstrated a significant negative effect of risk management committee size on financial performance. Risk committee meeting, independence and gender diversity showed an insignificant positive effect on financial performance. Firm age has a significant positive effect on financial performance.*

Practical implications and conclusions*: These findings provide the board with insights on maintaining an optimal size for the risk management committee to enhance decision making and oversight, ultimately improving financial performance. The study highlights the importance of regular committee meetings to effectively manage emerging risks in today's dynamic business climate. Also, it informs shareholders about the necessary level of independence for the risk management committee to significantly boost financial performance.*

Introduction

Risks related to corporate entities' operational and strategic operations have been blamed for recent business failures in Nigerian non-financial enterprises. To facilitate growth and advancement, organizations engage in risky investment opportunities. Moreover, there are inherent risks involved with regular policy evaluations and the formulation of new corporate strategies, crucial for maintaining competitiveness (Spedding & Rose, 2018). Controlling risks exposure has become crucial for business organizations considering the complexity of corporate companies (Boniface & Ibe, 2012). Increasing company value stands as a primary objective for non-financial organizations, closely tied to their organizational performance. The effectiveness with which the business uses its resources to produce profit and increase firm value is how this performance is evaluated (Amerta & Soenarno, 2022). Improved liquidity, profitability, return on equity, and other measures are indicators of financial success. It gives the company the non-financial and financial measures required for effective risk management and transparency. In a highly competitive worldwide market, every firm naturally aspires to sustain exceptional financial performance (Mohd, Ariffin & Kassim, 2011).

Corporate risk management is strongly tied to the board's supervisory responsibilities and is a subject of governance. The management team of a corporation oversees more than simply its day-to-day operations and business. Numerous topics included in this research have either remained important or have become more so after the epidemic. The terrain of risk governance that boards have to traverse is always changing. To identify which dangers should be accepted or minimized and which should be avoided, risk management necessitates evaluating the company's risk appetite (Shuaibu, Yusuf & Amarachi, 2022). Therefore, authorities continue to focus on projects that are intended to enhance performance through innovative ways to risk reduction to address the range of threats that firms confront (Nyagah, 2014). Risk management is being proactive, detecting possible dangers, as well as creating regulations and protocols to improve an entity's capacity to prevent or minimise the effects of risk-taking procedures (Jaber, 2020). Effective risk control should boost an organization's revenue and profitability, improving its financial performance. The combination of successful company operations with risk management is necessary to promote long-term, sustainable growth.

Numerous studies in the current literature highlight the potential for risk management measures to improve financial results, as they have a significant impact on financial performance. Numerous empirical investigations have examined the connection between financial success in industrialised and emerging countries and risk management strategies. Zemzemaa and Kacem (2015) conducted research in North Africa (Morocco, Tunisia & Algeria); Hitimana et al. (2016) in Rwanda; Girangwa et al. (2020) in Kenya; Agyemang et al. (2020) in China; Atiso, Koranteng, and Boakye (2020) in Ghana; Ewool and Quartey (2021) in Jordan; Otanga (2021) in Kenya; and Amerta and Soenarno (2022) in Indonesia, Malaysia, and Thailand. However, not enough research has been done in this investigation to ascertain the impact of risk management techniques on the financial performance of publicly traded non-financial firms is crucial for sustaining the economic growth of any nation. Several studies have explored this issue within the Nigerian context, including research by Afolabi and James (2020), Ojubanire and Dawodu (2021), Ebenezer and Ahmad (2016), Olugbemiga et al. (2016), Olayinka et al. (2017), and Abubakar et al. (2018). These studies provide valuable insights into how effective risk management strategies contribute to the stability and growth of non-financial firms, which in turn supports broader economic development.

Reviews indicate that a substantial percentage of studies that looked at the connection among risk assessment strategies and results in terms of finances mostly focused on the banking industry and small and medium-sized businesses (SMEs), neglecting non-financial companies that are essential in the long run, sustainable economic development of any country. This leaves a vacuum, which needs to be filled. Based on the foregoing, this study aims to look at the connection among those who assess risk strategies the financial performance of non-financial companies listed in Nigeria is also examined in this study. The analysis focuses on the period from 2012 to 2022, with particular attention to several key indicators of risk management practices. These include the size of the risk committee (RCS), its independence (RCI), gender diversity (RCG), meeting frequency (RCM), and board risk management committee size (RCS). By investigating these factors, the study aims to deepen the understanding of how these risk management mechanisms influence the financial outcomes of non-financial companies in Nigeria.

Literature Review

Financial Performance

An organization's operations and strategy may be examined by looking at its financial performance. According to Kakanda (2017), performance refers to the method by which a business uses its limited resources to accomplish its objectives over both in the short and long durations. A product's performance corporation is critical to its survival and expansion. Firm performance plays a significant role in determining shareholder wealth because it is measured from the start of an accounting period to its conclusion (Mustapher & Othman, 2020). This evaluation highlights the business's potential for financial success while also boosting investor confidence in future returns (Indawati, 2021).

The ability of an organisation to meet stakeholder expectations and its own needs for growth and survival can be used to evaluate its performance (Abualoush et al., 2018). Organisational success is the outcome of economic activities and can originate from three different sources: financial results, the success of the product on the market, and shareholder returns. The monetary outcomes of a business, or its ability to turn a profit over a certain time frame, is the main emphasis of this study. One important performance metric for a company is profitability. Return on Equity (ROE), Profit after Tax (PAT), A few metrics used to gauge how well the management of the business is doing are Return on Investment (ROI) and Return on Assets (ROA). The financial performance of a business helps stakeholders, investors, and the overall economy. Successful firms have the loyalty of stakeholders and investors who appreciate their returns on investment (Selvam et al. 2016). The term "return on assets" (ROA) is used in the finance industry to evaluate how well management uses the resources of the company to boost profitability. It can also be thought of as the earning power that indicates how successful the company has been in using its resources to generate revenue (Apiti et al. 2017).

A company's financial performance throughout time may be used to estimate its long-term financial health. It makes it possible to compare many companies operating in the same industry at the same time (Wanjohi et al. 2017). According to Eastburn and Sharland (2017), financial success is a clear sign of management's prior ability to make risky decisions. using measures to evaluate a company's efficacy, such as the profitability ratio, solvency ratio, efficiency ratio, and others (Ahmed et al. 2018). A company's financial performance indicates how well it can generate income and manage its resources, which makes it a crucial predictor of long-term financial health.

Performance in terms of finances is evaluated using ratios like the profitability ratio, solvency ratio, and efficiency ratio. In this research, return on assessment (ROA) is used to examine financial success. This may be found by deducting net income a measure of short-term performance from total assets. It is regarded as the most effective utilization of resources and informs investors of the profits generated by capital assets.

Risk Management Practices

The focused efforts made by an organization to control and manage its risks are referred to as risk management. Adeusi et al. (2014) defined risk management as the practice of minimizing pure and speculative hazards stemming from organizational choices or operations. According to Emmanuel (2017), risk management is a strategy in which senior management, working under the board's leadership, assesses risk connected with corporate operations and establishes objectives for its control to accomplish a given aim. According to him, the degree of risk and general direction are defined by the board of directors. as well as oversees how it is performed. This sets risk management as a driving policy. To manage risk, the board may elect to organize a risk management committee to help with monitoring risk characteristics, evaluating risk appetite, and determining risk limits. Wamalwa and Mukanzi (2018) suggest that a risk management committee must contain particular elements in order to carry out its tasks successfully. They stress the committee's size, independence, diversity, and frequency of meetings.

When forming a committee to oversee risk controls and reduce misconduct within a corporation, it is essential to consider the composition of the committee (Nguyen, Hagendorff, & Eshraghi, 2015). According to Bédard, Chtourou, and Courteau (2014), larger committees bring more authority, expertise, and diverse perspectives on various challenges. Given the complexity and opacity of corporate operations, a larger committee helps ensure that risk monitoring mechanisms address structural factors that might hinder external shareholders from effectively overseeing the organization (De Andres & Vallelado, 2018). Regular meetings are a crucial feature of the risk committee's work. When critical challenges arise that require gathering essential information, management should convene the risk management committee to evaluate the likelihood of potential risks (Osayantin & Embele, 2019). Tao and Hutchinson (2012) explain that the purpose of these meetings is to ensure that when companies face business decisions involving significant risks, the committee can decide on strategies to mitigate such risks, benefiting all stakeholders involved.

The independence of a risk committee can be assessed by the number of members who are free from external pressures that could compromise their ability to effectively manage risks. The committee's ability to oversee risk management activities is largely shaped by its independence from the company's management. This is why having a significant proportion of non-executive board members is often regarded as an important factor in accurately evaluating the committee's independence. Independent directors play a key role in monitoring and overseeing management's risk-related decisions. Non-executive directors are more worried about their reputation than executive directors, so it is logical that they would strive for greater governance. According to Uzun, Szewczky, and Varma (2018), organizations with more non-executive directors had reduced fraud charges and stronger corporate governance. However, diversity within the risk management committee refers to the mix of individuals who are devoted to the risk management task, which includes variances in gender, ethnicity, and other characteristics. De Andres and Vallelado debuted in 2018. Over the last two decades, debates have focussed on developing and supporting sound corporate governance, sufficient risk management methods, and a diverse board of directors (Plessis, Saenger, and Foster 2012). A person's personality impacts variety in leadership, intellectual processes, emotional responses, risk preferences, and behaviors, which is more prevalent in a diversified risk management committee membership (Emmanuel 2017). More full control over the organization's risk management processes may be offered, as well as an incentive to handle new difficulties by raising the firm's knowledge of a greater variety of possible risks, such as reputational and regulatory concerns. The diversity effort for the risk management committee attempts to establish a varied array of personal traits and demographic features within the committee (Kakanda 2017).

Risk Management Committee Size and Financial Performance

One of the most important aspects of risk management is the size of the committee responsible. for a non-financial company in Nigeria. A broader risk management committee, according to Amerta and Soenarno (2022), offers more chances to include directors who possess the technical know-how and skill sets required for efficient risk management. The committee should have enough members to include new people who are adept at recognizing, evaluating, quantifying, and communicating risk (Jaber 2020). A business may maintain high decision-making standards in risk management operations and improve financial performance by reducing the probability of unfavorable future events with an appropriately sized committee.

Risk Management Committee Meeting and Financial Performance

To keep a careful eye on any potential risks arising from ordinary business activities, Regular meetings of the risk management committee are required. Meeting frequency ensures that any issues are regularly identified and fixed before they worsen by serving as a stand-in for the duration and scope of risk discussion sessions. These meetings facilitate the timely recognition, management, and settlement of events associated with financial risk, thereby preventing the worsening of issues. Frequent meetings allow the committee to promptly handle any potentially dangerous events before they negatively impact the organization's performance (Otanga, 2021).

Whether vertical or horizontal, the committee meetings offer a suitable channel for communication for risk assessment and mitigation. Throughout the discussion, a professional with expertise in risk coverage supervision identification, assessment, and management offers direction and guidance. According to Zemzem and Kacem (2015), having meetings more often promotes both faster gains in financial performance and quicker resolution of issues that pose risks.

Risk Management Committee Independence and Financial Performance

The independence of the risk management committee is often measured by the percentage of independent non-executive directors. Boards with a higher proportion of non-executive directors are better equipped to thoroughly assess potential risks. These boards also consider the establishment of a risk management committee as one of the most essential tools for overseeing risk management. According to Tao and Hutchinson (2012), a committee comprised of independent directors is well-positioned to monitor and control management's risk-taking activities, ensuring that all strategies are implemented as intended. Osayantin and Embele (2019) note that independent directors contribute by performing comprehensive audits and providing complete transparency of both financial and non-financial information. Since independent directors are focused on maintaining their reputation and delivering high-quality oversight, they are particularly well-suited for ensuring transparency and monitoring (Murah, 2007). To enhance the effectiveness of the committee, the inclusion of non-executive directors is crucial. A well-structured risk management committee, with a higher proportion of independent board members, ensures strong governance, diligent execution of risk management duties, and the prevention of fraud—factors that ultimately improve the company's financial performance (Mokni & Rachdi, 2012). Furthermore, since they are more worried about their job than executive directors are, non-executive directors often demand greater monitoring than executive directors. Less dangerous insider activities result from the independence of the risk committee members, which lowers losses-particularly during a financial crisis. Because of the committee's independence, it is possible to prevent any concerning or unwanted dangers. After independence is obtained, risk management responsibilities will be carried out more effectively.

Risk Management Committee Gender Diversity and Financial Performance

Ling and Hung (2010) asserted that a varied committee for risk management improves decision-making process because its members are more aware of the business's operations and concentrate more on risk monitoring and control. This aids the business in better aligning its strategy with its surroundings by fortifying the social compact including the stakeholders and the firm. Given this, it is suggested that a diversified risk management committee may help a firm build a reputation as a responsible citizen that respects and appreciates its community.

Having a diverse gender risk management committee might greatly enhance performance of the organization. People with different backgrounds in gender, population, cognitive psychology, culture, and education provide unique traits and attributes that enhance the effectiveness of risk monitoring (Pojasek, 2017). The diversity of directors' backgrounds, gender, and races offers a range of perspectives, which helps the risk committee make better judgments. This variety of viewpoints from different backgrounds contributes to a larger spectrum of beliefs required to fulfill the duty of risk management. Therefore, the committee's diversity may enhance the financial performance of Nigeria's non-financial services firms.

Theoretical Framework

This study is grounded in agency theory, which was introduced by Jensen and Meckling in 1976. Agency theory describes a legal arrangement where one or more principals appoint an agent to perform tasks on their behalf, granting the agent decision-making authority. This framework emphasizes the contractual relationship between shareholders (principals) and management (agents), who share managerial responsibilities (Isaac et al., 2021). The theory suggests that when both parties aim to maximize their own interests, there is a possibility that the agent may act opportunistically, potentially undermining the principal's objectives. A key concern of agency theory is the conflict that arises from the divergent interests of principals and agents, making it difficult to fully understand or control the actions of the agent (Eisenhardt, 1989).

Agency theory serves as a valuable tool for managing and maintaining control within an organization. It helps managers identify and monitor risks, as well as manage the organization's assets and liabilities. Smith and Stulz (1985) argue that risk management influences managerial behavior when it comes to risk-taking and risk-avoidance decisions. The theory also explains how power imbalances can create conflicts of interest between shareholders, management, and debt holders over the allocation of profits. As a result, the business may avoid excessive risk or pursue activities that increase net value (Amarachi et al., 2022).

Several studies such as those by Agyemang et al. (2020), Amneh (2018), Abubakar et al. (2019), Amerta et al. (2022), Mamari et al. (2022), and Amarachi et al. (2022) have explored the relationship between risk management and financial performance through the lens of agency theory, with an emphasis on risk reduction within organizations. The theory suggests that reducing information asymmetry and conflicts of interest can help maintain balance between principals and agents, thus enhancing risk management.

This theoretical framework is critical to the research because it examines the factors that influence whether management in non-financial firms adopts risk management practices. Agency theory provides insights into how managerial decisions impact risk management strategies. When conflicts of interest are minimized, management decisions are more likely to align with shareholder interests. Consequently, management is more inclined to pursue initiatives that increase shareholder wealth. Since these initiatives often involve a certain degree of risk, management is also more committed to implementing effective risk management practices.

Empirical Studies

Al-Mamari, Al-Ghassani, and Ahmed (2022) conducted a statistical analysis of the risk management practices and financial performance of deposit money institutions, utilizing partial least squares, structural equation modeling, and annual data from the Muscat Stock Exchange. Their study revealed a strong correlation between risk management and return on assets (ROA), although no such correlation was found with return on equity. Similarly, Abu-Rummana et al. (2021) performed a quantitative study on the relationship between risk mitigation practices and the financial performance of Lebanese banks, concluding that there was a strong and positive relationship between the two.

Al-Nimar et al. (2021) examined how risk management influences business performance in Jordan, using a quantitative approach. By applying both descriptive and inferential statistics to data from 228 Jordanian companies, the study found that risk management strategies significantly impacted business efficiency. In Kenya, Girangwa, Rono, and Mose (2020) employed a descriptive cross-sectional survey to assess the connection between risk mitigation practices and the performance of state-owned enterprises. Both studies found that risk management techniques had notable and positive effects on organizational performance.

Afolabi and James (2018) investigated the performance of small and medium-sized enterprises (SMEs) in Osun State, Nigeria, surveying 330 SMEs by distributing questionnaires to managers and owners. The findings revealed a strong association between the success of SMEs and risk management, with risk-taking behaviors positively influencing risk management strategies. Similarly, Abubakar et al. (2018) explored the effect of risk mitigation committee characteristics on the financial stability of listed deposit money banks in Nigeria, finding that committee size had a small but positive impact on ROA, while committee independence had a significantly negative effect.

Olayinka et al. (2017) concluded that risk management practices improved the financial health of 40 Nigerian firms. Oluwagbemiga, Isaiah, and Esiemogie (2016) investigated the financial performance of 21 deposit money banks listed on the Nigerian Stock Exchange between 2005 and 2014, finding a positive correlation between risk management strategies and financial outcomes. In Rwanda, Hitimana, Kule, and Mbabazize (2016) examined the effects of risk management strategies on the financial performance of 40 banks, analyzing data from bank annual reports from 2011 to 2014 using descriptive research and secondary data collection methods. The Pearson correlation analysis indicated that risk management strategies could improve profitability, liquidity, return on equity, and return on assets, supporting the hypothesis that risk management practices significantly affect financial performance in both Nigeria and Rwanda.

Ebenezer and Omar (2016) explored how risk management practices influenced the financial stability of Nigerian banks through a survey and primary data collection. Their findings suggested that poor risk management practices adversely affected the organization's profitability, highlighting a direct link between risk management strategies and financial performance. Similarly, Zemzem and Kacem (2015) analyzed the relationship between governance, business performance, and risk management in lending institutions, focusing on a sample of 17 Tunisian banks between 2002 and 2011 using an Ordinary Least Squares model. Their research found that risk management practices, particularly the size of the risk committee, had a positive and significant impact on institutional performance.

Research Methodology

This study adopted an ex-post facto research approach, analyzing secondary data collected from the 2012–2022 annual reports of non-financial firms listed on the Nigerian Exchange Group (NGX). This design is appropriate as it relies on historical data, enabling an exploration of relationships between variables without direct manipulation of conditions.

The target population comprises 66 non-financial companies listed on the NGX as of December 31, 2022. The firms span multiple sectors, including consumer goods, oil and gas, healthcare, information technology, natural resources, services, construction, and industrial products.

The sample consists of 40 non-financial firms randomly selected to ensure every company had an equal chance of being included. This simple random sampling approach helps to minimize selection bias, ensuring that the sample is representative of the larger population.

To explore the relationship between financial performance and risk management practices in non-financial firms, this study adapted a model inspired by Adefala and Aderibigbe (2018). The general form of the model is:

Perf= f (RMP)

The functional form used in this study expands on this framework as follows:

$$\text{Perf} = \text{f}\,(\text{RCMit}, \text{RCGit}, \text{RCIit}, \text{RCSit}) \quad (1)$$

$$ROAit = \alpha + \beta 1RCMit + \beta 2RCGit + \beta 3RCIit + \beta 4RCSit + FAGit + \varepsilon it \quad (2)$$

where:
Perf = Financial performance proxied by Return on Assets (ROA)
RCM_{it} = Risk Management Committee Meetings
RCG_{it} = Risk Management Committee Gender Diversity
RCI_{it} = Risk Management Committee Independence
RCS_{it} = Risk Management Committee Size
FAGit = Firm Age (control variable)
β_1 – $\beta 4$ = Coefficients for independent variables; ε_{it} is the error terms of firm i and time t is 2012-2022. As an A-priori expectation, $\beta 1>0$, $\beta 2>0$, $\beta 3>0$, and $\beta 4>0$ are expected. suggesting that effective risk management strategies positively impact financial performance.

The research was estimated and analysed using the panel-corrected standard error (PCSE) method. For each of the four objectives, Data were analyzed using the Panel-Corrected Standard Error (PCSE) method, which accounts for heteroskedasticity and potential cross-sectional correlations in the data. The Hausman specification test was conducted to decide between the fixed and random effects models. The fixed effects model was deemed more appropriate based on the results, indicating that variations within firms are more significant than those across firms. The operational definitions and measurements for the variables in the research are shown in Table 1.

Table 1. Measurements of Study Variables

S/N	VARIABLES	DESCRIPTION	MEASUREMENTS	SOURCES
1	Return on Assets	Measures how efficiently a company utilizes its assets to generate profits	$\frac{\text{Net Income}}{\text{Total Assets}} \times \frac{100}{1}$	
2	Risk Management Committee Meeting	Total number of committee meetings per year	Count of meetings	Alhassa and Mamuda (2020)
3	Risk Management Committee Gender Diversity	Proportion of female members on the committee	Number of women / Total committee members	Abdul (2016)
4	Risk Management Committee Independence	Proportion of non-executive directors	Number of independent directors / Total committee members	Abdul (2016)
5	Risk Management Committee Size	Total number of committee members	The total number of members of the risk management committee board	Abdul (2016)
6	Firm Age	Number of years since incorporation	The year of incorporation till year end of the study period	

Findings/Results

Descriptives Statistics

Table 2 presents the descriptive statistics for the key variables used in this study, including financial performance and risk management metrics. The statistics include the mean, standard deviation, coefficient of variation, and the minimum and maximum values, along with skewness and kurtosis to assess the data distribution.

The financial performance measure, Return on Assets (ROA), shows an average value of 4.8025%, with a standard deviation of 0.1185 and a coefficient of variation of 2.4%. This indicates that, on average, non-financial firms generate a return of 4.8% on their assets. Across the selected firms, ROA varies between 4.28% and 5.06%.

The data distribution for ROA exhibits irregularities, as indicated by skewness and kurtosis, suggesting deviations from normality. Furthermore, the Risk Management Committee Meetings (RCM) variable reports a standard deviation of 1.7755 and a coefficient of variation of 1.03%. RCM frequencies range from 0 to 6 meetings per year, implying that some committees meet only once annually, while others convene as frequently as six times. On average, committees meet about twice a year, reflecting the diversity in governance practices among the firms analyzed. The data demonstrates a significant variation among firms and a univariate distribution, as shown by the kurtosis value of 1.7795 and the skewness value of 0.4275. The risk committee's (RCG) gender diversity score is 7.700, with a standard deviation of 12.962, and falls between 0% and 50%. As can be observed by looking at the variable's 1.3892 percent skewed data and 3.5772 kurtosis score, the data is not evenly distributed among the firms. These figures show that, on average, gender diversity in businesses ranges significantly by more than 100%. Companies that provide non-financial services must have a gender diversity ratio of at least 0% and no less than 50%.

The Risk Committee Independence (RCI) variable demonstrates considerable variation across firms, with a mean value of 40.2711, a standard deviation of 38.7744, and a coefficient of variation of 0.96. These statistics indicate significant differences in the level of independence among the committees. The data appear relatively normally distributed, with a skewness value of 0.1558 and a kurtosis value of 1.4087. The RCI values range from 0% to 100%, reflecting that while some firms have no independent members, others have fully independent risk committees. For Risk Committee Size (RCS), the average committee comprises 2.8136 members, with a standard deviation of 2.6891 and a coefficient of variation of 0.9557. These figures suggest notable differences in the size of risk committees. The RCS ranges from 0 to 10 members, meaning some firms may not have formal risk committees, while others have larger teams. The distribution is slightly skewed (skewness = 0.2868) and exhibits low kurtosis (1.7903), suggesting near-normality. The age of the firms shows a high degree of variability, with an average of 25.4113 years, a standard deviation of 13.7275, and a coefficient of variation of 54%. This high variation reflects the diverse lifespans of the firms analyzed. Firm age ranges from 12 to 57 years, indicating both relatively young and well-established companies. The distribution of firm age is positively skewed, consistent with many firms being relatively younger, but still aligned with a normal distribution.

ROA	RCM	RCG	RCI	RCS	FAG	OBS
	404	440	440	440	440	440
Mean	4.8025	1.713	7.700	40.2711	2.8136	25.4113
Standard Dev.	0.1185	1.775	12.96	38.7744	2.6891	13.7275
Coeff. Varia	0.0246	1.0361	1.6832	0.9628	0.9557	0.5402
Minimum	4.2881	0	0	0	0	12
Maximum	5.0675	6	50	100	10	57
Skewness	-2.0706	0.4275	1.3892	0.1558	0.2868	0.0478
Kurtosis	10.2168	1.7795	3.5772	1.4087	1.7903	1.8069

Table 2. Descriptive Statistics

The correlation coefficient illustrates the linear link between the dependent and explanatory factors. Table 2's 4.0 percent increase in returns on assets when committee size is raised indicates that larger risk committees are more effective. Returns on assets and risk committee gender (RCG) are positively correlated; more diversity boosts returns on assets by 8.95%. The analysis reveals that gender diversity within the risk management committee has a 0.4% influence on Return on Assets (ROA), indicating a relatively small but positive impact on financial performance. Additionally, risk committee independence (RCI) is positively correlated with ROA, suggesting that higher independence levels within committees are associated with improved asset returns. A notable positive relationship exists between risk committee size and asset performance, with a 12.45% correlation, implying that larger committees may contribute to better resource management and performance. Firm age is also positively associated with all other examined variables, reflecting the influence of organizational maturity on governance practices. Further, the variables representing the risk committee's size, meeting frequency, gender diversity, and independence are positively correlated, with correlation coefficients ranging from 0.5509 to 0.7891. These moderately strong correlations indicate consistency in governance structures across firms. Since none of the correlations exceed 0.8, multicollinearity which could distort regression results is unlikely to pose a problem. This ensures that the variables can be reliably included in the same regression model without significant overlap.

OBS		ROA	RCM	RCG	RCI	RCS	FAG
ROA	440	1.0000					
RCM	440	0.0408	1.0000				
RCG	440	0.0895	0.5241*	1.0000			
RCI	440	0.0586	0.7891*	0.5509*	1.0000		
RCS	440	0.0042	0.7598*	0.4746*	0.7856*	1.0000	
FAG	440	0.1245*	0.0532	0.0719	0.0801	0.0409	1.0000

Table 3: Correlation Matrix

The Variance Inflation Factor (VIF) is used to assess potential multicollinearity among variables, determining whether the independent variables are sufficiently uncorrelated to produce reliable regression estimates. The results presented in Table 4 indicate that multicollinearity is not a significant concern. This conclusion is based on two criteria: all variables have tolerance levels and VIF values of less than or equal to 10, a threshold commonly used to indicate acceptable levels of correlation among predictors. Thus, the regression coefficients can reliably estimate the effect of each independent variable on the dependent variable. In addition, the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity yielded a p-value of 0.0000, which is below the 0.05 threshold, indicating the presence of heteroscedasticity. This violates the assumption of constant variance in residuals, potentially biasing the regression results. The Wooldridge test for autocorrelation further revealed a statistically significant p-value of 0.0261, suggesting that autocorrelation exists within the panel data. This autocorrelation indicates that errors in one period are correlated with those in another, which could affect the reliability of standard errors and require adjustments to the regression model.

Shapiro -Wilk Test		
Null Hypothesis	**Statistics**	**Probability**
Distribution of the residuals is normal (P>0.05)	5.553	0.00000
Tolerance and VIF Value		
Null Hypothesis	**VIF**	**1/VIF**
There is no multicollinearity among the variables (1/VIF >0.10)	-	2.42
Breusch-Pagan / Cook-Weisberg test for Heteroscedasticity		
Null Hypothesis	**Statistics**	**Probability**
Constant variance across the variable's residuals (P>0.05)	30.41	0.0000
Wooldridge test for autocorrelation		
Null Hypothesis	**Statistics**	**Probability**
No first-order autocorrelation (P>0.05)	0.077	0.7826
Hausman Test		
Null Hypothesis	**Statistics**	**Probability**
Difference in coefficients not systematic (P≤0.05)	12.64	0.0270

Table 4. Summary of Post Estimation Test Results

The stability and reliability of panel regression models may be affected if the underlying variables are non-stationary at their levels. To assess the stationarity of variables, this study employs both the *Levin, Lin, and Chu t test** and the Harris-Tzavalis unit root test. The tests help determine whether the variables are integrated at the same order, which is crucial for accurate parameter estimation. The null hypothesis of the unit root test assumes that each panel contains a unit root (non-stationary), while the alternative hypothesis suggests that some panels are stationary. According to the results in Table 5, all variables are found to be stationary at level. Given that the data are stationary at level, co-integration testing is not required to identify long-term relationships between the variables. The absence of non-stationary variables makes it feasible to use a panel least squares (PLS) method, which can yield unbiased and efficient parameter estimates under these conditions.

Variable	Levin, Lin & Chu t*		Harris-Tzavalis unit-root test	
	test-statistics	P-value	Z- Statistics	P-value
Returns on assets	-4.8787	0.0000	-15.6896	0.0000
Risk committee size	-3.7675	0.0001	-4.3835	0.0000
Risk committee independence	-26.4880	0.0000	-5.5602	0.0000
Risk committee gender diversity	-9.5023	0.0000	-2.1632	0.0153
Risk committee meetings	-15.4551	0.0000	-4.7839	0.0000
Firm Age	-4.2570	0.0000	-18.6953	0.0000

Table 5: Panel Unit Root Test

To address the research objectives, the Hausman specification test was employed to determine whether a fixed or random effects model better explains the variation in the data. The test yielded a p-value of 0.0270, which is below the 0.05 significance threshold, indicating that the fixed effects model is more appropriate for this study. As a result, the fixed effects model provides the Best Linear Unbiased Estimator (BLUE) for the analysis, ensuring reliable parameter estimation.

Table 5 presents the regression results, evaluating the impact of key risk management metrics-Risk Committee Size (RCS), Risk Committee Independence (RCI), Risk Committee Gender Diversity (RCG), and Risk Committee Meetings (RCM) on the financial performance of non-financial firms listed on the Nigerian Exchange Group (NGX). The Breusch-Pagan/Cook-Weisberg test confirmed the presence of heteroskedasticity, while the Wooldridge test for autocorrelation produced a p-value of 0.0261, indicating first-order autocorrelation within the panel data. To address these issues, Panel-Corrected Standard Errors (PCSE) were employed, which correct for heteroskedasticity and autocorrelation across panels, leading to more robust and reliable estimates.

In linear panel models estimated using ordinary least squares (OLS) or Prais-Winsten regression, PCSEs are effective because they adjust for heteroskedasticity and contemporaneous correlations across panels. As shown in Table 5, the independent variables account for 45.25% of the variance in financial performance, as reflected by the R-squared value of 0.4525. The remaining variance is captured by the error term, suggesting that factors outside the model also influence financial performance. Despite some unexplained variability, the overall model is statistically significant with a p-value of 0.0000 at the 5% significance level.

The results reveal that Risk Committee Size (RCS) negatively correlates with Return on Assets (ROA), with a coefficient of -0.0068 and p-value of 0.0240. This suggests that smaller committees may struggle to monitor risks effectively or develop robust risk management strategies. Additionally, the age of the firm used as a control variable has a positive and significant influence on financial performance, as older firms tend to benefit from greater market experience and more established governance practices. With experienced management teams and seasoned employees, older firms are better equipped to mitigate risks.

Although RCM, RCI, and RCG exhibit positive relationships with ROA, their effects are not statistically significant, likely reflecting the limited gender diversity and independence currently observed in these committees. These findings underscore the importance of improving committee composition to enhance risk management effectiveness.

The findings align with Elamer and Benyazid (2018), who reported that the size, independence, and frequency of meetings in UK risk committees negatively impacted the financial performance of financial institutions. Similarly, Tao and Hutchinson (2013) found a positive relationship between risk committees and performance in Australian financial institutions, highlighting how committee structures help monitor and manage high-risk activities. In contrast, Chou and Buchdadi (2017) concluded that meeting attendance significantly enhances accounting-based profitability in banks. These divergent results may stem from differences in geographical context, industry focus, and governance frameworks across the studies.

		Panel-corrected		
ROA	Coef.	Std. Err.	Z	P>|z|

RCG	0.0004	0.0003	1.10	0.272
RCM	0.0042	0.0049	0.85	0.395
RCI	0.0003	0.0002	1.61	0.108
RCS	-0.0068	0.0030	-2.25	0.024
FAG	0.0007	0.0002	3.39	0.001
CONS	4.7828	0.0106	448.81	0.000
Number of Obs =	440			
Number of groups =	44			
R-squared =	0.4525			
Wald chi2 (5) =	32.66	Prob > chi2 =	0.0000	

Table 6: Panel Corrected Standard Error

Discussions and conclusions

This study highlights the significant role that the size of the risk management committee plays in influencing a company's financial performance. A larger committee size is particularly crucial in enhancing the oversight and management of risks, which directly impacts corporate success. The age of the company also emerged as a critical factor affecting profitability. These findings align with previous research suggesting that an imbalance in board composition and insufficient governance practices can negatively influence company performance, particularly in fast-evolving business environments.

The study underscores the need for effective risk management strategies, emphasizing their importance in improving financial performance of listed non-financial sectors. To enhance performance, it is recommended that non-financial companies, especially publicly listed ones, consider expanding their risk management committees. Increasing both the number of committee members and the minimum committee size could improve decision-making and oversight. Additionally, holding more frequent committee meetings could help better anticipate and manage emerging risks in today’s dynamic business climate.

Originality and practical implications

The findings of this study provide the board with insights on maintaining an optimal size for the risk management committee to enhance decision making and oversight, ultimately improving financial performance. The study highlights the importance of regular committee meetings to effectively manage emerging risks in today’s dynamics business climate. Also, it informs shareholders about the necessary level of independence for the risk management committee to significantly boost financial performance.

Limitations and direction for future research

This study investigates the effect of risk management practices on the financial performance of quoted non-financial firms in Nigeria. The study analyses the effect of meeting, gender diversity, independence and size of risk management committee on the financial performance of quoted non-financial firms in Nigeria.

Future studies might explore alternative financial performance metrics, such as earnings per share, return on equity, and Tobin's Q, to provide a more comprehensive view of the relationship between risk management and financial performance. Further studies across various industries and regions could deepen our understanding of the intersection between risk management, corporate governance, and financial performance. Also, future research should focus on the financial services sector, particularly within banking and insurance industries, which are heavily reliant on effective risk management practices.

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Personality and communication profiles of salespeople in Finland

Tiina Brandt
Haaga-Helia University of Applied Sciences, Finland

Keywords
Sales, personality, communication style

Abstract

Object of this study is to study the salespeople in Finland. What are their personality types, what kind of communication they are using. Sample was 159 salespeople who filled in personality and communication style questionnaires and who answered to the open questions as well. Results indicate that most of the sales personnel are Extraverted with Thinking or Feeling personality dimensions. In communication situations they regarded their strengths as good ability to read others, ability to control their feelings and use of coaching. Results indicated statistically significant differences with relationship of personality and communication. Differences occurred in Insecure, Avoiding Feelings and Sensitive communication styles. In Insecure style, the most Insecure were Introverted+Thinking in contrast to the least Insecure communicators Extravered+Feeling. Avoiding Feelings in communication were the highest with Introverted+Thinking. and least avoidant were Extraverted+Thinking. Most Sensitive communicators were Introverted+Feeling and least the opposite Extraverted+Thinking. The results support well Myers-Briggs theory and give new insights into the salespersons' educational needs and strengths and weaknesses in customer discussions.

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Introduction

Already at the 1970s many salespeople improved their relationships with customers by using socially based authority that they have learnt from their superiors (Busch & Wilson, 1976). A crucial component of customer-oriented marketing was that employees who feel more empowered at work emphasize both organizational objectives and customer pleasure (Saxe & Weitz, 1982). Also Martin and Bush (2006) found out that transformational leadership, empowerment, and specific components of the psychological climate are important predictors of customer-oriented selling.

According to Peeker's dissertation (2016) the top-performing salespeople mentioned that having support like mentoring enhanced their selling and they also had lot of engaging with customers. While top-performers mentioned also candidate recruiting, motivation, and rewarding, those were not so frequently highlighted. According to Peeker's study sales leaders focus on mentoring, creating visions, and recruiting candidates, whereas salespeople placed more emphasis on teamwork, client engagement, championing, and challenging. Overall, Peeker concluded that for high-performing sales personnel, receiving coaching and having active interaction with clients are essential.

In addition, for creating favorable conditions for high performance of salespeople, the personality and individual qualities impact on the performance too. Earlier studies indicate that salespeople are toward certain personalities (e.g. Huynh et al., 2020). However, there is no earlier studies about sales personnel and sales work fit. Here we are among the first to study if salespeople's personality impacts for having different preferences for sales situations. Getting more information about interaction preferences with salespeople, can enhance sales when matching clients that suit them better. This study is interested about finding out more about salespeople personality and communication style in Finland.

Personality of salespeople

Most of the earlier research focus on sales performance and personality. According to those, especially Conscientiousness, (Furnham & Fudge, 2008; Huynh et al., 2020; Sjöberg et al., 2005). Extraversion (Barrick& Mountain, 1991; Huynh et al., 2020) and Openness to Experience (Huynh et al., 2020; Furnham & Fudge, 2008) are found to be connected to sales performance. Outside from personality, Sitser et al. (2013) found that Proactivity is related to Achieving Sales results and General job performance. Positive affect, willingness to work and work interest indicated core task performance in sales by Sjöberg et al. (2005).

Indirect impacts of Conscientiousness and Sales have been found by Barrick, Mount and Strauss (1993). They found autonomous goal setting, and to lesser extent goal commitment, to mediate relationships between Conscientiousness and two measures of job proficiency – supervisory ratings of job performance and sales volume for sales representatives. Also, Stewart (1996) found that extraversion was positively correlated with high performance in sales only when performance was explicitly rewarded. According to Barrick et al. (2002) status striving and accomplishment striving (indirectly through status striving) mediate relationships between two FFM personality traits (Conscientiousness and Extraversion) and supervisory ratings of sales performance. Extraverted employees were more likely to be motivated by status striving, which, in turn, enabled them to perform better as sales representatives. Conscientious sales representatives were more likely to strive for accomplishments, which linked to performance through status striving (Barrick et al., 2002).

Methodology

The sample was collected in part of the project PATA (Project focusing on sales and AI: Better customer-interactions with the help of AI). The participants were sent the e-questionnaires during the spring and autumn 2024.

Sample

People working at customer service and sales were focus-group of this study. 73 people were included into this study. 45 were women (61,6%) and 28 men (38,4%). When regarding experience from sales, the most common period was from 1 to 5 years (26%) and from 6 to 10 years (19,2%). Under 1 year experience there was 10 respondents (13,7%) and over 20 years' experience there was 11 respondents (15,1%)

Questionnaires

Myers-Briggs Type Indicator (MBTI)

The *MBTI* was measured with Finnish version of MBTI. It is commonly used in Finnish research (e.g. Brandt & Helander, 2020; Uusi-Kakkuri, 2017). MBTI s based on four preference pairs, which together form sixteen personality types. Preferences are Extraversion–Introversion, Sensing–Intuition, Thinking–Feeling, Judging–Perceiving. Sixteen personality types (e.g INTP, ESTJ) all have own dynamics and thus each of the types is described differently.

Communication questionnaire

Communication style was measured with 50 items indicating different kinds of communication. Altogether there were 12 factors formed based on the earlier research. Reliable analyses indicated alphas from ,557 (Emphatic) to Prefers Teams (0,80). Alphas were adequate, even with this kind of small sample size. Dimensions were: Emphatic, Impatient, Controlling Feelings, Insecure, Avoiding Feelings. Dominating, Coaching, Ability to Read Others, Sensitive, High Temperament, Eager, Prefers Teams-meetings.

Results

Communication styles of salespeople

As can be seen from Table 1. the most used ways in communication were Reading Others, Controlling Feelings and Coaching. Least salespeople were using Insecure way of communicating and Teams-meetings.

Personality types and communication styles

Due to the amount of data, the statistical analyses cannot be done with all 16 personality types. Thus the connection of the personalities with communication style is done, by using two first dimensions of the personality types: ET, EF, IT, IF. There were 46 salespeople (37%) of Extraverted+Thinking, 39 (37%) of

Extraverted+Feeling, 21 (17%) of Introverted+Thinking and 20 (16%) of Introverted+Feeling. Altogether there were 67% of extraverts. Here are the short presentations of each of four combinations:

- ET: Extraverted+Thinking – Describes personalities with extraverted and thinking orientation. They are people with energy toward outside and interests towards things more than people. They are usually efficient in the world of things.
- EF: Extraverted+Feeling – Describes personalities with extraverted and feeling orientation. Their energy is toward outside, and they are focusing more on the people than things. They are usually naturally emphatic and friendly.
- IT: Introverted+Thinking – Describes personalities with introverted and thinking orientation. They are energized by inner reflection, and they are focusing more on the things than people. They are usually able to focus long time, having good concentration skills.
- IF: Introverted+Feeling – Describes personalities with introverted and feeling orientation. They are energized by inner reflection, and they are focusing more on people than things. They tend to have sensitivity to others needs.

As can be seen in Table 2. there were statistically significant differences in following communication styles: Insecure, Avoiding Feelings, and Sensitive. The highest in the *Insecure style* were Introverted with Thinking preferences, and their opposites Extraverted with Feeling were the least Insecure. In Avoiding Feelings the highest ratings were given by IT-types and lowest ET-types. Most Sensitive were IF-types and least their opposites ET-types.

Table 1. Communication styles (n=159)

Dimension	Mean (std)
Emphatic	5,17 (0,79)
Impatient	4,17 (0,99)
Controlling feelings	**5,38 (0,99)**
Insecure	2,84 (0,93)
Avoiding Feelings	3,23 (1,03)
Dominating	3,01 (1,09)
Coaching	**5,31 (0,82)**
Ability to Read Others	**5,46 (1,07)**
Sensitive	3,47 (1,23)
High Temperament	4,06 (1,43)
Eagerness	5,16 (1,33)
Prefers Teams-meetings	2,92 (1,53)

Table 2. Statistical analysis with Anova about communication style and personality

	Emphatic	Impatient	Control-ling Feelings	Insecure	Avoiding Feelings	Dominant
ET (n=46)	5,18	4,11	5,31	2,73	2,68	3,11
EF (n=39)	**5,36**	4,20	**5,62**	2,71	3,02	3,09
IT (n=21)	4,88	**4,40**	5,43	**3,24**	**3,89**	2,92
IF (n=20)	5,31	4,26	5,08	3,18	3,49	**3,13**
Sig.	0,124	0,697	0,186	0,041*	0,001***	0,915
	Coaching	**Ability to Read others**	**Sensitive**	**High Temperamen t**	**Eagerness**	**Prefers Teams-meetings**
ET (n=46)	5,45	**5,71**	3,07	3,90	5,36	2,46
EF (n=39)	**5,47**	5,60	3,32	4,15	**5,44**	2,82
IT (n=21)	5,01	5,06	3,96	4,35	4,64	**3,38**
IF (n=20)	5,22	5,56	**4,23**	**4,68**	5,25	3,15
Sig.	0,111	0,091	0,001***	0,193	0,100	0,070

Discussion

The salespeople seem to be mainly Extraverted people, with Thinking or Feeling dimension. Extraverted people enjoy conversations and eagerness to communicate is their natural tendency. In many ways the selling is still regarded as very social work (despite digitalization), thus mostly extraverted people approach the sales positions. The less there is time for face-to-face communication, the more important the time spent in communication is. The salespeople regarded themselves good at Reading other people, Controlling their feelings and using Coaching style in their communication.

Extraverted+Thinking types are outward oriented people, with interest of things (more than people). They were giving high ratings to themselves in Ability to Read others, Coaching way of communication and Eagerness to communicate. In modern organizations the coaching is common way of daily communication, and it has been reached also Finnish salespeople. Asking questions also in sales situations gives more insight of clients' needs and gives clients the feeling of being heard. Also ability to read others is important quality in sales. Extraverted+Thinking types regarded lowest the Impatient communication, Avoiding Feelings, Sensitivity, High Temperament and Preferring Teams-meetings. So it seems like ET-types are patient with the customer discussions, they do not avoid talking about feelings, they are not sensitive nor having high temperament and they are preferring discussions face-to-face, not in Teams or Zoom. Thinking personalities are not usually very sensitive, when they are more focusing on the things than people topics. According to these results, it seems like extraverted people dislike more Teams-meetings than introverted, which supports earlier research and theory as well.

Extraverted+Feeling are outside oriented people with empathy. They rated themselves high in Emphatic style, Controlling feelings, Coaching style and Eagerness. Because EF people tend to be interested in other people and communicating with others, these results seem to be very logical. They were lowest in Insecure way of communication, and it may be that when their natural tendency is to approach others and probably practiced that a lot, it can be that they are quite sure about their way of communication.

Introverted+Thinking are reflective personalities with interest of things and objects (not people). Here they rated themselves highest in Impatient, Insecure, Avoiding Feelings, and Preferring Teams meetings. When they are mostly interested things and objects and they like to reflect and work on the things on their own, they may feel themselves restless or insecure when communicating with others. The Teams-meetings are usually short and efficient, and which suits well their communication style. Introverted+Thinking people might feel intimidated when talking about feelings, when it's not their favorite topic, or topic that interests them very much. Introverted+Thinking were rating themselves lowest at Emphatic, Dominant, Coaching, Ability to Read Others, and Eagerness. When interest is on things not people (=thinking personality), and when being introverted the ability to read others is not very well developed. Also low in Emphathic and Eagerness to discuss are reflecting those same preferences.

Introverted+Feeling is interested of people, but only certain amounts of time, because they like to reflect and spend time alone. Some argue that Introverted+Feeling combination is sometimes related to hypersensitivity. Here they had highest ratings on the Sensitivity and High temperament, and lowest in the Controlling feelings, which all can be related to each other. When having intense feelings, they most likely are difficult to hide. Interestingly their Dominant communication style was high with them, so it may be that High Temperament can be seen as Dominance also.

Even thought, the sample was quite small, some statistical analysis could be done indicating personality differences in Insecure, Avoiding Feelings and Sensitive communication styles. In Insecure style, the most Insecure were Introverted+Thinking in contrast to the least Insecure communicators Extravered+Feeling. Avoiding Feelings in communication were the highest with Introverted+Thinking. and least avoidant were Extraverted+Thinking. Most Sensitive communicators were Introverted+Feeling and least the opposite Extraverted+Thinking. The results support well Myers-Briggs theory and give new insights into the salespeople's educational needs and strengths and weaknesses in customer discussions.

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Global Strategic Planning: Feedback from the Automobile Industry

Muslima Zahan
Department of Management
North South University, Bangladesh

Thamid Thasin
Faculty of Business Studies
Dhaka University, Dhaka, Bangladesh

Samawati K. Zahan
Research Assistant, Relight Research, Dhaka, Bangladesh

Keywords
automobile industry; business strategy; car manufacturing; Electric Vehicle; Feedback; strategic planning

Abstract

Introduction: *Global Vehicle production exceeds 80-million-unit recent years, where China alone accounts for over 30% of global vehicle sales. Along with traditional automakers such as Toyota, Volkswagen, General Motors, Ford, Honda, and Hyundai-Kia, electric vehicle (EV) manufacturers like Tesla, BYD, NIO and Rivian (with autonomous driving using AI and sensor technology) are leading the charge. The EV market is projected to grow at a compound annual growth rate (CAGR) of over 20% through 2030. The rise of connected cars, ride-sharing platforms and subscription based model both for luxury and commercial brands, with increased focus on carbon emissions reduction, recycled materials and adopting circular economy principles, car companies must rehearse it strategic planning for profit protection and market expansion; regional and global, as well as prepare to face supply chain challenges (semi-conductor shortage), technological disruption and economic uncertainty (fuel price, inflation)*

Purpose of the research*: Based on the diagram of strategic planning process, this study outlines all seven levels/categories of strategies for automobile industries globally.*

Design/Methodology: *The is exploratory research. Primarily 50 random companies are selected, along the websites, secondary data are sought and tabulated. Finally, tables and charts are calculated and placed for the pertinent strategies.*

Results/Findings: *The investigation provides the strategic framework for seven categories of strategies such as Functional strategy (efficiency, quality, innovation, and customer responsiveness), Business level strategy (cost leadership, differentiation, focus differentiation, niche and best), Global strategy (standardization, transnational, international, and localization), Technological strategy (Licensing or Strategic Alliances), Corporate Level Strategy (Merger, Acquisition, Diversification), Ethical & Sustainable strategy (ethical, eco-branding and eco-efficient) and, finally, the Organizational strategy (structure, culture and control) for car manufacturing companies.*

Practical Implications and Conclusion*: To phase out the internal combustion engines (ICE) and the rise of Mobility-as-a-Service (MaaS), the strategic feedback could enable the industry to face future challenges comprehensively.*

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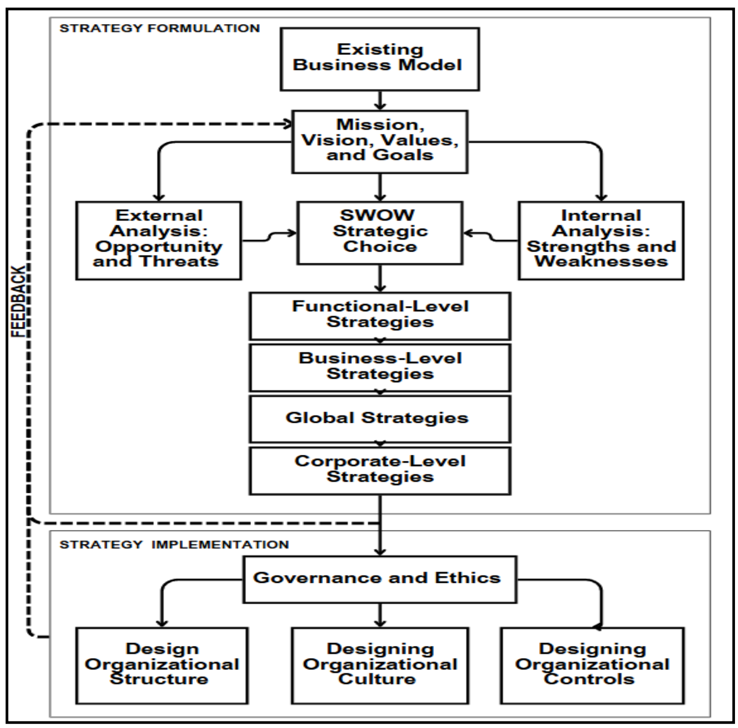
Introduction

Strategic planning is the process of formulating and executing approaches to business that will allow a company to work towards long-term goals This concept gained traction in the 1950s and 1960s but faded somewhat in the 1980s (Mintzberg, 1994). According to Leontiades (1983), the use of some form of structured framework, such as those that include organizational levels, management styles, and stages of growth to help define effective strategy alternatives. In Encarnatio layman's terms, competitive advantages of superior products, reduced costs, and customer contentment (Singh & Khamba, 2019) and industrial capabilities in manufacturing as well as implementation of strategic plans (Ireri & Deya, 2019). Figure 1 shows the strategic planning process from which seven categories of strategies are derived and adapted (Hill et al., 2012)

Automobile Industry Worldwide: Current Scenario

Worldwide automobile industry is an evolving sector, with around USD 2810.63 billion market size in the year 2022 , of 866 companies, anticipated to be worth USD 3969.84 billion by 2030, developing at a Compound annual growth rate of 4.42% (Zion Market Research, October 2023) and built on broad lines of cars, motorcycles, trucks, buses and other vehicles, as well as recent phenomenon towards electric vehicles (EV) due to rising apprehension over environmental sustainability and the long-term availability of petroleum resources (Sarath, 2021). China now has the world's greatest automobile production and exporter, surpassing the United States and Japan. The US automobile industry faces difficulties from Chinese competition regarding the EV market. Also, Brazil is known as one of the largest players in the global automobile industry (Marx et al., 2020). Government incentives for foreign direct investment directly affect location decisions and how the industry's competitiveness shapes them (Encarnation & Wells, 1986).



The automobile industry has been heavily influenced by globalization processes, especially since the

Figure 01: Main Components of the Strategic Planning Process (Hill et al., 2012)

1980s, with auto-makers expanding their operations to other countries and adapting new competitive strategies to stay relevant in a rapidly changing market (Bechmann & Scherk, 2009) with diversified strategy (Nazir & Shavarebi, 2019). maintaining a competitive advantage and continue to grow over an extended period of time (Armonas et al., 2010).

Literature Review

Business Model and Mission Statement:

Elements of business model typically consist of value proposition, customers targeted, revenue models, cost structures and operational plans (Amit & Zott, 2012). The rise of e-commerce and the evolution brought about by Industry 4.0 (Yang & Wang, 2018; Müller, 2019) urges the models traditionally based on dealerships to be reshaped towards online sales, subscription-based car ownership, direct-to-consumer sales, and other innovative models with the growth of electric vehicles (EVs) and the rise of mobility and data services. Along, a good mission statement aligns the firm's internal structure, policies, and procedures with its strategic goals and future direction which, in turn, enhances financial performance and drives its decision-making process (Chahal & Mahapatra, 2013) and sustainability focus (Zahan & Sultana, 2019).

Strategy – Distinctive Competition, External and Internal Analysis:

Snow & Hrebiniak's (1980) study found that businesses achieve high performance by aligning their strategy (Defender, Prospector, Analyzer) with appropriate distinctive competencies, internalization of skills and better positioning (Hamel, 1991), organizational and environmental innovations (Karmanov et al., 2016) and green supply chain specially for automobile firms through strategic alliances (Abbas & Tong, 2023). Hence, it is crucial to choose an appropriate partner (Wang et al., 2016) that influences the competitive intensity and formation of vertical alliances (Burgers et al., 1993). Absorptive capacity for cross-industry innovation involves managing cognitive distance and coordination antecedents (Enkel & Heil, 2014; Enkel & Gassmann, 2010). As Musk's hegemony extends to the auto industry with the example of Tesla's (Hopkins & Lazonick, 2024) whereas differentiation serves as strategic factors (Ngo et al., (2016), so automobile industry needs to adapt procurement strategies with attention to supply, cost and innovation (Garcia, 2024).

Sustainability requirements in the automotive industry can be met through digitizing vehicle circularity on industry progress (Istriteanu et al., 2024), data-driven strategies (Micus et al., 2023), with asset-light production models (Brun et al., 2019) and technology adaptation (Ahmad et al., 2016). Machine learning (ML) algorithm, AI and big data analytics and automated driving are beneficial and cutting edge phenomenon for the automobile industry today (Saini et al., 2024; Kunder et al., 2024; Ma & Chang, 2024; Ahmed et al., 2022). Advanced driver assistance systems are trickling down from luxury to mass-market cars in the automotive sector (Nandakumar & Deepa, 2019) as new features on cars such as safety or convenience. Maps (Woo et al., 2021), automotive radar, alternative fuels, and the rising role of software and safety in the automotive lifestyle have all been evolutions of the industry as explored by Jahin (2016).

Functional Strategy:

Firms leverage functional strategy to establish a competitive advantage while ensuring their operations are in line with the organizational goals. Orishede (2022) shows functional strategies contribute positively to competitive advantage and optimal allocation of resources can yield better firm productivity (Agwu & Onwuegbuzie, 2017). Orwa et al., 2022 and Oh & Jiang (2022), both point out the need for functional strategies to enhance competitiveness in the manufacturing industry. Few more functional issues are investigated by Gaubinger et al., (2015); innovation strategy, Dyer (1996; networks effect and Phongpetra, Ph, & Johri (2011); cost focus, cost leadership, and differentiation strategies improve financial and marketing performance.

Business-Level Strategy:

The business-level strategy is what a firm uses to compete in an industry (DesRoches, 2022) on essential competitive advantages, cost leadership and differentiation (Acquaah & Yasai-Ardekani, 2008; Khoshtaria, 2016; DesRoches, 2022). In reaction to growing competition and evolving industry dynamics, a number of organizations transition from low-cost strategies toward differentiation strategies (Gehani, 2013) with a focus on efficiency, supplier integration, and lean production (Dietl et al., 2009). Environmental, globalization and digitalization lead the strategic changes in the car industry (Jain & Garg, 2007). Similar results come from positioning strategy (Löffler & Decker, 2012) with core-periphery character, where Germany acts as the leaders (Pavlínek, 2022).

Global Strategy

The impact of globalization on the global automobile industry during the latter 1990s was unprecedented and explained that the industry was moving from national to global strategies (Shimokawa, 2002) approaching of international and global strategy (Peng (2022). The study of Belis-Bergouignan et al., (2000) show multinational firms' model of American, Japanese, and European automobile industries and local taste focus at a lower cost (Schlie & Yip 2000). Developing a new market at different locations key takeaways on globalization drivers, differences between multi-domestic and global strategies, and the impact local versus global brands internationalization etc. are worth justifying (Schlie & Yip, 1989; Howell & Hsu, 2002; Zim & Zahan, 2019). The automobile industry would be mainly influenced by trade liberalization, strategic alliances, and the increased technological and quality standards of the Asian industries (Takayasu & Mori, 2004).

Strategy and Technology:

Strategy is closely intertwined with technology making it indispensable for firms to develop effective strategies to win the battles for the market (Shapiro & Varian, 1999). The industrial sector has been historically conservative when it comes to the use of wireless communication technologies, necessitating open, international standards (Petersen & Carlsen, 2011; Abid et al., 2014). Consequently, firms must adapt their strategies and capitalize on opportunities to improve their odds for success showing the feasibility of AI in strategic decisions (van de Kaa & de Vries, 2015; Aha et al., 2005). technical standardization, digital marketing strategy and innovation emergence are the reality for the American, Malaysian and Indian automotive industry (Thompson, 1954; Kanapathipillai & Kumaran, 2022; Pandit et al., (2018). Assymetric learning and strategic alliances are essentials for global automobile sector Dussauge et al., 2004; Groff, 2012).

Corporate-Level Strategy:

The corporate-level strategy and corporate headquarters, as well as business unit managers, have a part to play in diversification which progresses from external and internal pressures (Furrer,2016). Vertical and horizontal integration, numerical and non-numerical alignment are some heavily utilized strategies in the automotive sector (Harrigan, 1985; Wadström, 2019; Langlois & Robertson, 1989, 2000). Outsourcing results to higher initial performance over the course of the product life (Novak & Stern, 2008) whereas the downstream horizontal integration and multiunit dealerships can lead to better manufacturer profits (Martín-Herrán et al., 2014). Outsourcing is a common practice among automotive companies. Most Automobile companies outsource car electronics, interiors, and EV batteries. Also, the other outsource areas include software development for AI driving, transmission, and R&D for Autonomous driving and battery technology.

Ethics and Sustainability

Figure 2 illustrates a holistic view of sustainability, integrating social, economic, and environmental factors as well as the environmental competitive strategies for today's business where global companies are focusing on positive impact to the corporate world. The strategic approach presents four distinct environmental competitive strategies: Eco-Efficiency, Beyond Compliance Leadership, Eco-Branding, and Environmental Cost Leadership. For the automobile industry ethics and sustainability issues have been practiced phenomenon. Ethics and Environmental responsibility particularly for Volkswagen (Valentini & Kruckeberg, 2018), Effective environmental behavior (Wu et al., 2022), safety, cyber security (Martinho et al., 2021), Ethical compensation system (Honeycutt et al., 2001) are some of the examples.

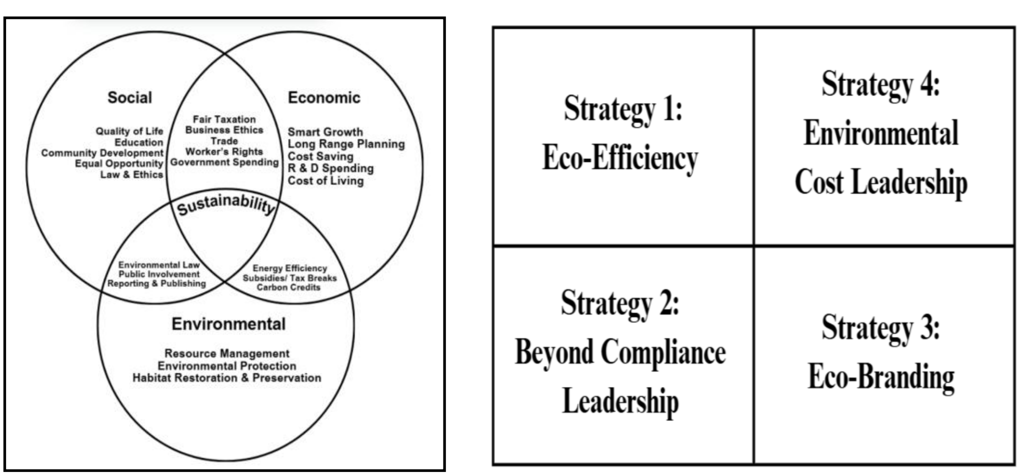


Figure 02: a) Three spheres of sustainability (Elkington, 1997) and b) Environmental Strategy (Hart, 1995)

Organizational Strategy: Structure, Culture and Control System

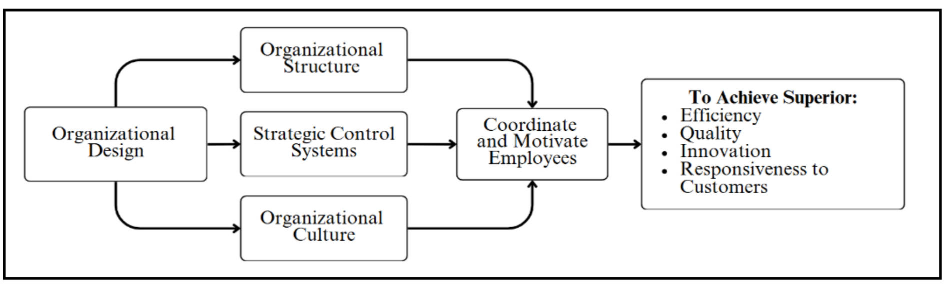
In this respect, Oliveira (2011) observed that organizational structure is an important element of governance and ethics, as it influences control, differentiation, and innovation. The structure is also studied by Ouchi (1977), Ullah (2016), Herath & Cooray (2015), and Lloria (2007) showing organizational structure in order to make a balance within an enterprise to achieve goals.

Culture plays a pivotal role in the automotive sector. Cooke and Rousseau (1988) show how effective it is to survey culture in organization. Gregory et al. (2009) and Hofstede (1998) both investigated how culture affected employee attitudes and values. Chang et al. 2017 highlight the mediating role of knowledge sharing between culture and innovation in the automobile industry. Similar findings are also available by Zawawi and Putrawan (2019), Abdi et al. (2018), and Rathi & Srivastava (2024).

Behavior and output are interrelated (Ouchi & Maguire, 1975). Flamholtz et al. (1985) Proposed an integrative control model focusing on planning, measurement, feedback, and evaluation. Outcome, behavior, and clan controls enhance performance, and functioning complementarily was further established by Sihag & Rijsdijk (2019). Clegg (1981) saw organizations as historically constituted based on the labor process whereas Neimark & Tinker (1986) argued a dialectical approach in the case of General Motors. The most common control mechanisms are quality control, performance metrics, cost control, lean manufacturing, and sales tracking. Figure 3 shows how to design an organization through aligning the structure, culture and control system.

Objectives, significance, and research questions

From the experiences companies are gaining overtime, this strategy depicts its feedback to a format. Strategic planning plays a significant role in the automobile industry by helping to navigate the



competitive market and achieve long-term success by aligning all the skills and resources strategically.

Figure 03: Diagram of Organizational Strategies (Designing an organization, Hill et al., 2012)

This paper is a comprehensive and unique framework for the particular industry and benchmark for organizational success. There are several questions this study would answer:

- What are the seven basic strategies companies should focus to establish their strategic planning?
- How to utilize feedback, benchmark and best practice to achieve superior performances in the automobile industry?
- What is the market trend and how the companies are overcoming the local to global market challenges from strategy formulation to strategy implementation, And
- How can strategic planning be applied to different organizational levels?

Data and Methodology

This study relies on secondary sources such as Google Scholar, Scopus, ResearchGate, and various websites to gather relevant data. A sample of 50 car companies are vigorously studied. Data have been collected and systematically organized in Excel sheets for further analysis. An exploratory research approach has been adopted and placed the findings using tables and charts using percentage. The main purpose of this study is to analyze information through a qualitative lens. The Strategic Planning Process was applied as for systematic methodology.

Findings and Interpretation

Based on the seven strategies from strategic planning the findings are placed thereafter.

Functional Level Strategy: Table 1 shows that efficiency is paramount, with 90% of car companies prioritizing cost reduction and operational streamlining, exemplified by Toyota's TPS and Tesla's Gigafactories. Conversely, customer responsiveness, focusing on satisfaction and personalized after-sales service, is employed by 60%, as seen in Tesla and Lucid Motors. Quality and innovation are also significant, with 80% emphasizing product excellence (like Mercedes-Benz) and 70% investing in tech trends (like Tesla and BYD) and R&D (like Toyota and Volkswagen), respectively.

Table 01: Functional Level Strategies in the Automobile Industry

Strategy	Description	% out of 50	Insights with Example
Efficiency	Cost reduction, operation efficiency Lean and supply chain	90%	Toyota (TPS) and Tesla (Gigafactories)
Quality	Product Excellence, Reliability, and Safety	80%	Luxury quality Mercedes-Benz, BMW and Lexus; Toyota and Honda for reliability and durability
Innovation	Tech Trending (EV and Auto-driving) and Investment in R&D as well as new design	70%	Tesla, BYD, and Rivian (EV and Auto-drive), Toyota and Volkswagen (heavy investment)
Customers' Responsiveness	Focus on customer satisfaction and after-sales service (personalized service)	60%	Tesla, Lucid Motors (advanced customer service) Honda and Kia

Table 02: Generic Business-Level Strategies in the Automobile Industry

Strategy	**Description**	**Feedback % of 50**	**Insights with examples**
Cost Leadership	Economies of scale, Efficient Production, Cost Control	20%	Toyota, Hyundai, Kia, Renault, Suzuki, Tata Motors,
Differentiation	Unique Features, Brand Prestige, Higher Price	25%	Tesla, BMW, Mercedes-Benz, Audi, Porsche, Lexus,
Focus Differentiation	Specific segments with specialized products	15%	Ferrari, Bentley, Lamborghini, Aston
Niche	Very Narrow Market	10%	Rivian, Lucid Motors, Fisker, BYD (initially in EVs)
Best Strategy	Covering all aspects or a combination	Varies	Toyota (Cost Leadership + Differentiation), Tesla (Differentiation + Innovation), etc.

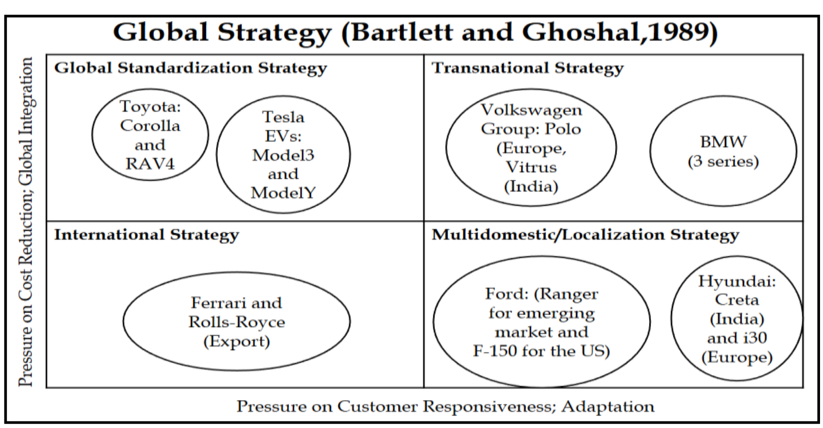
Generic business Level Strategy: Table 2 shows differentiation, with 25%, as the most prevalent strategy, highlighting brands like Tesla and BMW focusing on unique features and prestige. Conversely, at 10%, niche strategies target very narrow markets, exemplified by Rivian and Lucid Motors. Cost leadership, at 20%, emphasizes efficiency, as seen in Toyota and Hyundai. Focus differentiation, at 15%, serves specific segments, like Ferrari. The "best strategy" varies, combining elements like Toyota's cost leadership and differentiation.

Corporate Level Strategy: Table 3 indicates that mergers and acquisitions (M&A), at 30%, exemplified by Stellantis and Volkswagen's expansion. Conversely, unrelated diversification, at 10%, is the least frequent, with companies like Tata Group venturing into entirely new industries. Related diversification 25% and vertical integration 20% are also significant, with Toyota and Tesla investing in related technologies and controlling their supply chains, respectively. Horizontal integration and joint ventures are both at 15% and 20% respectively. The sample companies outsourced battery (34%), electronics items (31%), and interior (30%) from diversified and global sources.

Table 03: Corporate-Level Strategies in the Automobile Industry

Strategy	Description	Feedback % of 50	Insights with examples
Merger & Acquisitions (M&A)	Acquiring other companies or technology	**30%**	Stellantis (Fiat Chrysler + PSA), Volkswagen (acquired Porsche, Audi, etc.),
Vertical Integration	Control over upstream (suppliers) and downstream (distribution) activities	20%	Tesla (Gigafactories for batteries), Toyota (owns suppliers like Denso), Ford (owns parts suppliers), etc
Horizontal Integration	Acquire or merge with similar businesses	15%	Volkswagen Group (owns multiple brands like Audi, Skoda, and SEAT)
Related Diversification	Expand into related markets or technologies	25%	Toyota (investing in hydrogen fuel cells), Tesla (energy storage solutions), BYD (batteries and EVs)
Unrelated Diversification	Entirely new industries	10%	Tata Group (diversified into IT, steel, etc.) Geely (owns Volvo and invests in flying cars)
Joint Ventures (JVs)	Companies partner with others to share resources,	20%	Toyota (JVs with Mazda, Subaru), BMW (JVs with Great Wall Motors), Hyundai (JVs; EV in China)

Global Strategy: This figure 3 illustrates Bartlett and Ghoshal's (1989) global strategy framework applied to the automotive industry. Global Standardization, emphasizing cost reduction, is shown with Toyota's Corolla & Tesla EVs. In the Transnational Strategy, the cost and responsiveness are balanced, as exemplified by Volkswagen and BMW. The International Strategy, focusing on exports, is represented by Ferrari and Rolls-Royce. Finally, the Multidomestic/Localization, prioritizing customer adaptation, is seen



in Ford and Hyundai's regional models.

Figure03: Global Strategy Framework in the Automotive Industry (Bartlett & Ghoshal, 1989)

Technology Strategy: Table 4 illustrates the diverse strategies that automobile companies to leverage technology, ranging from proprietary development like Tesla's battery tech to collaborative approaches such as strategic alliances and licensing, and innovative business models like the "Razor & Blade" approach and leveraging killer applications.

Table04: Technology and Strategy Deployment in the Automotive Industry

Strategy	Insights
Proprietorship	Tesla (battery tech), Toyota (hybrid system).
Franchising	Ford, Hyundai.
Licensing	Toyota (hybrid tech), Volkswagen (MEB platform).
Strategic Alliance	Toyota-BMW, Renault-Nissan-Mitsubishi.
Razor & Blade	Tesla (EVs + software), BMW (vehicles + subscriptions).
Leverage Killer Application	Tesla (Autopilot), BYD (Blade Battery).

Ethics and Sustainability Strategy: Table 5 outlines ethics and sustainability strategies in the automobile Industry. Toyota and Tesla lead in general business ethics and environmental sustainability, which indicates their strong commitments. Economic sustainability is highlighted by Volkswagen and BYD, while Ford and Hyundai focus on social sustainability. Eco-efficiency is shared by Toyota and BMW, and eco-branding is excelled by Tesla and Volvo. Compliance is emphasized by Toyota and Volkswagen.

Table 5: Ethical Strategy and Examples of Automobile Companies

Ethical Strategy	Automobile Companies
General Business Ethics	Toyota, Tesla
Environmental Sustainability	Toyota, Tesla
Economic Sustainability	Volkswagen, BYD
Social Sustainability	FORD, Hyundai
Eco-Efficiency	Toyota, BMW
Eco Branding	Tesla, Volvo
Compliance	Toyota, Volkswagen

Organizational Strategy: To design a perfect organizational and achieve superior performance companies coordinate and motivate the employees through various structures, cultures and control systems. Findings show that the majority; 46% companies follow divisional structure that is the activities and people are based on products lines, geographic locations, or market segments. Functional Structure (30%) and Matrix Structure (20%) are also in evidence. Based on the codes of conduct many companies practice innovation (44% for Tesla), CSR (18%), Quality (16%; TPS and Kaizen for Toyota) and, employee productivity as well customer centric (Lexus) culture. Performance metrics, quality control, cost and financial control are the major strategies the companies implement.

Summary and Strategic Implications

In conclusion, to survive in today's automobile industry, companies must strategically equip themselves. Prioritizing the shift to electric vehicles and investing in related technologies like autonomous driving features. Alongside, they need to enhance efficiency through optimized operations while differentiating themselves with branding. Embracing sustainability, responding to evolving customer needs, and navigating economic uncertainties are also very important for long-term success.

The study discusses the different options for strategic frameworks utilized by automobile firms around the world. The study illustrates how companies adopt operational, innovative, and customer responsiveness strategies with the intent to enhance their competitive abilities while paying attention to functional, business, technological, corporate, and ethical strategies as well. Also, mergers, acquisitions, and joint ventures show how businesses are increasingly joining forces and exploring new routes through partnerships and collaboration. The global strategy framework captures the extent to which market standardization, regional adaptation, and cost-respondent models are used differently. Also, green practices like eco-efficiency and eco-branding are part of an integrative approach that now belongs to the vehicle industry's strategic positioning for long-term sustainability due to environmental and societal pressures.

Limitations, Conclusion, and Future Research.

The sample was merely 50 companies out of 866 global; seemingly biased by few major brands such as Toyota and Tesla. But the findings might be followed by. This paper explored and organized the best practices regarding the strategy for superior performance for the global automobile business.

Future research can explore these areas further, focusing on optimizing strategic planning even for other industries.

Information sources

Information was sourced from company websites and annual reports. Industry reports and analyses were taken from McKinsey. News outlets and business journals like Bloomberg and Reuters were used. Academic journals and case studies provided valuable insights. Government and regulatory filings, such as EDGAR and EC Competition Cases, were reviewed. Industry-specific databases like IHS Markit and S&P Global were consulted. Books on automotive strategies (Womack et al., Smith) and strategic management (Hill et al., 2012) were referenced. Trade associations and organizations like OICA and ACEA contributed industry data. Financial news platforms like CNBC were used for market trends. Reports from consulting firms such as Deloitte and PwC were analyzed. Online sources like Google, Google Scholar, SCOPUS, ChatGPT, EcoPilot, and DEEPSEEK were explored.

Appendix: List of the sample companies

Company Name	**Country/Region**	**Company Name**	**Country/Region**	**Company Name**	**Country/Region**	**Company Name**	**Country/Region**
Toyota	Japan	Tesla	deer	Fiat Chrysler Automobiles	Italy/USA (now part of Stellantis)	FAW Group	China
Volkswagen Group	Germany	SAIC Motor	China	Mazda	Japan	Jaguar Land Rover	UK (owned by Tata Motors)
Stellar	Netherlands (Multinational)	WORLD	China	Subaru	Japan	Porsche	Germany (part of Volkswagen Group)
Mercedes-Benz Group	Germany	Geely	China	Tata Motors	India	Audi	Germany (part of Volkswagen Group)
Ford Motor Company	deer	Okay.	South Korea	Mahindra & Mahindra	India	Skoda	Czech Republic (part of Volkswagen Group)
General Motors	deer	Renault	France	Dongfeng Motor Corporation	China	SEAT	Spain (part of Volkswagen Group)
Honda	Japan	GAC Group	China	Changan Automobile	China	Lexus	Japan (luxury division of Toyota)
BMW Group	Germany	Suzuki	Japan	BAIC Group	China	Acura	USA (luxury division of Honda)
Hyundai Motor Group	South Korea	Daimler Truck	Germany	Great Wall Motors	China	Infiniti	Japan (luxury division of Nissan)

Nissan	Japan	Volvo Group	Sweden	Chery	China	Genesis	South Korea (luxury division of Hyundai)
Rivian	USA	Proton	Malaysia	Peugeot	France (part of Stellantis)	Opel	Germany (part of Stellantis)
Lucid Motors	USA	Isuzu	Japan	Citroën	France (part of Stellantis)	Alfa Romeo	Italy (part of Stellantis)
Fisker	USA	Mitsubishi Motors	Japan				

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Coaching, mentorship, and apprenticeship as knowledge management strategies in organizations: a systematic review

Owusu- Bempah, Edna
University of Education, Winneba
Department of Management Sciences, Winneba- Ghana.

Keywords
Apprenticeship, Coaching, Communities of Practice, Knowledge Management, Knowledge Management Strategies, Mentorship.

Abstract

Purpose *– This study seeks to examine the extent of adoption of knowledge management (KM) strategies: coaching, mentorship, and apprenticeship in organizations.*

Design/Methodology/Approach *– A systematic review was conducted on 50 sampled articles published between 2000 and 2023. The review encompassed articles employing quantitative, qualitative, and mixed-method research approaches. All 50 articles, primarily sourced from Emerald/Emerald Insight, Elsevier, Taylor & Francis, ResearchGate, MIS Quarterly, Journal of Knowledge Management, SAGE, and other journals, were selected for the analysis.*

Findings - *The findings from the study revealed that KM strategies can significantly impact organizational performance by enhancing innovation. However, some organizations lack documented KM strategies.*

Practical Implications and Conclusion – *Knowledge sharing in the studied organizations tends to rely heavily on individual efforts, as there are no documented strategies in place. The effectiveness of these individualistic knowledge-sharing approaches is minimal and constrained. Organizations should formalize their KM strategies. Future research could focus on the integration of technology with KM strategies, such as e-coaching and e-mentoring.*

Introduction

The ability of a business to remain competitive in the modern global marketplace is significantly influenced by knowledge. Therefore, to enhance the organizational knowledge base, companies must recognize it as a valuable resource (Bollinger and Smith, 2001) and establish a system for leveraging the collective intelligence and talents of their employees. This is accomplished through knowledge management. The term "knowledge management" first emerged in the 1980s when Porter (1985) introduced the concept of competitive advantage, which pertains to strategies for creating value for customers by offering distinctive goods and services. To assist a company in achieving its goals and objectives, White (2004) emphasizes that knowledge management involves the processes of developing, storing, sharing, and reusing expertise.

As a result, both knowledge management and organizational learning encompass a combination of the following elements: mentoring, the creation of knowledge databases, institutional repositories, and the assignment of tasks to staff members that align with their talents can be best utilized; and more (Swan et al., 1999). The existence of knowledge management is further supported by Yaacob et al. (2011). It is essential to possess contemporary knowledge management skills to keep pace with current trends in learning, working, and living productively. According to Syysnummi and Laihonen (2014), knowledge is the most valuable resource that can elevate an institution beyond its current state and shape its future. The foundation for an institution's advancement to higher levels lies in its skills and knowledge base.

Literature review

Regarding the fulfilment of these needs, there are at least three primary conflicting paradigms (Scawrough and Carter, 2000). These include the organizational, business strategy, and technological schools. The Technological School views knowledge management as fundamentally technological, as it heavily revolves around information systems, databases, measurement devices, recording tools, and communication technologies. A second approach is that of the Organizational School, which views knowledge as a socially constructed phenomenon embedded in individuals and their social relationships, influenced by organizational structures and culture. In this paradigm, knowledge cannot be extracted or secreted; rather, it is enacted and shared among individuals (Brown and Duguid, 1991; Nonaka, 1991, as cited in Meso and Smith, 2000). This perspective may lead to the development of a community of interest or a community networking model, in which knowledge is continually recreated through interaction and social networking (Swan et al., 1999). The Business Strategy School represents a third approach, wherein knowledge is regarded as a vital resource within the framework of a resource-based perspective of the company. Organizational knowledge serves as a foundation for businesses to develop and sustain a unique competence (Laurie and Beaumont, 2002) that, if effectively harnessed, enables them to thrive in a competitive environment. A knowledge-based theory of the firm has been articulated by scholars such as Grant (1996), Spender (1996), and Liebeskind (1996), building upon the pioneering work of Coase (1937), Penrose (1959), Barney (1991), and others.

The information center's business plan must recognize the necessity of capturing knowledge and actively supporting efforts to enhance it if KM is to be successfully implemented. People possess more knowledge than technology can provide, which means that significant human effort is required. KM facilitates knowledge sharing, thereby promoting and streamlining organizational focus. The personality and situational traits of participants influence how they share knowledge within the organization (Aharony, 2011). There are no solutions that can be obtained simply by purchasing new technology; achieving effective KM requires a deeper understanding of knowledge management and the development of a comprehensive strategy (Abah et al., 2022).

In the research conducted by the Organization for Economic Cooperation and Development (OECD, 2003), knowledge management (KM) practices have been categorized into four distinct groups: communication; training and mentoring; policies and strategies; and knowledge capturing and acquisition.

One of the most significant factors influencing a company's productivity is the implicit knowledge assets of its employees. However, for an organization to operate effectively, implicit knowledge alone is insufficient. The objective is to ensure that all organizational levels are explicitly aware of the employees' implicit knowledge (Abah et al., 2022). It is evident that successful businesses invest in their employees to expand their perspectives, skills, and experiences for the global workplace (Ulrich, 1997). Enhancing employee competencies directly impacts the company's financial performance (Becker et al., 2001). These points support the idea that mentorship and training are highly beneficial.

"There are many types of knowledge relevant to the firm, some of which have particular relevance for management in its pursuit of the sources of value it can bring" (Laurie and Beaumont, 2002).

Knowledge that is expressed, documented, or otherwise codified refers to "knowing about" and is relatively easy to transmit. Codification can take the form of manuals, specialized databases, or collections of case law in professional service firms, as well as standardized research methods or templates for drafting legal documents. In contrast, tacit knowledge encompasses the knowledge that cannot be directly shared between individuals; it must be used, practised, and socially interacted. Traditionally, this type of knowledge was cultivated within professional firms through the master-apprentice relationship and the contributions of senior partners, who enhanced the company's social capital through customer interactions and networking (Maister, 1997). Consequently, managing tacit knowledge as a source of value is more challenging, and its dissemination is likely to be gradual and complex. However, it also has greater potential to generate strategic value (Lane and Lubatkin, 1998). If this is the case, it will be essential for businesses to develop strategies to convert tacit knowledge into articulated information, thereby making it more manageable and accessible.

The primary objective of this research is to conduct a systematic review of KM strategies in businesses, specifically focusing on techniques such as coaching, mentorship, and apprenticeship. This study will highlight the identified KM strategies and assess their effectiveness in managing knowledge and their overall success in implementation.

Research Methodology

The PRISMA guidelines, along with the resources, inclusion and exclusion criteria, the systematic review process, and data extraction and interpretation, are all detailed in five important subsections included in this section.

PRISMA

The PRISMA approach, which stands for "Preferred Reporting Items for Systematic Reviews and Meta-Analyses", served as the framework for the systematic review presented in this paper. While healthcare professionals have primarily utilized PRISMA for conducting systematic reviews and meta-analyses, experts in environmental management have also adopted this framework to perform systematic evaluations beyond the medical field.

Resources

This study conducted a comprehensive literature review of works published over the past 23 years on KM techniques employed in businesses, including coaching, mentorship, and apprenticeship. The following five major databases were searched for relevant literature: Google Scholar, Scopus, OpenAlex, CrossRef, and Web of Science. Harzing's Publish or Perish software was utilized for this purpose. A projected publish or perish search strategy is presented in Table 1.

Systematic Review Process

To gather relevant literature, four main stages must be carried out given the systematic review process: identification, screening, eligibility, and data extraction.

Identification

The first process of undertaking systematic reviews is identification. Identification means finding the most relevant studies, using keywords, dictionary terms, thesaurus, encyclopaedias, etc. The keywords used help to build the "search string" for the research (Table 1). The software's search function was improved by using phrases. "Knowledge management," "knowledge management strategies," and "coaching, mentorship, and apprenticeship in organizations" were the search terms used.

Screening

The second part of the systematic review process is termed screening. Now, it is essential to collect the articles linked to the topic of the systematic review and exclude all unrelated items. Table 1 shows the inclusion and exclusion criteria that needs to be followed in finding related articles.

Table 1. Search strategy for articles on coaching, mentorship and apprenticeship as KM strategies in organizations.

Search Strategy Item	Search Strategy
Databases	Google Scholar, Scopus, Crossref, Open Alex, Web of Science and Google semantics
Language	English
Time Filter	2000-2023
Spatial Filter	Global
Inclusion Criteria	The paper should be: 1. A peer-reviewed or grey literature 2. a paper published from 2000 and above 3. published in English language
Exclusion Criteria	The paper should be: 1. Conducted outside knowledge management 2. A study published online before 2000 3. A report, abstract, commentaries, minutes, and letters to editors.

Eligibility

The researcher looked through Google Semantics for more records. Additionally, pertinent articles were looked up in a reference list of records that qualified. The year of publication, the study's title, and its objective were the three topics used to independently extract the data. Relevance was evaluated in the selected papers' bibliographies. After additional screening, 50 out of the 100 articles that were initially chosen satisfied the inclusion criteria. The primary criterion for selection was the subject matter. The gathered information was examined in the process of doing the thematic analysis and presenting the findings. Every article that was consulted had a structured format that included the name of the author, the publication year, the title of the paper, and the main conclusions of the research.

Data Extraction

The rest of the articles were reviewed, and the data was extracted. The abstract of the selected articles were read, then the full text was also read to identify main and sub- themes tied to the objectives. Subsequently, the identified main themes and sub-themes. After that, themes and sub-themes were rearranged to establish a structure for the selected articles.

Findings

According to the results shown in Table 2.0, in total, 50 articles were chosen for this study. The names of the authors of the articles are captured in Table 2.0 in this study. Besides, the selected articles were published in the years ranging from 2000 to 2023. It aims to identify KM strategies used by organisations. Table 2 displays a summary of some of the results.

Table 2.0 Summary of Systematic review for Coaching, Mentorship and Apprenticeship as Knowledge Management Strategies in Organisations

Author(s)	Year	Article Title	Key Research Findings
Ramjeawon, P.V. and Rowley, J.	2018	Knowledge management in higher education institutions in Mauritius	All the organisations were involved in Knowledge generation, sharing, and transfer. None of the involved institutions had a KM strategy (KMS), despite the fact that participants could talk about KM procedures.
Conway, C.	2007	Mentoring Managers in organisations	There were few women in leadership roles hence a mentorship programme was rolled out to help bring up more women into top managerial roles.
Martensson, M.	2000	A critical review of knowledge management as a management tool	The study highlights importance of support from top management, knowledge sharing and the importance of culture and people
Lustri, D., Miura, I., & Takahashi, S.	2007	Knowledge management model: practical application for competency development.	To provide a case study of a legal services company that used a knowledge management (KM) conceptual model to implement a program for developing competences, as well as the KM model itself.
Evans, M.M., Dalkir, k. and Bidian, C.	2014	A Holistic View of the Knowledge Life Cycle: The Knowledge Management Cycle (KMC) Model.	The study discusses knowledge and knowledge assets; activities and technologies used in the management of organizational knowledge assets.
Abou-Zeid, E.	2002	A knowledge management reference model.	A three-layer knowledge management reference model was developed which covers; First layer: the enterprise's cognitive domain, Second layer: functional layer, Third layer: KM resource layer
Alavi, M. and Leidner, D. E	2001	Knowledge management and knowledge management systems: Conceptual foundations and research issues	The alternative perspectives on knowledge and taxonomies of knowledge were discussed.

Kislov, R., Walshe, K., & Harvey, G	2012	Managing boundaries in primary care service improvement: a developmental approach to communities of practice	The study demonstrated that professional boundaries between general practitioners, practice nurses, and practice managers who co-located in the same practice for a considerable amount of time could be successfully crossed despite epistemic and status differences, resulting in the formation of multiprofessional CoPs.

Knowledge management strategy (KMS) is a main theme found from the selected articles for this study. Mentoring, apprenticeship and communities of practice (COPs) are sub-themes identified from the selected articles for this review.

KM Strategies

A knowledge management strategy (KMS) is termed as a structured guideline of how an existing body will acquire, store, transfer, and exploit its shared knowledge to achieve its set goals, with the motive of fostering innovation, efficiency, and competitive advantage. Mentoring/ peer mentoring, apprenticeship, coaching and communities of practice (COP) are some KMS identified from the review. Mahapa (2013) opines that the execution of KMS tends to enhance the development of novel idealogies, goods, and methods of operation that ultimately improve organizational performance. Arguably, for companies to function at their optimal best, they must adequately exploit their knowledge resources.

Mentoring/ Apprenticeship

Mentoring can be defined as the existing relationship between an expert and a novice with the sole purpose of the former guiding the latter to come to speed whereas apprenticeship entails the implementation of a planned learning program to impart skills and knowledge via hands-on practice and training. According to Bryant (2005), training program organized for peer mentors tend to ameliorate the perceived levels of knowledge and abilities among peer mentors and mentees. When employees are mentored by their peers, higher levels of knowledge generation and sharing are attained.

Coaching

Coaching is a growth process where a coach assists a coachee in attaining set goals through the provision of counselling, teaching, and helping their learning and progress, mostly through a structured, goal-oriented approach. Mavuso (2007) opines that coaching and mentoring are not the same. He is of the view that mentoring is done by two committed individuals whereas coaching might not be done necessarily by two committed individuals.

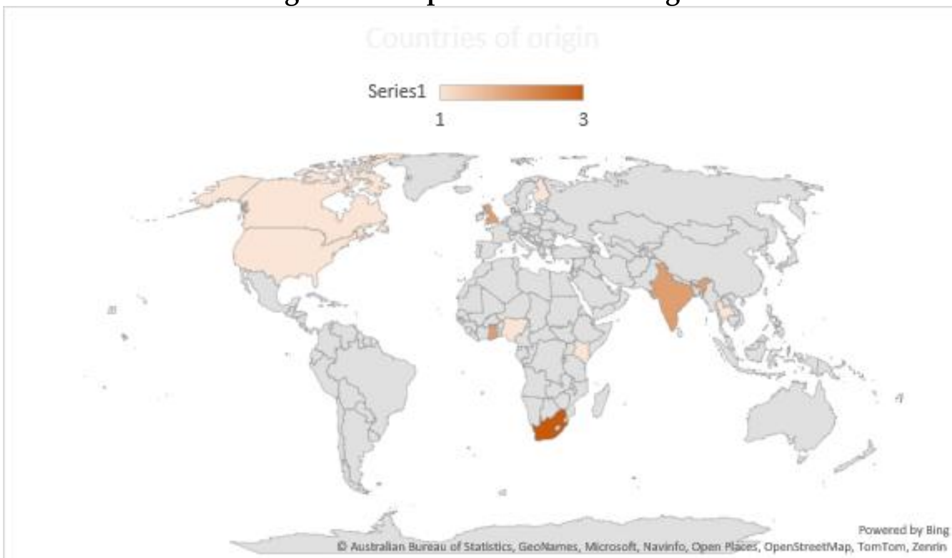
Communities of Practice (COP)

A COP refers to a group of individuals who are bonded by a common interest, profession, or goal. Members enhance skills and knowledge base through regular interactions and collaboration to provide solutions to identified problems while sharing best practices. Kislov et al. (2012) suggest that professional restrictions between general practitioners, practice nurses, and practice managers who co-sited in similar practice for a substantial amount of time could be efficaciously navigated notwithstanding the knowledge and status differences, resulting in the formation of multiprofessional CoPs.

Regions

The review identifies areas where KMS related studies have been conducted. Figure 1 demonstrates a map of such countries.

Figure 1.0 Map of countries of origin



Source: Author's construct 2023

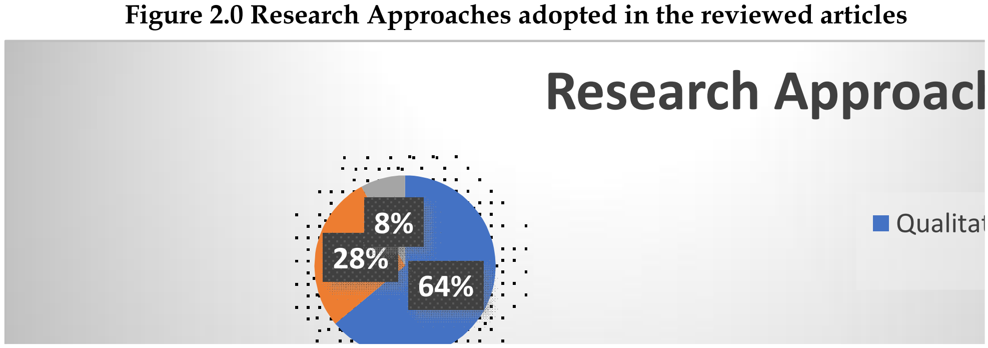
More research on KM strategies has been conducted in Asia and Africa than in any other region. A few projects have been completed in Australia, the Americas, and Europe.

The knowledge management industry is anticipated to continue expanding and evolving from a global perspective. Organizations are playing an increasingly vital role in developing strategic knowledge management techniques, as the transfer of information becomes an essential component of business processes worldwide.

Research conducted in diverse geographic contexts can yield valuable insights applicable to the development of contemporary knowledge management (KM) methods that deliver tangible outcomes. A more comprehensive approach to KM can be achieved by adopting and implementing lessons learned from one location to another.

Arguably, there is a widespread commitment to developing knowledge economies, as evidenced by the international focus on research related to coaching, mentorship, and apprenticeship as KM techniques in businesses. Collaboration, cross-cultural understanding, and the sharing of best practices are encouraged, particularly since most KM-related studies have been conducted in Asia and Africa. This global perspective ultimately promotes KM techniques and reinforces the notion that information is a strategic organizational asset that can be leveraged worldwide.

Figure 2.0 Research Approaches adopted in the reviewed articles



Source: Author's construct 2023

The data offers insights into the research methodologies employed in the reviewed articles. Of the articles examined, 32 utilized a qualitative approach. The research designs, data collection methods, and research paradigms employed in these 32 articles included semi-structured interviews, standard interviews, case studies, content analysis, documentary analysis, direct observation, participatory observation, literature surveys, grounded theory, theoretical reviews, literature reviews, systematic reviews, extensive literature scanning, searches of electronic databases, interpretive case studies, interpretivist approaches, and social constructivist approaches. Fourteen articles reviewed adopted a quantitative approach. The research design and data collection methods included the administration of questionnaires, structured surveys, and quasi-experimental designs. Four of the reviewed articles employed a mixed-methods approach, utilizing research designs and data collection methods that consisted of questionnaire administration, observations, interviews, and the analysis of institutional documents.

Discussions and conclusions

Organizations should apply knowledge effectively to generate both economic value and social good. Members should acquire intangible talents in addition to traditional soft skills and explicit knowledge (Bierly, Kessler, and Christensen, 2000; Rowley, 2006; Nonaka and Takeuchi, 2019). Over the past 23 years, numerous articles on KM have been published; however, there appears to be a lack of literature addressing coaching, mentorship, and apprenticeship as KM strategies within organizations. The public sector in Sub-Saharan Africa suffers from inadequate knowledge retention measures. For instance, the University of Zambia (UNZA) has faced challenges related to succession planning, coaching, mentorship, and training and development aimed at acquiring expertise specific to the profession (Dewah and Mutula, 2016).

In their research, Ramjeawon and Rowley (2018) found that while most participants in their study of KM in higher education institutions in Mauritius were familiar with the term, their institutions lacked a documented KMS. Given the complexity of KM's impact, support from upper management, knowledge sharing, and organizational culture are essential, according to Martensson (2000).

A study by Conway (2007) analyzed a case study in which Brent aimed to create a workforce that better represents the community it serves. Women in middle management positions were notably underrepresented. To address this issue, the Opportunity 2000 Group established a mentorship program exclusively for female middle managers. These women were paired with male mentors, in addition to a few female mentors. According to the council, research and the real-world experiences of numerous organizations have shown that formalizing male mentorship for women can help eliminate some of the barriers that prevent women from reaching top positions and advancing in their careers. It is important to note that coaching and mentoring are not the same. One key technique for knowledge transfer is mentoring, which can be conducted either in person or electronically. The emerging trend is to conduct mentoring sessions electronically. Typically, two dedicated individuals engage in the mentoring process (Mavuso, 2007), especially when it occurs outside of an organizational context. Mentoring can take place within various contexts, including personal-professional relationships, educational processes, organizational cultures, global settings, and systemic reform plans aimed at developing human capacity. Theoretical mentoring frameworks navigate this complex definitional landscape. Mentoring, as described by Mullen and Klimaitis (2019), is characterized by profound and equitable learning that has the potential to influence society.

In Ghanaian universities, the concept of KM is widely recognized. Effective KM processes utilize various systems and tools, including the internet, intranet, email, mobile technology, and DVD/VCD/CD formats, to enhance knowledge management within these institutions. Communities of Practice (COPs) serve as an additional valuable KM resource. However, it remains unclear how complex practice landscapes, characterized by multiple COPs, influence knowledge exchange both within and between organizations, particularly regarding the implementation of service improvement programs in primary care (Kislov et al., 2012). COPs can foster collaborative learning by leveraging both codified and tacit knowledge. The emerging notion of COPs as a strategy for knowledge transmission emphasizes the sharing of information that is often implicit in nature (Krishnaveni et al., 2012). An increase in the sharing of experiences would facilitate employees' ability to articulate tacit knowledge into explicit concepts through the use of metaphors and analogies (Chou et al., 2005).

Through knowledge-based remuneration policies, information technology practices, and strategic management of knowledge and competencies, firms can enhance their innovative performance (Inkinen et al., 2015). Information and Communication Technology (ICT) has become an essential tool for collecting, organizing, and disseminating data daily. Thanks to ICT, employees can easily share both new and existing knowledge through information systems, which significantly contributes to workplace improvement (Govender et al., 2018). Overall, practitioners generally exhibit positive attitudes and motivations toward knowledge sharing.

However, time constraints stemming from their busy and demanding workloads represent the most significant obstacle to this process. Additional barriers include a competitive work environment, insufficient proactive management strategies, inadequate IT infrastructure, unclear responsibilities and budget allocations, among others (Sik-wa and Chu, 2006).

The future of business success depends on how effectively organizations can implement KM techniques and strategies to enhance productivity and foster innovation. Ojo (2016) conducted a study on KM practices in Nigerian universities, developing a conceptual model that delineates the steps necessary for implementing KM techniques. These steps include knowledge identification, storage, sharing, application, and assessment. Universities can utilize this model as a framework to guide their KM initiatives and efforts.

To promote best practices and identify effective strategies, a KMS in a higher education setting should leverage the institution's people, procedures, technologies, and organizational structure. Similarly, Petrides and Nguyen (2006) argue that essential components of successful KM projects include a culture of information sharing, a reward system, and an environment that fosters information-based decision-making.

In conclusion, mentoring-based relationships have stood the test of time and are likely to continue growing and multiplying. Six of the most common methods for acquiring tacit knowledge include in-person interactions, expert interviews, storytelling, mentoring, apprenticeship, and socialization (Nonaka and Takeuchi, 2019). Organizations must develop comprehensive written KM strategies that are implemented organization-wide. This study supports the assertion that a KMS is essential for enhancing organizational performance and fostering innovation. Future research should delve deeper into the challenges posed by mentorship theories, KM models, lived experiences, and real-world contexts. A critical question to explore is the significance of mentoring within the close relationships examined in this study. Additionally, further experimentation with mentoring alternatives, such as e-coaching and e-mentoring, utilizing updated frameworks from practical knowledge, is necessary.

Limitation and direction for future research

This review focused on articles related to KMS, coaching, mentoring, apprenticeships, and COPs. Future studies could explore technology and KM strategies such as e-coaching, e-mentoring, and e-apprenticeships.

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Financial Technology (FINTEC), its impact on the banking sector in the Ghanaian commercial banks

Joseph L. A. Mensah
Mrs Mercy Kwakye
Samuel Agyapong
Pentecost University, Ghana

Keywords
Blockchain, Cryptocurrency, FinTech, MBridge, Mobile Money, and Traditional Banks

Abstract
This research problem is Financial Technology (Fintec), Its Impact on the Banking Sector in the Ghanaian Commercial Banks. The banking sector of Ghana has evolved in several ways. The evolution of the operations of the banking sector in the Ghanaian economy has not come without its challenges. For instance, the introduction of digital currency by several global economies to provide other means of providing financial services, as an option of Traditional Banking (TB) operations is on the increase: This evolvement has had a direct impact on TB sectors to adopt a similar approach, to provide wide range of banking activities to meet different levels of customers requirement. The introduction of blockchain, and its associated technology such as cryptocurrency, provides a generally more secure way of transactions outside the TB operations. In the bid to improve the operations of the banking sector, these sectors may have to compete with the growing acceptance of the different FinTech technologies that may not be associated with mainstream banking activities. Ghana is no exception, as the Central Bank of Ghana has frantically announced the introduction of digital currency into the market. The research investigates the impact of the evolution of the Fintec Technology and its impact on the TB systems in Ghana focusing on the employee in the banking sector. The research employs a quantitative method. The research concluded that in general regulated FinTech has a positive impact on the traditional commercial banks. However, FinTech technologies, which are not within the legal regulatory framework may have a disruptive impact on the traditional commercial banks. However, resolving this requires awareness, training, and a regulatory framework to govern their activities.

Introduction

With the advancement in technology, one of the latest technologies adopted by banks is electronic banking (e-Banking) or Digital Banking (DB) (Ayinaddis., Taye, & Yirsaw, 2023). As a result, e-banking is very attractive to banks and customers. Barri Segal and Laura Woods (2018) indicated that online banking has become so widespread today that customers expect accounts to include free online banking, resulting in many banks desiring to operate only on the Internet, which decreases overhead costs while offering more competitive rates on savings accounts. With the high demand from customers for bankers to be agile, the shift of Traditional Banking (TB) operations to online is developing rapidly, because of various benefits such as cost and time effectiveness (Morawetz, K.2018). Technological developments in the banking sector have speeded up communication and transactions for clients, however, the major technological changes that compete among the banks are not in the banks industries, but the immerging technologies such as mobile money, digital currencies and cryptocurrencies have added another dimension to the way customers transact financially.

According to Chan (2021), digital currency is a brand-new design, which is not only different from the tokens based on accounts but also different from the tokens which are lack value support and issuer management such as Bitcoin. DB is online banking but taken to the next level. Online banking and DB eliminate physical and geographic boundaries and time limitations of banking services (Chan, 2021, Morawetz, K.2018). Online Banking facilitates Internet banking such as e-banking services conducted through a secure website operated by local banks and includes online enquiry, e-payment, and e-transfer (Yoon, 2010). However, Digital Banking (DB) provides more sophisticated security measures, such as biometric verification, artificial intelligence algorithms based on behaviour that identify anomalous activity, and safe third-party integrations, which may be included in DB platforms.

E-banking reduces not only operation costs to the bank but also leads to a higher level of customer satisfaction and retention. The customers can access funds and transfer funds between accounts, pay bills and make purchases 24 hours a day, 7 days a week (Koirala, 2019).

Statement of the Problem

Previously, the banking industry was with simple electronic like ATMs and SMS alerts, however, the situation has changed in recent times due to the introduction of technological follow-ups like ATMs, Electronic Funds Transfer at Point of Sale (EFTPOS), Internet banking, SMS alerts, and credit and debit cards have graced the Ghanaian banking environment) (Sanusi & Yakubu, 2023). In addition to direct banking technologies, DB, mobile money banking, and cryptocurrencies are also competing fairly with the operations of the banking industry. Karataev (2024) suggested that global geopolitical transformations always create new risks for the financial system. For instance, the increase of sanctions and removal of Russia from the SWIFT system has led to Russia developing a new financial system which competes with SWIFT. According to Karataev (2024), Russia's subverting international sanctions by building new financial pathways presents new risks.

Ghana is yet to develop a strong electronic banking regulation: there are many ambiguities about the application of e-banking (Sanusi & Yakubu, 2023). The problem of the study therefore is to investigate the Electronic Banking products and services, and the extent to which they contribute to the bank's customer satisfaction and service delivery in the banking sector of Ghana. Thus, providing online facilities by banks is increasingly becoming a "need to have" rather than a "nice to have" service.

Research Questions

1. What is the impact of E-Banking Services on the banking sector?
2. Is there any impact of DB on the banking sector?
3. What is the impact of non-regulatory financial platforms such as the blockchain and its related cryptocurrency on the banking sector?

Hypothesis

Null hypothesis: there is a significant impact of Electronic Banking services on customer satisfaction in the Ghana Banking Sector

- H 1; there is a significant impact of electronic banking on customer satisfaction in the Ghana Banking Sector.
- H2. There is significant knowledge of electronic banking among bank customer
- H 3; There is a significant impact of DB on customer satisfaction in Ghanaian commercial banks.
- H4. There is significant awareness of DB among banks, customer
- H 5. There is significant awareness of blockchain and its related cryptocurrency among customers in the Ghanaian Banking sector.
- H6. Blockchain and related cryptocurrencies may impact the patronage of TB systems

Research Objectives

- To examine the impact of e-banking service delivery on customer satisfaction in Ghana Commercial Bank.
- To understand the significance of DB in the Ghanaian banking sector.
- To study the impact of the blockchain system and its related cryptocurrency on the banking sector.

Literature review

Electronic banking has transformed the way customers interact with financial institutions, offering convenience and accessibility through various digital channels (Ayinaddis., Taye, & Yirsaw, 2023). According to the research conducted by Ayinaddis, Taye, and Yirsaw (, 2023), there is a significant effect of the variables responsiveness, reliability, security and privacy, speed, and convenience on customer satisfaction. Electronic banking has a wider concept than internet banking: whereas electronic banking covers financial transactions such as Digital Banking (DB) and blockchain, internet banking is limited to online banking. Ashburn (2024), defined Electronic banking as the use of computers, phones, and other technologies to facilitate banking transactions rather than through human interaction (Singhal 2008). Avasthi (2000-01) suggested that revolution of information technology has brought about a fundamental transformation in the banking industry. However, these services have graduated to online bill payment, transfer of funds between accounts and cash management services for corporate organizations and individuals (Khan et al., 2009). E-banking system signifies a range of systems ranging from automated teller machines (ATM), electronic banking, computer banking, cable banking, online banking and most recently, smartphone banking (Kim et al., 2011).

Choudhury and Bharttachargee (2016) examined the nexus between electronic banking channels and customer loyalty, which showed that electronic banking delivery channels have a strong positive impact on customer loyalty. Fatemeh Sakhaei (2014), investigated service quality indexes in Internet Banking, which indicated that service quality have meaningful relationship with customer satisfaction, however, Internet Banking reliability has the most relation on customer satisfaction. Vadivelu Tharanikaran's (2017), study indicated high degree of service quality and customer satisfaction in the electronic banking in Ghana Commercial Bank, Obuasi branch.

Proliferation of Standardized Platforms Regulator

The TB sector has remained largely untouched, due to the strict adherence to the use of common platforms that allow a single interface by the banking institutions to conduct transactions locally and internationally. For instance, the Society for Worldwide Interbank Financial Telecommunication (SWIFT) has a monopoly position for international financial transactions as it is the only institution that provides a platform for almost any international transaction in the regular banking sector (Robinson, Dörry, Derudder, 2022; Köppel, J. 2011). However, the introduction of new technologies has provided huge competition and alternative solutions such as banking, payments, and crediting (Ahmed & Al-Hakim, 2018).

Financial technology (FinTech) attracted overwhelming global interest from different interested parties (Ahmed & Al-Hakim, 2018). In addition, studies conducted recently have also drawn attention to previously less explored forms of financial information, which is gaining traction in light of the rise of fintech and digital platforms: payment transaction data (O'Dwyer, 2019; Westermeier, 2020). Bitinas and Burkšaitienė (2024) stated that one of the most attractive markets for service providers in the payment industry is financial technology (Fintech), which has drawn a lot of attention in the past ten years and allows them to increase the effectiveness of financial activity systems.

Nearly, all financial markets are now digital, which has led to unprecedented changes in the financial industry resulting from a variety of fintech actors, innovations, and trends, including the ever-increasing digitalization of payments ((Arner et al., 2015; Wójcik, 2021). Robinson, Dörry, and Derudder (2022) suggested that there are two basic types of payment mechanisms or money forms: objects, tokens and claims, or accounts deposits at the banks (Abrazhevich, 2001; Green, 2008). Payment tokenization is a security approach that uses a random, unique sequence of characters called a "token" to substitute sensitive payment information, such as credit card numbers. As a result of this procedure, credit card information is kept safe throughout transactions, as it is neither utilized nor retained. Due to the bipolar systems in the geopolitical atmosphere, new platforms are being created to circumvent the monopoly of the swift system.

BRICS PAY is a digital payments platform that is jointly developed by the member countries of the BRICS (Brazil, Russia, India, China, and South Africa) economic bloc (BRICS Business Council, 2023). Brics pay provides alternative payment to countries to circumvent the tight grips of the SWIFT system. The Brics Pay system is blockchain-based, which operates on a Distributed Ledger, however not a Central Bank Digital Currency (CNDC) or a Cryptocurrency. The UK's Standard Chartered Bank has integrated Brics Pay into its digital payment platform to enable its customers to make payments to other BRICS countries. In effect, BRICS PAY prevents third-party actors from seizing the financial assets or removing these countries from the global financial transactions networks (Moderndiplomacy, 2023).

Brief History of the Banking Industry in Ghana

The board of Elder Dempster registered the Bank of British West Africa (BBWA) as a limited liability company, and on March 31, 1894, started operations, first in Lagos and then in England (Vidal L Buckle & Co, 1996), and later establish a branches in Accra and the Gold Coast (now Ghana) in 1896: This branch later changed its name to Standard Chartered Bank in 1969 (Mensah, 2017). After Gold Coast Independent (Named Ghana), the Bank of Gold Coast was split into two: the Ghana Commercial Bank, and the Bank of Ghana, which functioned as a bank and now the central bank (International Institute of Advance Study of Culture Institution & Economic Enterprise, 2015). Among the banks that were legally incorporated between 1957 and 1965 are the Ghana Investment Bank, which functions as an investment banking institution; the Agricultural Development Bank, the Merchant Bank, and the Social Security Bank (Vidal L Buckle & Co, 1996). The 1989 Banking Law also gave qualified locally incorporated entities the ability to apply for licenses to function as banking institutions. Several corporate organizations, including Meridien (BIAO) Trust Bank, CAL Merchant Bank, Allied and Metropolitan, and ECOBANK, were subsequently granted licenses to conduct business as banks.

The Two Sides of the Coin: Digital Currency and Cryptocurrency

Digital currency is a completely new concept that differs from tokens based on accounts such as lacking issuer management and value support (Li, Xiaoya, Jiehua, & Jie, 2021). Digital currency only exists in the digital realm. Murinde, Rizopoulos, and Zachariadis (2022) suggested that the banking industry has experienced significant technological and regulatory changes brought about by digitalization, cybersecurity adjustments, deregulation and liberalization, and breakthroughs in information and communication technology. For instance, the Bank of England indicated in experimenting with a digital currency, digital pound (Jones, 2023). Also, central banks across the world are studying digital currencies, with the European Union due to publish a draft law in May (2023) setting out a legal framework for a potential digital euro (Jone, 2023). The HM Treasury (2024), indicated that the introduction of a digital pound would complement the role of cash in a digital world and give people more choice in how they make everyday payments.

According to the Business Financial Times (2023), the Central Bank of Ghana is dedicated to financial innovation, as the introduction of the e-cedi as a digital currency issued by central banks offers promising opportunities for financial inclusion. China is at the forefront of the development of digital currency, with the introduction of digital yuan or renminbi (Chan, 2023). The global south trade group BRICS+, comprising Brazil, Russia, India, China and South Africa, Saudi Arabia, Egypt, Ethiopia, Iran, and the UAE are also working assiduously to introduce digital currency to facilitate trade among their members (Ledger Insights, 2024). On January 30 2024, China and the United Arab Emirates successfully executed the first cross-border payment utilizing the digital dirham (Otorbaev, 2024).

The origin of cryptocurrency was a pseudo-inventor known as Satoshi Nakamoto who provides peer-to-peer transactions avoiding the TB systems (Hodson, 2016). Tang (2019) argues that P2P platforms can be seen overall as supplements to banks and not as a substitute. Not all FinTech does have access to central bank liquidity like banks do, which limits the liquidity that FinTech lenders may offer: This is one of the reasons FinTech cannot completely replace traditional banks. Moreover, as explained by Navaretti et al. (2018), FinTech firms cannot replace banks but rather coexist with the banks. The IMF (2019) issued a policy Bali Fintech Agenda (BFA), which is a set of high-level topics that nations should take into account when debating their respective fintech policies at home to control fintech risk.

Conceptual Framework

The conceptual framework is design to identify the reliability of the dependent variable on the independent variable. In the study, the banking systems is the dependent variable, and the independent variables are the Financial Technology (FinTech). This research Focuses on TB is in the larger financial setup, the introduction of any financial technology may have a direct impact on the TB system.

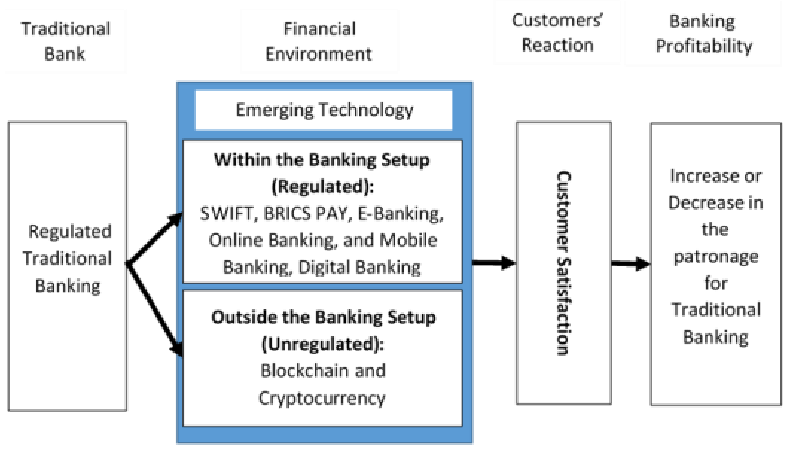


Figure 6: Conceptual Framework

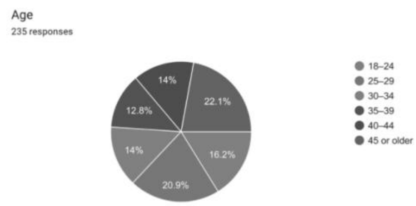
As indicated in the diagram, the financial environment may have some of the technology strictly regulated by the banking regulatory body (E-Banking, visa systems, mobile money) while others may not be regulated. General the banking system is impacted both by regulated and unregulated FinTech, if the unregulated FinTech provides more satisfaction to customers, the banking industry may lose its market share to the unregulated FinTech, and vice-versa.

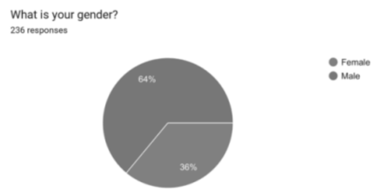
Research Methodology

The research uses a quantitative method, which provides a scientific approach to research (Mohajan, 2020). The sampling technique for the study is non- non-probabilistic sampling; convenience sampling. Survey questions were manually distributed through e-mail, whatApp. The researcher may contacted banks' staff to send the link of the Google form via whatApp platforms or emial, where the questionnaire has been designed for customers to answer. The data was collected using snowball, purposive, and random sampling. An inform concern were attached to each of the questions assuring the participants of their full anonymity, and data collected used for the research and nothing else. Secondary sources of data were used, to provide triangulation, to find out if there was a bearing of the primary data with the secondary data.

Findings/results

Participants were encouraged to share the research questionnaires through their email contact and WhatsApp group platform to increase the range of responses. The data collected were uploaded on SPSS for analysis. From the SPSS, a frequency table that reports the percentage of each of the categories and frequencies that are easy to understand and interpret was used. In this study, 236 respondents and one sample t-test were performed to test the hypotheses. The correlation coefficient was used to depict the association between e-banking services and customer satisfaction. Other than the descriptive analysis were conducted to validate the hypothesis. Descriptive statistics was used to explain the demographic characteristics of the respondents along with e-banking services and customer satisfaction. The following are the demographics:





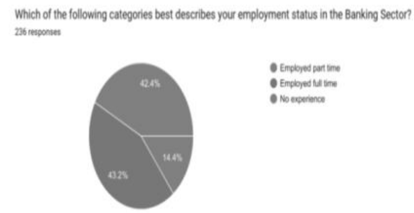
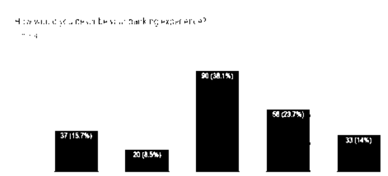
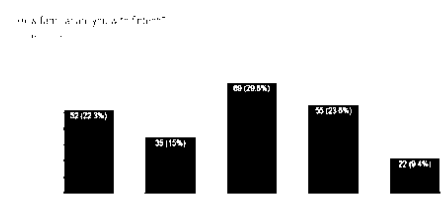


Figure 7:Age Distribution *Figure 8: Gender Distribution*
Figure 9: Employee Distribution

Figure 2 indicated the age groups of the respondents, these were in percentages as follows: 18-24 (16.2%), 25-29 (20.9%), 30-34 (14.0%), 35-39 (12.8%), 40-44 (14.0%), and 45 or older (22.1%). Figure 3 shows that respondents male category was greater than the female: Male category forms 64.0%, while female is 36%. Out of the 236 respondents, 56.8% were bankers representing 134 of the total participants, non bankers represented 43.2%, representing 102 participants. Requesting to know how knowledgeable the participants are in fintech, using likert scale (5-Point Likert Scale: 1= No Experience, 2= Slightly Experience, 3=Moderately Experience, 4=Experience, 5= Very) for Figure 4, 5, and 6 tested various perceptions.





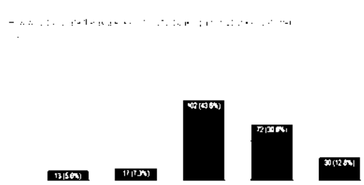
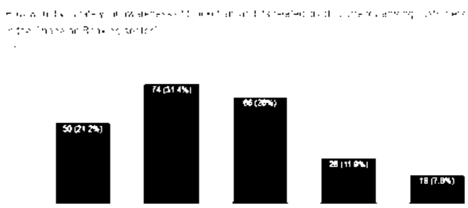


Figure 10: Banking Experience rating (3.12) *Figure 11: Fintech Understanding (2.83)* *Figure 12 Awareness of Digital Currency (3.38)*

For instance the average banking experience of the participant is 3.12 indicate in figure 5, shows a moderating significance in banking among experience among the participants. However, participants understanding of the concept of FinTech is 2.83 on average as shown in Figure 6. Figure 7, indicates that the awareness of digital currency among respondents is significan with average score of 3.8: This supports Hypothesis (H4: There is significant awareness of DB among banks and customers), and the same is true for hypothesis 2 (H2: There is significant knowledge of electronic banking among bank customer). However, the awareness of the types of FinTech is not the same across the technological systems in place. for instance, respondent had an average score of 2.53 when asked about their awareness of blockchain systems and cryptocurrency. Figure 8, further clearly indicates that the awareness of FinTech technologies is not even across respondents. Whereas Fintech technology like digital currency, and mobile money are well known among the respondents, blockchain and associated cryptocurrency are not popular among participants: This does note suppoert the Null Hypothesis H 5 (There is significant awareness of blockchain and its related cryptocurrency among customers in the Ghanaian Banking sector), and that we should accept the alternative hypothesis which indicates that there no significant awareness of blockchain.

Figure 9, throws more light on the patronage of Financial technology among respondents. The chart indicates that mobile payments are widely used with an average of 89.7% usage, followed by online banking at 63.7%, and cryptocurrency at 11.8% respectively.



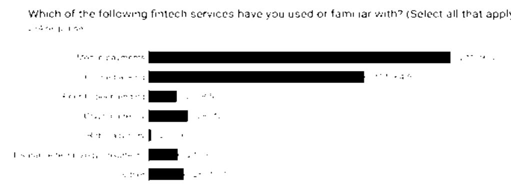
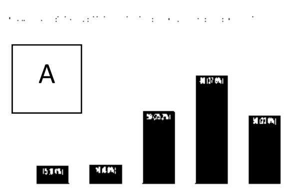
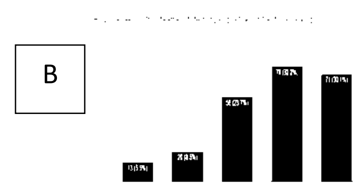
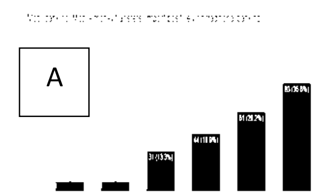


Figure 13: Awareness blockchain and cryptocurrency (2.53) *Figure 14: Patronage of Fintech*

Figures 8 (A & B) and indicate participants rating on the impact of fintech on TB in Ghanaian Banking Sector (5-Point Likert Scale: **1= Not Significant, 2= Slightly Significant, 3= Moderately Significant, 4= Significant, 5= Very Significant).** Figure 7 (A) has an average score of 3.65 and Figure 7 (B) has an average score of 3.71: Both figures indicate a significant impact of Fintech on the TB system. However, figure 8 (A&B) further indicates that this impact is significant and positive.







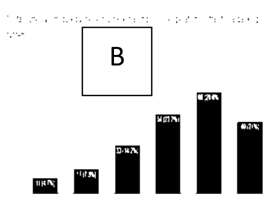
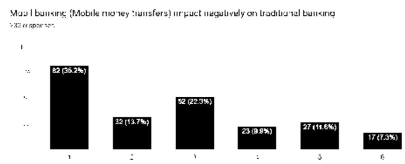
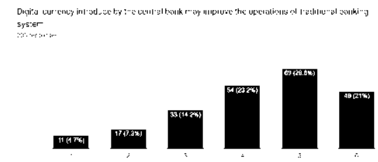


Figure 15: A B: Significant Impact of fintech on traditional banks *Figure 16: A & B: fintech impact on traditional banks Positively*

Figure 10 (A), indicates that mobile money have high significant impact on TB sector with an average score 4.73. Figure 10 (B) provide similar average score of 4.26, which indicates that participants believe that the introduction of the digital currency may impact positively on the commercial banks. In addition, figure 11 (A&B), indicates that Fintech provides significant customer satisfaction, with an average score of 3.86 representing a significant impact on customer service. In addition when participant were asked to rate their acceptance of mobil banking paying negative impact on TB the rating was (2.71), indicated in figure 12. This indicate less significant impact on TB.





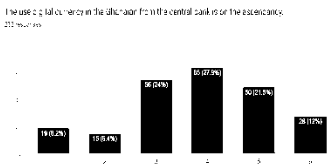


Figure 17: Mobil banking impact Nagtively 2.71 Figure 18: Figure 10: DB improve TB Figure 19: Digital Currency Increasing

Also, figure 13 indicated similar findings related to Digital Banking (DB) and customer satisfaction. Respondent generally believes that DB provides significant satisfaction to customers, and the use of digital currency is increasing as indicated in Figures 13.

The conclusion may be drawn for hypothesis H1- there is a significant impact of electronic banking on customer satisfaction in the Ghana Banking Sector: Albeit, blockchain systems such as cryptocurrency work outside the TB systems, there is a wide belief among respondents that blockchain systems may have a negative impact on TB systems. For instance, when participants were asked about the disruptive impact on the operations of the TB system, the average score was 3.28, which indicates a moderately significant impact on the TB system as indicated in Figure 10. So the conclusion for hypothesis 6 may be that H6. Blockchain and related cryptocurrencies may impact the patronage of TB systems.

- H 1; There is a significant impact of electronic banking on customer satisfaction in Ghana Banking Sector: True
- H2. There is significant knowledge of electronic banking among bank customers: True
- H 3; There is a significant impact of DB on customer satisfaction in Ghanaian commercial banks: True
- H4. There is significant awareness of DB among banks, customers: True
- H 5. There is significant awareness of blockchain and its related cryptocurrency among customers in the Ghanaian Banking sector: False
- H6. Blockchain and related cryptocurrency may impact the patronage of the TB systems: True

Analysis II

The next analysis check if there is correspondent relationship between those working with the bank and those who have no banking experience. T test is use to test if the population of the different group interest (i.e. those in the banking sector and those who do not have banking experience) may have impact on the results: $t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{(s^2(\frac{1}{n_1} + \frac{1}{n_2}))}}$

Table 2: Statiscal Analysis 1

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.701	.129		13.154	.000
	How would you rate your awareness of blockchain and its related cryptocurrency among customers in the Ghanaian Banking sector?	.013	.032	.030	.393	.695
	Knowledge in fintech	-.096	.028	-.249	-3.395	.001

How would you rate the awareness of DB among banks' customer?	-.011	.042	-.022	-.270	.788
a. Dependent Variable: Work in the Bank					

The **dependent variable** is **"Work in the Bank,"** and thus has three independent variables. the Constant (B = 1.701, p < 0.001). This represents the baseline level of "Work in the Bank" when all independent variables are zero. Since p = 0.000, and it is **highly significant**.

"How would you rate your awareness of blockchain and its related cryptocurrency among customers in the Ghanaian Banking sector?" B = 0.013: Indicates a very small positive relationship with the dependent variable. **t = 0.393, p = 0.695**: with high p-value (>0.05) means this variable is **not statistically significant**, meaning awareness of blockchain has no meaningful effect on working in a bank.

1. **"Knowledge in fintech" B = -0.096**: A negative relationship with the dependent variable. **t = -3.395, p = 0.001**: Since p < 0.05, this variable is **statistically significant**. **Interpretation**: Higher knowledge in fintech is significantly associated with a lower likelihood of working in the bank. This could indicate that those with fintech knowledge may prefer non-TB roles or fintech-related careers.
2. **"How would you rate the awareness of Digital Banking (DB) among banks' customers?"**

B = -0.011 indicates a very small negative relationship. **t = -0.270, p = 0.788**: The high p-value (>0.05) means this variable is **not statistically significant**.

Overall Insights

Only **"Knowledge in fintech"** has a statistically significant effect (p = 0.001). **Blockchain awareness and DB awareness** do not significantly influence the likelihood of working in a bank. The negative coefficient for **Knowledge in fintech** suggests that individuals with higher fintech knowledge might be less likely to work in a TB sector. The research concludes that there is no significant relationship between the awareness of FinTech base on the person's job relationship.

Table 3: Statiscal Analysis II

Coefficients[a]

Model	Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
(Constant)	.783	.361		2.167	.031
How would you rate the awareness of DB among banks' customer	.461	.097	.348	4.758	.000
How would you rate your awareness of blockchain and its related cryptocurrency among customers in the Ghanaian Banking sector?	-.031	.081	-.028	-.384	.701
Blockchain and related cryptocurrencies may disrupt the operations of TB systems	.137	.063	.151	2.180	.030
The use of digital currency in the Ghanaian from the central bank is on the ascendancy.	.031	.065	.034	.479	.632

a. Dependent Variable: Knowledge in fintech

This table presents the results of a multiple linear regression analysis, where the dependent variable is "Knowledge in FinTech." And here is the breakdown of the findings:

1. **Constant (Intercept)**: **B = 0.783, p = .031**: The intercept is significant, suggesting that when all independent variables are zero, the predicted fintech knowledge score is 0.783.
1. **B (Unstandardized Coefficient) = 0.783**: This means that for every **one-unit increase** in the independent variable, the Knowledge in fintech increases by **0.783 units**, assuming all other variables are held constant.

2. **p = 0.031**: The **p-value** indicates statistical significance. Since **p < 0.05**, this suggests that the relationship between the independent variable and the Knowledge in fintech is **statistically significant** at the 5% significance level. The p-value (0.031) confirms that this effect is unlikely due to random chance.

2. **Awareness of DB**

B = 0.461, p = .000: This variable has the strongest positive impact on fintech knowledge. The coefficient indicates that a one-unit increase in DB awareness is associated with a 0.461 increase in fintech knowledge. The significance level (p < .001) indicates high confidence in this relationship.

3. **Awareness of blockchain and cryptocurrency**

B = -0.031, p = .701: This variable has a negligible and non-significant relationship with fintech knowledge. The negative coefficient suggests a slight inverse relationship, but the high p-value indicates no reliable association.

4. **Potential disruption by blockchain and cryptocurrency**

B = 0.137, p = .030: This variable shows a significant positive relationship with fintech knowledge. A one-unit increase in the belief that blockchain could disrupt TB corresponds to a 0.137 increase in fintech knowledge.

5. **Perception of rising digital currency use** (**B = 0.031, p = .632**): The relationship here is positive but not statistically significant.

From the analysis there is an indication that most influential predictor of fintech knowledge is awareness of Digital Banking (DB). Beliefs about blockchain disruption also contribute significantly, while awareness of blockchain and perceptions of rising digital currency use do not show a meaningful impact in this model.

Discussions and conclusions

The research indicated that participants generally have substantial awareness and understanding of Fintech, and how FinTech support the TB systems. The assertion supports Hypothesis H4 - There is significant awareness of DB among banks and customers, and the same is true for Hypothesis 2 (H2): There is significant knowledge of electronic banking among bank customers. Nevertheless, this awareness of FinTech is not the same across the technological system in place, for instance, respondent had an average score of 2.53 when they were asked about their awareness of blockchain systems and cryptocurrency. In addition, the research concluded that there is no significant relationship between the awareness of FinTech base on the person's job relationship. There is also strong support for the assertion that FinTech improves customers' satisfaction, especially mobile money: This is indicated in an average score of 3.86, which represents a significant impact on customers' services. In addition, respondents generally believe that Digital Banking (DB) provides significant satisfaction to customers and, as such, has a positive impact on commercial banks. The conclusion supports hypothesis H1- there is a significant impact of electronic banking on customer satisfaction in Ghana's Banking Sector; which also supports hypothesis H3.

As indicated the awareness of FinTech varies across the participants, there was general acceptance of the disruption impact of some types of FinTech on traditional commercial banks. Though indicated that some Financial Technology may have a positive impact on the traditional bank, there was also an indication that some Financial Technology may disrupt technology for the TB System. The research concluded that blockchain systems such as cryptocurrency, which work outside the TB systems, may have a negative impact on TB systems. For instance, when participants were asked about the disruptive nature of blockchain (cryptocurrency) on the operations of the TB system, the average score was 3.28, which indicates a moderately significant impact on the TB system as indicated in Figure 17. So, the conclusion supports hypothesis 6 - Blockchain and related cryptocurrency may impact the patronage of TB systems.

Participants were allowed to provide solutions to how FinTech and TB systems may work harmoniously to provide optimum customer satisfaction and secure the operations of traditional commercial banks. The suggestions range from education, regulatory, Infrastructure, Implementation, awareness, collaborations.

Education and Awareness: Participant suggested the need to intensify frequent education: Financial Technology should be part of students' curriculum from the junior high schools, and mandatory for institutional banking. **Infrastructure Development**: To improve the effectiveness and efficiency of FinTech there is the need for wider internet coverage in Ghana. By focusing on these area, Ghana can create a conducive environment for the successful introduction and integration of digital currency within its banking system. **Collaboration with Financial Institutions:** Participants suggested there was a need for Collaboration between regulatory bodies such as the Ghana Revenue Authority (GRA) and Financial Intelligence Centre (FIC) to align tax policies and fraud prevention measures. **Regulatory Framework:** The Bank of Ghana (BoG) should establish clear policies, guidelines, and legal frameworks to govern the use of digital currency, ensuring compliance with financial regulations, anti-money laundering (AML), and consumer protection laws, and combating the financing of terrorism (CFT) regulations.

Conclusion

The research indicate significant customers satisfaction in the use of fintech associated with banking services. The research shows no significant relationship between awareness and knowledge and job: This means that even though FinTech activities in Ghana have no strong regulatory framework, both bankers and customers are heavily involved using FinTech. The research questions were answered follow:

1. E-banking has a positive impact on the banking sector, however, DB may have a positive or disruptive impact on the traditional baking system, depending on the type of instrument being considered (Choudhury & Bharttachargee. 2016).

2. DB has significant positive impact on the banking sector.

3. Blockchain and its related cryptocurrency may be disruptive, however, when there are regulatory frameworks to govern the activities of these financial technologies, its impact on traditional commercial banks may be minimised.

Limitations of the Study

The study is highly constrained to the researcher because there is no ready data available on the subject matter. Another case in point is the fact that the busy schedules of commercial banks may make the study very cumbersome in that going for relevant information or data to aid the study would be stressful, and also due to the confidentiality clauses of the commercial bank, data needed is not readily available. The administering of questionnaires to busy respondents may pose a limitation to the study. Though there is this challenges, a wider future this research form as a good platform to establish future research.

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Exploring the impact of virtual reality on consumer purchase decisions: A strategic perspective on immersive digital marketing in the luxury fashion industry

Betelihem Welederufael Asfaw
University of Bolton, UK

Flomny Menon
Regent College London, UK

Keywords
Virtual reality, consumer purchase decision, strategic perspective, digital marketing, luxury fashion

Abstract

This study explores how Virtual Reality (VR) is changing the luxury fashion shopping experience, specifically how it affects consumer behaviour, brand engagement, and their purchase decision. The main objective of the study is to examine the strategy that luxury fashion brands can adopt to integrate virtual reality (VR) efficiently, recognize the variables that influence the purchase of luxury fashion through VR, evaluate the influence of VR on consumer engagement metrics, and understand the ways in which VR fosters trust and confidence in luxury fashion brands. A survey of 109 participants who have engaged with VR in the luxury fashion environment revealed that many critical variables, including the realism of the VR experience, ease of navigation, and customisation choices, had a major influence on customer behavior. In addition to increasing their confidence in making purchases, participants reported that immersive virtual reality experiences enhanced their capacity to examine detailed product information. Numerous participants said that virtual reality encounters strengthened their connection with luxury fashion brands, amplifying their sense of trust and allegiance.

The study also shows that customers were more inclined to connect with and promote luxury brands using virtual reality (VR) if they could access engaging elements such as virtual try-ons and tailored recommendations. Notwithstanding its favorable impact on consumer involvement, the research also recognized several limitations, including the limited accessibility of virtual reality technology and the need for better authenticity and engagement.

The study looks at these challenges and provides insightful analysis of the connection between luxury fashion and virtual reality. It also gives helpful recommendations for luxury fashion brands that want to be innovative and deliver more engaging, personalized shopping experiences. Future studies may concentrate on getting beyond these technical obstacles and reaching a larger audience via VR experiences, guaranteeing greater accessibility and more in-depth interaction with luxury fashion.

Introduction

In recent years, VR has grown immensely as a strong tool for promoting luxury fashion brands. It lets brands show off their goods in virtual worlds and interact with customers in new ways (Barnes, 2016). VR offers immersive experiences that may change customer behavior and buying choices as digital revolution continues. Luxury fashion firms can engage with customers in new and meaningful ways with VR's realistic, engaging, and interactive surroundings. In this fast changing setting, this study project examines VR's strategic implications in luxury fashion.

Exclusiveness, quality, and experience define luxury fashions. Traditional marketing methods in this industry have depended on physical store settings to portray grandeur and exclusivity. VR technology allows luxury businesses to reproduce similar experiences in a virtual realm, allowing customers to examine items and connect with the brand in new ways. Redefining the customer journey and improving the brand experience is part of this transition, along with integrating new technologies (Dacko, 2008).

This research addressed the necessity for luxury fashion firms to embrace sophisticated digital marketing tactics to be competitive in a digital economy. VR has great promise, but little is known about how it affects luxury fashion customer buying choices. This research addresses this gap and gives luxury marketers concrete information by examining VR implementation and use. Effective VR strategies include understanding VR-driven sales, customer engagement, and trust development. Luxury firms are investing more in VR, according to research. In VR, Burberry and Gucci let customers attend fashion presentations and explore their collections. These projects show how VR may improve brand engagement and shopper immersion, impacting purchasing choices (Trotter, 2021; Hobbs, 2021).

Research aims and objectives

The aim of this research is to investigate the impact of virtual reality on consumer purchase decisions within the luxury fashion industry, with a focus on strategic perspectives in immersive digital marketing.

Research objectives

- To investigate Strategies for luxury fashion brands to implement virtual reality effectively.
- To identify Factors affecting luxury fashion purchases using virtual reality.
- To assess the impact of Virtual Reality on Consumer Engagement Metrics.
- To learn how Virtual Reality builds consumer trust and confidence.

The introduction part describes the study's background, purpose, goals, and structure. The Literature review provides a detailed look of VR in digital marketing, luxury fashion customer behavior, and immersive technology strategy. The methodology details the research strategy, data collecting, and analytic methodologies used to study VR's influence on customer purchasing choices. The findings and Analysis reviews the study's data against the research goals and assessing VR strategy efficacy. The discussions will talks about how the results affect luxury fashion firms and digital marketing. The conclusion and recommendation Summarizes major results, highlights research contributions, and give luxury fashion marketers VR technology advice. This study examines VR's strategic impact on consumer purchase decision to enlighten the luxury fashion business and provide the framework for future research.

Research Questions

1) How does Virtual Reality impact luxury fashion marketing consumer engagement metrics?
2) What influences virtual reality driven luxury fashion purchase decision?
3) How can luxury fashion brands strategically use Virtual reality to boost sales?

Research rational

The digital revolution has changed customer behavior and company tactics, notably in luxury fashion. The rise of virtual reality (VR) as a tool for engaging customers and improving purchasing is exciting. However, the practical effects of VR on luxury fashion consumer behavior and business strategy are unknown. VR's effects on luxury fashion customers and business tactics are examined in this dissertation to fill this gap. Two reasons drive this study.

First, from an academic standpoint, there is a need to expand the current knowledge on VR applications in marketing, especially in the luxury fashion industry require further research. VR has been investigated in many settings, but its effects on luxury fashion's sophisticated customer habits and high standards have not. The empirical data and theoretical insights on how VR affects luxury fashion customer perceptions, preferences, and purchases will add to academic debate.

Second, from a practical aspect, the luxury fashion sector is at the forefront of using breakthrough technology in order to preserve its competitive advantage and appeal to an increasingly tech-savvy customer base. Luxury businesses need to know how to use VR in marketing to boost consumer engagement, brand immersion, and sales. This study will help luxury fashion marketers create unique, consumer-focused VR tactics. This research focuses on how VR affects consumer behavior and luxury fashion company tactics to bridge theoretical and practical research. Academic and industry experts may use the results to construct educated and successful VR-enhanced luxury fashion marketing tactics.

Literature Review

Virtual reality in luxury fashion marketing

Across several industries, including luxury fashion companies, virtual reality (VR) has developed as an effective tool for impacting consumer decision-making. Virtual reality (VR) lets brands present engaging stories to customers that make emotional links and change how much they think a product is worth.

Jang & Lee (2020) and Kim & Forsythe (2008) research backs up the idea that VR can make customers more interested and emotionally involved. Fashion brands can use VR to make virtual worlds where customers can feel like they are there and connect with the story of the brand. This contact goes beyond normal promotion because it lets customers directly experience the brand's values, workmanship, and way of life. By putting people in these stories, VR helps them connect directly with brands.

Building consumer trust & confidence with VR

Luxury brands use virtual reality (VR) to build consumer trust by providing immersive experiences that convey authenticity and transparency. According to Okonkwo (2010) and Kang & Gretzel (2012), immersive content increases brand connection and customer engagement. Customers may use virtual reality to learn about company legacy, product quality, and workmanship, which builds emotional trust. Transparency fosters confidence in decision-making and increases loyalty, according to Kapferer and Bastien (2009). Customers feel appreciated by VR product demonstrations, excellent graphics, and customized experiences, which increases their trust and propensity to buy.

The impact of virtual reality on consumer metrics

In the marketing of luxury apparel, virtual reality (VR) has a big influence on customer engagement metrics. Stronger brand connections and increased consumer interest in a company may be achieved with captivating and immersive virtual reality experiences.. Users feel more connected to the brand since VR experiences are unique and memorable. Enhanced customer loyalty and more favorable brand views are the results of this enhanced involvement. Kim and Forsythe (2008) pointed out; these interactions also boost the likelihood of purchasing high-end clothes. This is an illustration of the significant influence that virtual reality has on the behavior of consumers.

Strategies for effective implementation of virtual reality

Brand consistency, customization, exclusivity, and quality are all critical components of a strategy. Brands must integrate virtual reality with their values (Kapferer, 2012), strike a balance between exclusivity and accessibilit, provide high-quality, customized experiences, such as exclusive fashion displays or virtual try-ons. Using consumer data and integrating VR into larger marketing strategy helps to adapt the experience and maintain brand loyalty.

Conceptual framework

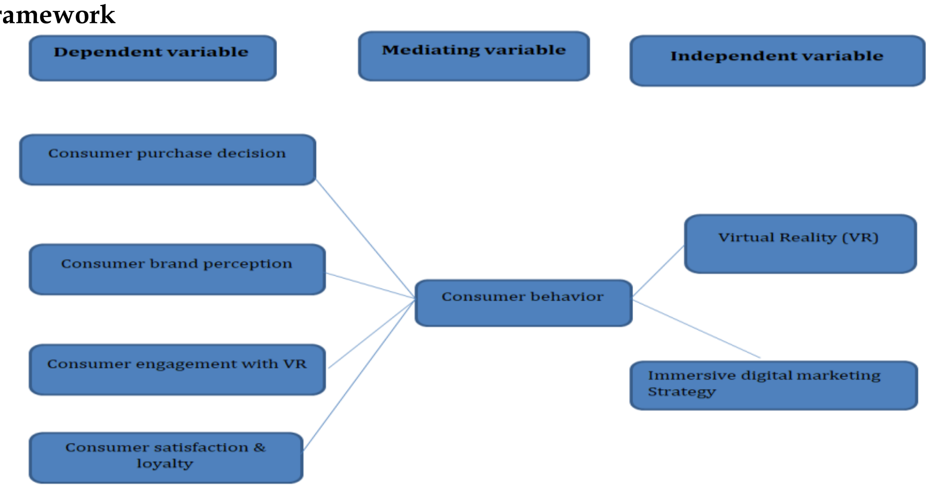

Figure 7. Conceptual framework
(Source: Author)

Methodology

In this study, the researcher adopted positivism research philosophy, which emphasizes objective analysis and measurable data. This was followed by a deductive approach to test hypotheses based on existing theories, using a quantitative research method, specifically a survey strategy, to gather numerical data. A mono-method approach was used, focusing solely on quantitative data. Since the study follows a cross-sectional time horizon, data was collected at a single point in time rather than over a period. 109 participants were selected using random sampling (probability sampling) to ensure every individual had an equal chance of being included. The data collection and analysis were conducted using Google Forms, allowing efficient and structured responses.

Findings/Results

VR strategies: Successful VR strategies involve a user-friendly design, personalization (tailored) and immersive experiences.

Consumer engagement: 64.4% of participants found VR highly engaging, which boosted their purchase decision.

Consumer trust & confidence: 67% felt more confident in their purchases after using VR, showing that it increases trust.

Purchase decision: 60.3% said VR strongly influenced their decision to buy luxury fashion.

The findings show that effective VR strategies improve engagement, trust, and purchase decisions.

Discussion and Conclusion

Summary of the Research Project Focusing on Objectives:

The study explores how virtual reality (VR) influences luxury fashion purchases, customer engagement, and brand trust. It aimed to meet four primary objectives:

Examining VR implementation strategies: Based on the report, luxury fashion brands may effectively use VR if they prioritize personalised experiences, simplicity of use, and authenticity. Respondents stressed how important it was for features to be easy to use and integrate with each other smoothly in order to improve the buying experience.

Finding factors that affect luxury VR purchases: The study discovered multiple elements that influence luxury purchases via VR, including the realism of virtual try-ons, the ability to observe intricate aspects of a product, and the perception of exclusivity that VR delivers. People who answered who had used VR said that these factors had a big effect on their decisions to buy.

Assessing the impact of VR on consumer engagement: The study showed, that VR makes customer participation significantly higher. Most of the people who answered thought that buying things in VR was more fun than buying things the old-fashioned way. They said that the dynamic experiences and intense environments were key to keeping people excited for longer.

Learning How VR Builds Consumer Trust and Confidence: According to the study, VR builds trust in luxury brands by giving users close-up views of items and letting them virtually try on clothes, which makes them feel safer about the purchases they make.

Summary of Contributions:

Better understanding of how VR affects high-end fashion: The study gives important insights into how virtual reality affects customer behavior in the luxury fashion business. For example, 67.2% respondents reported feeling more secure in their purchases after using VR, suggesting that firms should continue to build immersive experiences.

Implementation Guidance: The report provides practical advice for luxury businesses wishing to successfully deploy VR strategies. Key results indicate that prioritizing realism, customisation, and seamless integration may considerably enhance the user experience and increase purchases. 61% respondents believed VR shopping experiences were superior than in-store shopping, demonstrating VR's potential to replace or enhance real retail facilities.

Contributions to Consumer Engagement Research: This study contributes to the expanding corpus of research on consumer engagement via digital platforms, proving that virtual reality delivers a more engaging and participatory purchasing experience. With 64.4% respondents seeing the future of VR in luxury fashion as promising and widely embraced, there is an increasing need for VR experiences in this area.

Research limitations and future directions:

Sample Size and Demographics: Sample Size and Demographics: The results may not be applicable to the entire luxury fashion market because only 109 people responded to the survey. Furthermore, the bulk of responses were from London and the United Kingdom, which may not be representative of a worldwide readership.

Technological availability: The research did not account for the disparities in availability to VR technology between areas, which might have an influence on the practicality of using VR on a larger scale.

Future Research: Future research could look at how people from different cultures use and understand virtual reality (VR) when shopping for high-end clothes. Advances in VR technology, such as haptic feedback and AI-driven customisation, might be studied to see how they affect customer behavior. Long-term customer involvement with VR in fashion may give further information into its efficacy as a long-term strategy for luxury firms.

Recommendations

The researcher recommends various ways luxury fashion industries might enhance their VR experiences and address gaps. The limited accessibility of VR experiances and inconsistent realism are major issues. Brands should boost VR platform realism and immersive via high-quality images, lifelike textures, and realistic simulations. Bridging this gap helps consumers engage with products, enhancing their confidence in VR luxury fashion purchases. Increasing VR customization options is crucial. Brand owners should focus on letting customers virtually try products on, adjust them in real time, and receive personalized advice on many VR platforms that lack personalization features. Addressing this gap will make shopping more interesting and personalized, satisfying consumer demand for customized luxury. Luxury fashion brands should find ways to make VR experiences more accessible. Mobile or web-based VR systems without expensive hardware might make VR more accessible to a wider audience.

Finally, luxury fashion brands could pitch VR as a way to improve trust. Consumers may feel more confidence in luxury fashion purchases if VR provides detailed product information. Solving these issues will boost luxury fashion purchases and consumer trust VR engagement.

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Alternative assessment strategies for UK postgraduate students

Evangelia Fragouli
Kingston University, UK

Keywords
Higher Education, assessment, PG , alternative

Abstract

Assessment policies in UK postgraduate education predominantly rely on summative coursework evaluations, often without compensation mechanisms available at undergraduate levels. Consequently, students failing both their initial and resit assessments are awarded only a Postgraduate Diploma (PGDip) instead of a master's degree, even if their overall performance demonstrates substantial academic engagement. This approach poses challenges for students who struggle with single high-stakes assessments and does not align with contemporary formative assessment principles that emphasize learning improvement through structured feedback. This study critically examines alternative assessment strategies such as bonus questions, rapid resubmission, portfolio-based assessment, and competency-based grading to explore their applicability to UK postgraduate programmes. Drawing on international best practices, particularly US resubmission-based models, this paper proposes a novel Compensatory Resubmission Model (CRM), integrating formative assessment principles with structured reassessment mechanisms to enhance student success while maintaining academic integrity. Through a comprehensive literature review and critical discussion, the paper situates the proposed model within the broader discourse on assessment fairness, student retention, and equity in postgraduate education. The findings contribute to ongoing policy debates regarding assessment reform in UK higher education institutions.

Introduction

Assessment in higher education serves as a crucial mechanism for evaluating student learning, providing feedback, and determining academic progression (Biggs & Tang, 2011). While undergraduate courses often incorporate compensation mechanisms that permit marginally failing students to progress, UK postgraduate programmes typically lack such flexibility (QAA, 2021). In this context, students who fail both an initial and resit assessment receive a PGDip rather than a full master's degree, irrespective of their broader academic performance.

The prevailing postgraduate assessment framework raises several concerns. The current model relies predominantly on summative coursework submissions without structured opportunities for formative feedback integration (Sadler, 1989; Boud & Falchikov, 2006). This inflexible structure disproportionately affects at-risk student groups, including international students, part-time learners, and those with learning disabilities, who may struggle with a rigid, high-stakes approach to assessment (Yorke, 2015). Moreover, this model misaligns with contemporary assessment theory, which supports scaffolded learning and iterative resubmission-based assessment models that emphasize improvement rather than finality in grading (Hattie & Timperley, 2007).

Internationally, reassessment policies in US higher education offer alternative strategies that allow students to revise their work based on feedback before final grading (Guskey, 2010). These models align with competency-based education (CBE) frameworks that emphasize mastery learning over punitive grading (Black & Wiliam, 1998).

This paper systematically examines alternative postgraduate assessment strategies and proposes a Compensatory Resubmission Model (CRM) designed to balance academic rigor, fairness, and student retention. The study contributes to discussions on how UK postgraduate assessment can evolve to support student success without compromising academic integrity.

Research Questions

1. What alternative assessment strategies can be introduced for UK postgraduate students failing both their initial and resit assessments?

2. How do international assessment models, particularly in the United States, incorporate reassessment opportunities, and what lessons can be applied to the UK system?
3. How can a compensatory assessment model be designed to uphold academic standards and fairness in UK postgraduate programmes?

Research Objectives

1. To critically analyze UK postgraduate assessment frameworks and their limitations.
2. To evaluate alternative assessment models, including bonus questions, resubmission policies, and portfolio-based assessment, through a systematic literature review.
3. To compare UK and international assessment models, particularly focusing on resubmission-based learning and competency-based education.
4. To propose a Compensatory Resubmission Model (CRM) that maintains academic standards while addressing student retention and success.

Methodology, Limitations, and References

Methodology

This study employs a systematic literature review and comparative policy analysis to evaluate alternative postgraduate assessment strategies. Given the non-empirical nature of this research, a literature-based approach is the most appropriate method to synthesize existing theoretical frameworks, empirical findings, and international best practices.

The research follows a qualitative, document-based analysis, using a systematic literature review (SLR) framework (Gough, Oliver & Thomas, 2017). The key elements of this approach include:

1. Identifying Relevant Studies – Peer-reviewed journal articles, books, and policy reports related to higher education assessment, summative vs. formative assessment, compensatory models, and international reassessment policies were collected.
2. Eligibility Criteria – Studies published in the last 20 years (2003–2023) were prioritized, ensuring the inclusion of contemporary debates. Only sources that explicitly discuss postgraduate assessment, resubmission policies, competency-based education, or compensatory grading were included.
3. Comparative Analysis – Assessment policies in the UK postgraduate education system were compared against international models, particularly US, Australian, and Scandinavian higher education systems.
4. Thematic Coding – The key themes that emerged (e.g., resubmission-based learning, bonus question mechanisms, and portfolio-based assessment) were coded and synthesized to develop a comprehensive compensatory framework.

Data Sources

The following databases were used to identify scholarly sources:

- SCOPUS and Web of Science – Peer-reviewed journal articles.
- ERIC (Education Resources Information Center) – Studies on assessment and learning models.
- Google Scholar – Policy papers and university case studies.
- Higher Education Academy (HEA) and QAA Reports – UK-specific assessment frameworks.

Justification of Methodology

A systematic literature review enables a rigorous synthesis of existing knowledge, particularly when empirical primary data collection is not feasible (Gough et al., 2017). Additionally, comparative policy analysis allows for an examination of best practices across different educational contexts, supporting the development of a tailored compensatory model for UK postgraduate students.

Limitations of the Study

While this study provides a theoretically and empirically grounded proposal for alternative postgraduate assessment models, it acknowledges several limitations:

1. Non-Empirical Approach: The study relies solely on secondary sources, meaning that direct student or faculty perspectives on assessment reform were not collected. Future research should incorporate interviews, surveys, or experimental interventions in UK postgraduate programmes.
2. Generalizability Issues: While international models (e.g., the US resubmission model) provide strong theoretical grounding, their direct applicability to the UK system depends on institutional policies, faculty perceptions, and regulatory structures.
3. Variability in Institutional Policies: Postgraduate assessment policies differ significantly across universities in the UK. The proposed Compensatory Resubmission Model (CRM) may require modifications to align with individual institutions' academic integrity policies and resource constraints.
4. Limited Discussion on Subject-Specific Assessment Differences: The study assumes a general approach to postgraduate assessment without considering how different academic disciplines (e.g., STEM vs. Humanities) may require tailored assessment mechanisms.

Assessment for PG students

UK Postgraduate Assessment Policies and Their Limitations (RQ1 & RO1)

Assessment plays a critical role in postgraduate education, influencing student success, institutional reputation, and student recruitment. The current UK postgraduate model, which does not permit compensation mechanisms, disproportionately impacts students who may struggle with high-stakes assessment environments.

From a student success perspective, the rigid summative nature of postgraduate assessment often results in increased failure rates, particularly among students who require additional support, such as non-native English speakers and part-time students balancing academic and professional commitments (Havnes & McDowell, 2008). Research suggests that students who receive structured opportunities for resubmission and feedback-driven learning demonstrate improved retention and deeper understanding of course material (Hattie & Timperley, 2007).

The impact on course reputation is also significant. Courses with high failure rates risk negative student feedback, lower satisfaction scores in institutional assessments, and decreased employability rates among graduates. Such factors contribute to lower rankings in national and global university league tables, influencing institutional funding and policy decisions (Bloxham & Boyd, 2007).

Moreover, assessment structures influence student recruitment. International students, who form a substantial portion of UK postgraduate cohorts, often consider reassessment policies when selecting institutions. Universities with flexible and formative assessment approaches tend to attract a more diverse student population, while those with rigid, high-failure policies may struggle to maintain enrollment numbers (Yorke, 2015). Consequently, introducing alternative assessment methods can enhance institutional competitiveness and foster a more inclusive educational environment.

The Non-Compensatory Model

Postgraduate assessment in the UK primarily relies on summative coursework evaluation (QAA, 2021). Unlike undergraduate programmes, which allow compensation mechanisms (e.g., allowing a marginal failure if the overall average meets a threshold), postgraduate students must pass all assignments outright (Bloxham & Boyd, 2007).

This non-compensatory approach creates a rigid assessment environment, limiting opportunities for iterative learning (Gibbs & Simpson, 2005). Moreover, research highlights that the failure-to-PGDip policy disproportionately affects students from underrepresented groups, particularly:

- International students, who may struggle with academic writing conventions and require additional feedback cycles (Yorke, 2015).
- Part-time students, who balance coursework with professional responsibilities, making them more vulnerable to single high-stakes assessments (Havnes & McDowell, 2008).
- Students with learning difficulties, who may require multiple assessment iterations to achieve mastery (Sambell et al., 2013).

Alternative Assessment Strategies: Empirical Evidence (RQ1 & RO2)

Bonus Questions as a Grade Buffer

Bonus questions allow students to demonstrate higher-order thinking and earn additional marks (Boud & Falchikov, 2006). Studies indicate that bonus questions can mitigate assessment anxiety and reduce failure rates without lowering academic standards (Black & Wiliam, 1998).

Rapid Resubmission Based on Feedback

US universities frequently implement resubmission-based grading, allowing students to revise and resubmit coursework within a structured timeframe (Guskey, 2010). Empirical studies demonstrate that students who engage with structured feedback cycles improve their long-term academic performance (Hattie & Timperley, 2007).

Portfolio-Based Assessment for Progressive Learning

Portfolios track student progress over time, allowing gradual improvement rather than single-attempt failures (Trevitt et al., 2014). This method aligns with constructive alignment theory (Biggs, 2003), ensuring assessment reflects student learning trajectories.

A Compensatory Assessment Model for UK Postgraduate Students (RQ4 & RO4)

The Compensatory Resubmission Model (CRM)

This study proposes the Compensatory Resubmission Model (CRM), integrating feedback-driven resubmission, portfolio-based assessments, and compensatory mechanisms.

1. First Coursework Submission → Standard Grading
2. Rapid Resubmission Window (7 Days) → Feedback Integration
3. Final Resit → Traditional Resit if Failure Persists
4. Compensatory Portfolio Assessment → If the final resit is failed, students submit a reflective portfolio

This model aligns with international best practices and self-regulated learning theories, ensuring that assessment reflects student competency rather than a single test performance.

Discussion and Analysis

This section critically examines the literature and empirical evidence on alternative assessment strategies for postgraduate students, synthesizing insights to address the research questions and objectives. The discussion integrates perspectives on assessment fairness, student retention, and competency-based education, with a focus on developing a compensatory assessment model suited for UK postgraduate education.

Rethinking UK Postgraduate Assessment: Formative vs. Summative Approaches

One of the most significant limitations of the current UK postgraduate assessment framework is its over-reliance on summative assessment models, where student performance is primarily evaluated through one-off coursework submissions with minimal opportunity for structured resubmission or iterative improvement (Biggs & Tang, 2011). The absence of formative integration in postgraduate assessment policies contrasts with international best practices, particularly the US higher education system, where resubmission-based grading allows students to improve their work through structured feedback loops (Guskey, 2010).

The theoretical foundation for iterative assessment stems from constructive alignment theory (Biggs, 2003) and formative assessment principles (Sadler, 1989), which emphasize the role of feedback-driven learning. Research has demonstrated that students who receive structured resubmission opportunities exhibit higher academic performance and deeper conceptual understanding than those assessed purely through one-time coursework submissions (Hattie & Timperley, 2007).

The lack of compensation mechanisms in postgraduate programmes exacerbates assessment anxiety and failure penalties, disproportionately affecting:

- International students, who may require additional feedback cycles to adjust to UK academic standards (Yorke, 2015).

- Part-time students, who balance academic and professional responsibilities and may struggle with rigid deadlines (Havnes & McDowell, 2008).
- Students with learning difficulties, who benefit from scaffolded assessment approaches rather than high-stakes grading (Sambell et al., 2013).

Addressing these concerns necessitates a re-evaluation of postgraduate assessment through alternative strategies that balance academic rigor, fairness, and flexibility.

Alternative Assessment Strategies: Evaluating Feasibility and Effectiveness

Several alternative assessment strategies have been proposed to address the limitations of rigid summative coursework models. The literature suggests four primary approaches:

1. Bonus Questions for Grade Compensation Bonus questions allow students to demonstrate higher-order thinking skills and earn additional marks beyond the primary coursework grading criteria (Boud & Falchikov, 2006). This approach aligns with differentiated assessment strategies, ensuring that students who exhibit deep learning and analytical reasoning are not penalized solely for failing core components of an assignment (Black & Wiliam, 1998).

However, some critics argue that bonus questions may introduce inconsistencies in grading, particularly if not all students choose to answer them (Harlen, 2005). To mitigate this, bonus questions must be carefully designed to assess critical thinking rather than compensate for weaker responses in the main assignment.

2. Rapid Resubmission for Feedback Integration A widely accepted alternative assessment model is structured resubmission, where students who fail their first coursework attempt are granted a defined period (e.g., 7 days) to revise and resubmit their work based on detailed instructor feedback (Guskey, 2010). This model aligns with mastery learning theories, which emphasize assessment as a learning process rather than a one-time judgment (Sadler, 1989).

Empirical studies indicate that students who engage with resubmission-based assessment models:

- Improve their long-term retention of concepts (Hattie & Timperley, 2007).
- Exhibit higher levels of academic confidence and engagement (Bloxham & Boyd, 2007).
- Demonstrate better application of feedback to future assessments (Ewell, 2013).

Critics argue that resubmission models may lead to grade inflation if not carefully regulated. However, studies have shown that when clear resubmission policies are implemented with rigorous marking criteria, the risk of lowering academic standards is mitigated (Gibbs & Simpson, 2005).

3. Portfolio-Based Assessment for Progressive Learning :Portfolios provide a longitudinal record of student progress, allowing students to demonstrate competency over time rather than in a single high-stakes assessment (Trevitt et al., 2014). Portfolio-based assessment is particularly effective in professional disciplines, where learning application and reflective practice are key indicators of mastery (Hager & Butler, 1996).

A major advantage of portfolio assessment is its ability to integrate:

- Self-reflection, helping students track their academic growth.
- Multiple assessment components, reducing the impact of a single failure.
- Authentic learning tasks, making assessments more relevant to real-world applications.

However, the logistical complexity of portfolio assessment has led some institutions to hesitate in fully adopting it, particularly for large postgraduate cohorts (Bloxham & Boyd, 2007). Despite this, universities that have introduced scaffolded portfolio assessment have observed higher student retention and progression rates (Havnes & McDowell, 2008).

Towards a Compensatory Resubmission Model (CRM)

Given the empirical evidence supporting iterative assessment and formative learning, this study proposes the Compensatory Resubmission Model (CRM), which integrates multiple assessment strategies into a structured reassessment framework.

The CRM consists of four key components:

1. First Coursework Submission → Standard Grading

2. Rapid Resubmission Window (7 Days) → Feedback Integration
3. Final Resit Opportunity → Traditional Resit
4. Compensatory Portfolio Submission → If the final resit is failed, students submit a reflective portfolio

This model aligns with international best practices in higher education, particularly US competency-based grading models (Guskey, 2010), ensuring that students are assessed on the basis of progressive mastery rather than a single summative failure.

Conclusion and Recommendations

This study critically evaluates alternative postgraduate assessment models and proposes the Compensatory Resubmission Model (CRM) as a viable reform strategy for UK higher education institutions. Key Findings regard that: The UK postgraduate assessment system lacks compensatory mechanisms, disproportionately affecting at-risk student groups; International best practices, particularly US resubmission-based models, provide a strong empirical foundation for integrating formative assessment in postgraduate education; Alternative assessment strategies, such as bonus questions, rapid resubmission, and portfolio-based assessment, enhance fairness and student success without compromising academic standards. Also that the CRM model provides a structured compensatory mechanism, integrating iterative learning, scaffolded assessment, and flexible grading policies.

Policy Recommendations

1. Adopt Rapid Resubmission Windows – UK universities should implement structured resubmission opportunities, allowing students to revise coursework based on instructor feedback within a defined timeframe.
2. Integrate Portfolio-Based Assessments – Postgraduate assessment should include competency-based portfolios, ensuring that students demonstrate learning progression over time.
3. Develop Institutional Resubmission Guidelines – Universities should establish clear policies for feedback-driven resubmission to mitigate concerns about grade inflation while maintaining academic integrity.
4. Pilot and Evaluate the CRM Model – Institutions should conduct pilot studies on the CRM framework, assessing its impact on student retention, learning outcomes, and institutional grading consistency.

Recommendations for Further Research

Future research should explore:

- The long-term impact of CRM implementation on postgraduate student success rates.
- Comparative studies on international postgraduate assessment policies.
- The scalability of portfolio-based assessments in UK higher education institutions.

By integrating structured reassessment policies, UK universities can enhance postgraduate student success while upholding academic rigor.

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Environmental, social, and governance and corporate value of listed companies in Nigeria

Mohammed Kayode Ajape
Michael O. Adelowotan
Adesanmi Timothy Adegbayibi
Department of Accountancy, University of Johannesburg, South Africa

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Corporate value, Environmental disclosures, governance disclosures, listed firms, Nigeria and social disclosures.

Abstract

Purpose of the Research*: This study evaluates the influence of environmental, social, and governance (ESG) disclosures on the corporate value of listed firms in Nigeria. The study analyses the disaggregated influence of environmental, social and governance practices on market-based performance metric.*

Design/methodology*: A sample of 27 listed firms on the Nigerian Stock Exchange (NGX) cutting across several subsectors and with audited annual reports from 2018 to 2023 was selected.*

Results/findings*: The findings demonstrated a strong negative influence of the three dimensions of ESG on the corporate value (TQ). The coefficients of each ESG dimension demonstrated a significant positive effect on the alternative measure of company value.* ***Practical implications and conclusions****: These findings may show that the impact of ESG on corporate value differs depending on the metric used to assess corporate value. Thus, while ESG disclosures may increase firm-based measures of value, they may negatively influence market-based performance. Our results are well situated in the agency, stakeholders' and signaling theories. The* R^2 *for each facet of the ESG is above 50%, showing that regulatory attention must be focused on effective ESG-related regulations to relieve probable future effects on firm value.*

Introduction

Over the past few years, incorporating Environmental, Social, and Governance (ESG) principles has become fundamental to assessing corporate sustainability and ethical behaviour globally. In Nigeria, there is a growing recognition of the importance of ESG elements in boosting corporate value and guaranteeing long-term commercial success. ESG concerns span various issues, including environmental stewardship, social responsibility, and strong governance standards. These factors are crucial for reducing risks and promoting sustainable growth. Moreover, implementing ESG frameworks in Nigeria could reduce risks related to environmental consequences, social disparities, and governance failures, improving company resilience and sustainability (Igbinovia & Agbadua, 2023). In addition, companies that prioritise ESG principles are better positioned to attract investment as investors increasingly seek to align their portfolios with sustainable and ethical business practices (Ozili, 2021).

Presently, in Nigeria, ESG disclosure is voluntary and mainly sector-specific. However, ESG principles are becoming increasingly pervasive given the spate of regulatory attention it is receiving, which, by implication, suggests that there may be consequences for non-compliance; thus, creating a culture of accountability and transparency, encouraging companies and other entities to prioritise ESG considerations in their operations (Saygili et al., 2022; Ajape et al., 2021). The Companies and Allied Matters Act (CAMA, 2020), the Nigerian Code of Corporate Governance (NCCG, 2019), the Securities and Exchange Commission's Guidelines on Sustainable Financial Principles (2021), the Climate Change Act (2021) and the Nigerian Stock Exchange's Sustainability Disclosure Guidelines (2018) all contain persuasive provisions relating to ESG issues and imposed some fines for non-compliance. With these frameworks in place, it becomes essential and imperative that companies in Nigeria, both domestic and multinational, provide sustainability reports. Despite these established regulations, Nigeria was ranked 162nd in 2018 (scoring 28.30) and 168th position in 2022 (scoring 28.32), with a slight improvement in ranking at 141st in 2024 (scoring 37.5) out of 180 countries in the Environmental Performance Index (EPI) (EPI, 2024; Kiran, 2022). In essence, both internal and external factors drive ESG in Nigeria. The internal factors include corporate governance (CG) and finance institutions, governing authorities and legislation, businesses, media outlets and civil society organisations. Conventions and organisations with a global reputation serve as the external triggers (UNDP, 2008). The low score from the EPI implies that Nigerian companies have a lot to do and put in place because compliance with ESG guidelines brings with it sustainable benefits in the long run, namely, improvement of internal management practices (Ajape et al., 2021; Fatemi et al., 2018), enhanced relationships with significant stakeholders, thus, reducing the asymmetry of information between companies and connected parties and improving operating performance (Li et al., 2018), increased social and environmental accountability and visibility in corporate governance (Saygili et al., 2022; Naeem & Cankaya, 2022; Clark & Lalit, 2020), and finally curtailed agency costs (Li et al., 2018; Leepsa & Panda, 2017).

Based on the preceding, this study evaluates the impact of ESG dimensions disclosure on corporate value in the Nigerian listed firms using the ESG disclosure guidelines in the Nigerian Exchange Group's Sustainability Guidelines issued in 2018. This approach reflects the originality of this work, as the researchers are unaware of the previous studies which have used the NGX sustainability guidelines. Our study also has the potential to inform policy direction as the Financial Reporting Council is on the verge of issuing robust guidelines for ESG reporting in Nigeria.

Literature Review

Investors are placing a growing prominence on environmental, social, and governance (ESG) issues when making investment decisions, to the extent that top securities regulators and stock exchanges have prioritised these issues over the past decades (Saygili et al., 2022; Rana & Arjoon, 2021; PwC, 2021).

However, many organisations continue to maintain the view that because climate change effects are long-term, they are unlikely to have an impact on their current actions (Chong et al., 2022; Derrien & Lachance et al., 2021; Neri et al., 2021). According to the dominant narrative, a company's ultimate purpose should be to maximise the wealth of its shareholders. However, from a stakeholder viewpoint, additional parties, including regulatory agencies, communities, suppliers, employees, banks, and customers, are also involved in the nexus (Li et al., 2018; Jasper & Ankerstjerne, 2023). Accordingly, governments, consumers, and investors have become more demanding. Stakeholders' demand for transparency has increased regarding any concerns affecting social, economic, and environmental aspects over the last decade, further induced by climate change, the global financial crisis, and the countless business scandals worldwide (Hassani & Bahini, 2022).

In this current age, investors' and customers' consistent expectation of openness and responsibility from businesses and interest in ESG continues to increase as these investors look out for indicators of a company's long-term sustainability and stability, such as ESG performance (Kim et al., 2018). This expectation is more evident in the fact that a lot of investors and analysts now consider ESG factors when making investment decisions (Serafeim & Sougiannis, 2016; Friede et al., 2015), as a company with higher ESG ratings may have higher operating performance (Boubakri et al., 2018; Yi *et al.*, 2020; Li & Wang, 2020) and a higher return on assets (El Khoury et al., 2021; Cheema-Fox et al., 2020). Additionally, these studies have shown that organisations with higher ESG performance have easier access to finance and are less likely to encounter financial trouble. Therefore, the ESG factors influence these companies' behaviour concerning their investment decisions and are described by ESG measurements (IFAC, 2012).

The idea of "Social" incorporates corporate social responsibility (CSR), which is a response to challenges like population increase and climate change, as well as the effects of business activities on the communities in which they operate (Ioannou & Serafeim, 2016; Brooks & Oikonomou, 2018; Camilleri, 2015). Concerning Europe, Camilleri (2015) argued that more EU member states should connect with significant industry and civil society players to improve socially responsible and sustainable behaviours. Over the years, various criteria have been used to assess the impact of social factors, namely, a fair wage for employees, equity, inclusion, and diversity, employee engagement and experience, workplace safety and health, and so on (Daszyńska-Żygadło et al., 2016)

Accordingly, the environmental variables consider the overall environmental impact of an organisation as well as any threats or dangers that may arise due to environmental issues like climate change and resource conservation (Miroshnychenko et al., 2017; Shah et al., 2020). Like in the social dimension of the ESG, environmental variables are evaluated based on various criteria: air and water pollution, waste management, carbon footprint, and energy usage and efficiency (Hoepner et al., 2016; Li et al., 2018). There have been various measurement metrics for environmental variables, some of which include ecological disclosure score (Saygili et al., 2022; Li et al., 2018; Jun et al., 2022), categorical information from GRI (Ajape et al., 2021; Qureshi et al., 2021), and one-year lagged variables (El et al., 2021).

Over the years, the academic and investment communities have been increasingly interested in studying the association between an organisation's financial performance and its ESG performance since they disclose information on a company's sustainability activities and societal impact, as well as how these factors affect a corporation's performance. Notably, ESG investing has been the "order of the decade" for emerging investors, as ESG varies from accounting in that it discloses further information on the financial data contained in the financial statements of the various companies. With the recent and increasing demand for non-financial details, it becomes imperative that companies' reporting framework cater to these needs by providing information on CSR, climate change, energy use or consumption, waste, pollution, natural resource conservation, and so on (Daszyńska-Żygadło et al., 2016; Sustainability Accounting Standards Board, 2020). Koundouri et al. (2022) explain that ESG is a wide range of environmental, social and corporate governance variables that could affect a company's capacity to create value; as a result, it should include non-financial factors in its corporate decision-making and business strategy. By 2025, Bloomberg (2021) forecasts that the $140.5 trillion in total assets managed by the European Fund and Asset Management Association will rise to $53 trillion, or higher than 30% of the total global ESG assets; hence, ESG criteria may help analyse new financial risks and exploit capital markets considering the pandemic and the international green recovery.

On the other hand, corporate performance has been studied from various perspectives, including corporate governance, financial reporting quality and environmental, social and governance disclosures (Ajape et al., 2021; Qureshi et al., 2021; El Khoury et al., 2021). Corporate financial performance refers to a company's financial results and overall success (Mohd Ghazali et al., 2020). Over the years, there have been various measures of corporate financial performance and value, some of which include ROA (Fernando et al., 2020; Naeem et al., 2022; Saygili et al., 2022), GDP per Capita (Oana et al.; 2020), Tobin Q (Naeem et al., 2022; Li et al., 2018).

Academic studies on the nexus between environmental, social, and governance (ESG) variables and corporate value are on-going and evolving fields. Accordingly, academics have and are still exploring the correlation between ESG performance and financial performance from several angles, including accounting, management, and finance. There has been debate on whether companies with strong ESG practices outperform those with weaker ESG practices in terms of CFP (Saygili et al., 2022; El Khoury et al., 2021; Qureshi et al., 2021; Koundouri et al., 2022; Ofogbe et al., 2021; Clark et al., 2015; Friede et al., 2015). Moreover, various research studies have indicated the influence of ESG on Nigeria's corporate financial performance. For instance, Igbinovia and Agbadua (2023) discovered that robust ESG practices can contribute to increased financial performance, as they often result in better risk management, operational efficiencies, and stronger stakeholder connections.

Similarly, Okolie et al. (2021) found that companies that disclose their ESG data more frequently are likely to have better financial performance in Nigeria. From all points above, it is evident that the research indicates that ESG elements can enhance corporate financial performance in Nigeria and that corporate disclosure and the regulatory environment play essential roles in promoting ESG performance. The continued importance of ESG aspects in choosing investments indicates the need for more excellent research in this field. Considering those above, this study tries to evaluate the association between environmental, social, and corporate governance (ESG) and corporate value in listed firms in Nigeria, employing a sample of 27 listed firms with audited annual reports from 2018 to 2023.

Theoretical Framework

This study is anchored on the agency, stakeholders and signalling theories.

Agency theory: Agency theory advocates the existence of goal incongruence between agents (managers) and principals (shareholders). Thus, it focuses on ensuring that company executives act in the best interests of principals. Managers might strive to enhance their reputation by engaging in ESG activities that benefit themselves but do not necessarily align with shareholders' wealth maximisation goals. However, effective ESG practices can reduce agency problems by aligning managers' interests with those of shareholders and other stakeholders. Besides, companies with vital ESG initiatives tend to minimise agency costs as these practices promote transparency and accountability (Helfaya et al., 2023).

Stakeholders Theory: Stakeholder theory attempts to create value for the diverse stakeholders instead of agency theory, which focuses mainly on maximising wealth for stockholders (Sani et al., 2019; Awa et al., 2024). ESG discourse emphasises the need for companies to be accountable to various stakeholders. Long-term corporate success is hinged on enhanced ESG metrics to achieve comprehensive stakeholder engagement strategies (Awa et al., 2024). This theory thus advocates the provision of sustainability information and financial information to improve transparency and accountability when addressing stakeholder interests (Omaliko et al., 2020; Obiora & Ijoma, 2022).

Signalling Theory: Signaling theory addresses how companies communicate their quality and intentions to the market, especially in information asymmetry. ESG disclosures serve as signals to investors and other stakeholders about a company's commitment to sustainable practices. These ESG disclosures could attract more investment and enjoy higher market valuations due to reduced information asymmetry (Helfaya et al., 2023).

These theories reveal the importance of ESG in promoting corporate transparency, accountability, and stakeholder engagement. These attributes could promote sustainable and responsible business practices and enhance firm value.

Based on the reviewed literature and the theories, we hypothesised that:

H_0: ESG components do not significantly affect firm value in the listed firms in Nigeria

Research Methodology

As the sample selection process should be representative, this study adopts a purposive sampling technique, a non-probabilistic sampling technique, for selecting the listed companies across all sectors on the NGX. The inclusion criteria require that the listed companies are spread out among different sectors, have audited annual reports from 2018 to 2023, and possess data for the variables of interest, namely sustainability information (environmental, social, and governance), as well as corporate value measures (such as the book value of debt, preferred stock, and market value of outstanding common shares at the end of the reporting period, book value of total assets, income after taxes, and the average value of all assets for the fiscal year).

This study utilised secondary data from the audited annual financial and sustainability reports of the chosen publicly traded companies on the NGX. The data covered the period from 2018 to 2023.

The authors of this study have created functional econometric models that illustrate the connection between environmental, social, and governance issues and market-based company performance based on past empirical research (El-Khoury et al., 2021; Qureshi et al., 2021).

$TQ_{it} = \beta_0 + \beta_1 EV_{it} + \beta_2\, SIZE_{it} + \beta_3 LEV_{it} + \varepsilon_{it}$ ……………………………………….1

$TQ_{it} = \beta_0 + \beta_2 SV_{it} + \beta_2\, SIZE_{it} + \beta_3 LEV_{it} + \varepsilon_{it}$ ……………………………………… ..2

$TQ_{it} = \beta_0 + \beta_3 GV_{it} + \beta_2\, SIZE_{it} + \beta_3 LEV_{it} + \varepsilon_{it}$ ………………………………………..3

Where:

TQ = Tobin's Q representing corporate value

EV, SV, GV = Environmental, social and governance variables respectively

SIZE= Firm Size

LEV= Leverage

ε = Error term

i,t = cross-section of firms and time, respectively

Measurement of variables is a crucial aspect of conducting research. Measuring variables in research involves assigning numerical values or categories to the qualities or traits under investigation (Hair et al., 2019).

The study examined the dependent variable, corporate value, using Tobin's Q. Tobin's Q is calculated by adding the book value of debt, preferred stock, and market value of outstanding common shares at the end of the reporting period and then dividing it by the book value of total assets.

The study examined the independent variables, which include environmental, social, and governance disclosures, using the sustainability disclosure rules provided by the Nigerian Stock Exchange in 2018. The reporting obligations under the guidelines are stated below:

Environmental

- The environmental impact of products and services during their lifecycle.
- waste encompasses hazardous and non-hazardous ones.
- Consumption and efficient use of water resources.
- Considers the efficient use and consumption of energy and energy generated from renewable sources.
- Adherence of activities to relevant environmental laws.

Social

- Diversity across the workplace, including at the managerial level.
- Inclusive work environment that supports skills development and fair remuneration.
- Safety, health, and welfare of work or employees.
- The rights of individuals as expressed in the International Bill for Human Rights
- Company's impact on society and local communities

Governance

- Activities to combat corruption and bribery

For this study, the control variables, which have been identified from the literature (El Khoury et al., 2021; Qureshi et al., 2021), include firm size- measured as the natural logarithm of the book value of the total assets at the beginning of the period and leverage- measured as the ratio of total liabilities to total assets.

This study uses descriptive and inferential analyses to summarise and analyse the data acquired. The study conducts regression analysis (OLS) of the data obtained to assess the degree of the correlation between business value and ESG parameters.

Findings/Results

This study used descriptive analysis to obtain summary information such as patterns, characteristics and normality of the data extracted. Table 1 contains the relevant information.

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p99	Skew.	Kurt.
TQ	161	.239	.439	.011	3.426	.011	2.856	4.966	30.512
ROA	161	.038	.162	-.662	1.519	-.443	.322	3.826	45.262
SV	161	3.702	1.507	0	5	0	5	-1.256	3.773
GV	161	.875	.332	0	1	0	1	-2.268	6.143
EV	161	4.048	1.405	0	5	0	5	-1.306	3.538
Size	161	17.813	1.632	14.359	21.052	14.417	20.816	-.227	2.385
Lev	161	.636	.282	.243	2.222	.249	1.964	2.364	12.398

Table 1. Descriptive Statistics

Table 1 summarises the ESG components' scores, the descriptive statistics for the corporate value scores and the control variables. The table covers the mean, standard deviation, min, 1st quartile, 3rd quartile, and the minimum and maximum values, skewness and kurtosis.

Regarding the dependent variable, the mean, standard deviation, and minimum and maximum values of Tobin’s Q (TQ) are 0.239, 0.439, 0.011, and 3.426, respectively. The mean, standard deviation, minimum and maximum values of return on assets (ROA) are 0.038, 0.162, −0.662, and 1.519, respectively. As can be observed in this table, regarding the three separate ESG-dimension scores, the mean values of EV, SV and GV are 4.048, 3.702, and 0.875, respectively. At the same time, the standard deviation of EV, SV and GV are 1.405, 1.507, and 0.332, respectively. Among the three individual ESG dimensions, governance performance has the lowest mean score and standard deviation value, and the mean score for the environmental dimension is the greatest, while social performance's standard deviation is the biggest. It suggests that Nigerian listed businesses perform comparatively best in the environmental (EV) and social (SV) dimensions and worse in the corporate governance (GV) component.

Skewness measures the symmetry of the data distribution. Positive skewness values indicate a longer right tail, whereas negative skewness values suggest a longer left tail.

TQ and ROA exhibit a significant positive skewness of 4.996 and 3.826, respectively, indicating a highly right-skewed distribution. EV, SV, and GV show negative skewness values, indicating a concentration of firms with high disclosure scores. Firm size exhibits a slight negative skewness of -0.227, suggesting a distribution skewed towards smaller firms. Leverage has a skewness of 2.364, indicating near symmetry.

Kurtosis measures the tail-heaviness of the distribution. Higher kurtosis values indicate heavier tails and a more peaked distribution. TQ and ROA have kurtosis values of 30.512 and 45.262, respectively, reflecting extremely heavy tails and a highly peaked distribution. EV, SV, and GV exhibit kurtosis values ranging between 3.5 and 6.1, respectively, indicating heavier tails and relatively peaked distributions. Firm size has a kurtosis of 12.398, suggesting very heavy tails and a highly peaked distribution, while leverage has a kurtosis of 4.892, indicating moderately heavy tails and a slightly peaked distribution.

Correlation Results

Table 2 illustrates the correlation matrix for the variables. This table shows that the correlation coefficient between TQ and ROA is -0.066, demonstrating that they are adversely connected. The correlation coefficient between TQ and EV is 0.007 and statistically negligible, while that between ROA and EV is 0.043 but not statistically significant. The correlation coefficient between TQ and SV is −0.067, while that between ROA and SV is 0.042, all statistically insignificant.

The correlation coefficient between TQ and GV is 0.018, while that between ROA and GV is 0.086, all statistically insignificant. It is worth noting that except for the SV score, all the correlation coefficients between TQ and EV, GV and ROA are all positive.

The correlation coefficients are not enough to determine the relationship between the variables. The relationship between corporate value and ESG performance is also affected by firm size and leverage, so it needs further exploration by controlling other aspects. Regarding the control variables, TQ and ROA are insignificantly (positive and negative, respectively) linked with firm size but are significantly (positive and negative, respectively) associated with leverage at a 1% significance level.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) TQ	1.000						
(2) ROA	-0.066	1.000					
	(0.39)						
(3) SV	-0.067	0.042	1.000				
	(0.38)	(0.58)					
(4) GV	0.018	0.086	0.536	1.000			
	(0.82)	(0.26)	(0.00)				
(5) EV	0.007	0.043	0.584	0.450	1.000		
	(0.93)	(0.58)	(0.00)	(0.00)			
(6) Size	0.095	-0.081	0.272	0.198	0.403	1.000	
	(0.22)	(0.29)	(0.00)	(0.01)	(0.00)		
(7) Lev	0.369	-0.282	0.156	0.275	0.145	0.209	1.000
	(0.00)	(0.00)	(0.04)	(0.00)	(0.06)	(0.00)	

Table 2: Correlation Matrix

Measuring the degree of multicollinearity is to assess the level of multicollinearity between the variables in question. It is essential because the findings and interpretations of the regression could be impacted by severe or significant multicollinearity between the variables, which is one of the assumptions of linear regression. Therefore, a multicollinearity test is further performed to disclose the degree of multicollinearity among the variables due to the high correlation coefficient between some variables in Table 2.

Variable	VIF	1/VIF
SV	1.092	.916
GV	1.107	.904
EV	1.199	.834
Size	1.151	.872
Lev	1.071	.935
Mean VIF	1.122	

Table 3: Multicollinearity test of the Model

The Model's multicollinearity findings are shown in Table 3. The VIF figures, which range between the value of 1.071 and 1.199, reveal that the degree of multicollinearity between the variables is not significant enough as they are less than the threshold of 10 (El Khoury, Naimy, & Iskandar, 2021). This result implies the degree of multicollinearity may not lead to any problem in the regression analysis.

Empirical Results

In this section, we examine and explain the empirical data for the three hypotheses given in our study. We first estimate the baseline models specified in Equations 1–3. Then, we employ an alternative dependent variable (ROA) for robustness testing.

Results for Individual ESG Pillars

In this part of the study, we presented empirical results regarding each of the pillars of the ESG, as contained in Tables 4-6.

Environmental Score and Corporate Value

	(1) TQ	(2) ROA
EV	-0.0957***	0.1173**
	(-2.4906)	(5.7679)
Size	0.0036	0.0129
	(0.2483)	(1.1496)
Lev	0.1276**	-0.2452**
	(3.0027)	(-6.5359)
_cons	0.1721	-0.1303
	(0.7123)	(-0.7155)
N	161	161
R^2	0.8224	0.6595
adj. R^2	0.7831	0.5841
F-Statistics	20.9160**	8.7483**
DW	1.5208	2.1311

Table 4: Regression results for the impact of EV score on corporate value

Table 4 provides regression results of the impact of firms' environmental (EV) performance on corporate value using the Model presented in Equation (1). Here, we concentrate on the coefficient of EV score, which assesses the influence of environmental (EV) performance on business value.

As demonstrated in column (1) of Table 4, when control variables are involved in the regression, the estimated coefficient of EV for TQ is -0.0957, which is negatively statistically significant at a 5% significance level. It shows that firms' environmental performance negatively affects corporate value, as judged by Tobin's Q. This finding maintains even control over the influence of firm size and leverage.

However, as indicated in column (2) of Table 4, when we use ROA as the proxy variable of firm value, the estimated coefficient of EV for ROA is 0.1173, which is significantly positive at a 1% significance level. It reveals that the performance of Nigerian listed companies' environment (EV) dimension of the ESG strongly correlates positively with corporate value evaluated by ROA. Our results demonstrated that firms' environmental performance negatively influences firm value, as judged in TQ, but positively affects ROA considerably.

Social Score and Corporate Value

	(1) TQ	(2) ROA
SV	-0.0332***	0.0287***
	(-2.2864)	(2.4941)
Size	-0.0099	0.0312***
	(0.6495)	(2.7090)
Lev	0.1595**	-0.2622**
	(3.3751)	(-6.5786)
_cons	0.3366	-0.3682
	(1.2780)	(-1.9035)
N	161	161
R^2	0.8125	0.6144
adj. R^2	0.7710	0.5291
F-Statistics	19.5757**	7.1977**
DW	1.5203	2.1160

Table 5: Regression results for the impact of SV score on corporate value

Table 5 illustrates regression results showing the impact of firms' social (SV) performance on company value using the Model presented in Equation (2). Here, we concentrate on the derived coefficient of SV, which evaluates the influence of social (SV) performance on company value.

As can be observed in column (1) of Table 5, the estimated coefficient of SV for TQ in the regression with control variables is -0.0332, which is negatively statistically significant, showing that the social performance of companies negatively influences their firm value assessed as TQ. As indicated in column (2) of Table 5, the estimated coefficient of SV for ROA in the regression with the control variables is 0.0287, which is positively statistically insignificant. This outcome implies that companies' social (SV) responsibility performance score is unfavourably associated with firm value under the influence of scale and leverage. The stronger the social-dimension performance score, the lower the firm value (TQ), but the higher the business's profitability is, as expressed by ROA.

Governance Score and Corporate Value

Table 6 displays the regression outcomes of the influence of firms' corporate governance (GV) performance on company value. The coefficient of GV for TQ in column (1) of Table 6 is calculated to be -0.0995, and it is statistically significant at 1% and negatively correlated. Nigerian listed firms experience a negative impact of governance score on their firm value, as assessed by TQ. This result remains valid when accounting for firm size and leverage.

	(1)	(2)

	TQ	ROA
GV	-0.0995**	0.06498**
	(-3.2108)	(3.7091)
Size	0.0084	0.0247***
	(0.5920)	(2.1672)
Lev	0.1688**	-0.2610**
	(3.7108)	(-6.6691)
_cons	0.1721	-0.2934
	(0.0707)	(-1.5412)
N	161	161
R^2	0.8073	0.6264
adj. R^2	0.7646	0.5437
F-Statistics	18.9207**	7.5744**
DW	1.5221	2.1118

Table 6: Regression results for the impact of GV score on corporate value

Where the return on assets (ROA) is utilised as the proxy variable for corporate value, according to the data in column (2) of Table 6, the estimated coefficient of GV for ROA in the regression with the control variables is 0.06498. This coefficient is statistically significant at 1%, suggesting that the performance of corporate governance has a good impact on the organisation's value, as assessed by ROA.

Discussions and conclusions

The results revealed that the three dimensions of the ESG, the environmental, social and governance, have a significant negative relationship with corporate value. This result implies that there is limited statistical evidence to support the notion that increased ESG performance leads to improved corporate performance, as measured by TQ. However, using the alternative proxy for corporate value-ROA, each of the dimensions of the ESG exhibits a positively significant relationship with the corporate value.

Several factors could justify the significant negative impact of ESG dimensions on corporate value. These factors include upfront costs of implementing ESG initiatives, investors perception that ESG initiative is a distraction from core business activities, regulatory scrutiny and compliance costs, poor governance practice, and where the cost of implementation outweighs the perceived benefits of ESG commitment (Narula, Rao, & Rao, 2023; Yu & Xiao, 2022; Khandelwal, Sharma, & Chotia, 2023). Further, ESG initiatives might lead to short-term financial sacrifices (which might not align with shareholders' goal-agency theory), might not provide immediate economic benefits to varied stakeholders (stakeholders theory) and may be seen as insincere or greenwashing by the investor (signalling theory) thereby snowball into damaging corporate value, especially in the view of traditional investors.

Our result is also consistent with some previous empirical studies that have documented a negative connection between ESG dimensions and corporate value (Friede, Busch, & Bassen, 2015; Hong & Kacperczyk, 2019; Costa & Fonseca, 2022) who found evidence of a negative relationship between ESG and firm value, specifically in industries with higher consumer price elasticity.

The results revealed a negative and substantial association between environmental, social and governance disclosures and corporate value, implying that higher ESG performance of the organisations leads to degradation of their corporate value.

This situation may arise because Nigeria exhibited a unique institutional context where environmental social (CSR) initiatives and governance concerns might not have an immediate and direct impact on corporate performance due to the voluntary nature of the ESG disclosure, weaker regulatory frameworks, weaker demand for environmentally responsible practices from stakeholders and incomprehensive or unprecise nature of the ESG disclosures data to capture the true extent of companies' ESG reporting efforts.

Given the R^2 for each of the dimensions of ESG, which is above 50%, we recommend that regulatory attention be focused on effective ESG-related policies to assuage possible future impact on firm value. In addition, the ongoing effort of the Financial Reporting Council of Nigeria (FRCN) to develop and enforce the implementation of the ESG framework in Nigeria should be fast-tracked. This would put the listed companies in Nigeria at par with the rest of the world in protecting stakeholders' investment through comprehensive information for sound investment decision-making.

Limitations and direction for future research

This study evaluated the ESG practice of 27 companies that cut across various sub-sectors of the Nigerian economy. The specific sector-based implications of the ESG for firm value are not apparent from the findings of this study. Besides, we have employed only the ESG template in the Nigerian Exchange Group sustainability guidelines. Future research may consider other metrics of firm value and ESG templates.

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Innovativeness as a driving force for future entrepreneurs-comparison of US and European students

Tiina Brandt
Haaga-Helia University of Applied Sciences, Finland

Keywords
Entrepreneurship, Innovativeness, Psychological Capital, Entrepreneurial camp

Abstract
Here the interest was to see entrepreneurial intentions and innovativeness and proactiveness levels of US and European students, after they finished their intensive three weeks innovation and entrepreneurial camp. 180 participants answered the questionnaire during the last week of the camp. The focus of this study is to see the impact of innovation on entrepreneurial intentions. Also, the impact of the camp was studied to see a decrease or increase in participants' psychological capital. Additionally cultural differences between US and European students were studied. The results indicated that innovativeness was related to entrepreneurial intentions and students gained higher level of psychological capital due to camp. Cultural differences indicated that US students were improving more their psychological capital at the camp, and they were more proactive than European. In case of entrepreneurial intentions there were no differences between Europe and US. Results are discussed in terms of pedagogical approaches and cultural differences.

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Introduction

Entrepreneurship has typically related to characteristics like risk-taking, innovativeness and competitiveness. There are plenty of studies indicating that risk-taking attitudes and behaviors are distinguishing characteristics of entrepreneurship (e.g. Das & Teng, 1997; Douglas & Shepherd, 2002; Stewart et al., 1998). Studies show that innovativeness is a crucial factor impacting entrepreneurial intentions (e.g., Brandt et al., 2025; Harris & Gibson, 2008).

Psychological capital (PsyCap) illustrates individuals' positive capacity in terms of the components of optimism, resilience, self-efficacy, and hope (Luthans et al., 2006), which all could be regarded as needed qualities and attitudes for entrepreneurs. And indeed, some studies indicate positive relationship of psychological capital and entrepreneurship (e.g., Akmaliah & Pihie, 2009; Saeid et al., 2011). Overall psychological capital has been found to have several positive impacts on individuals' life at organizations and work-related matters (Avey et al., 2011; Luthans et al., 2005; Luthans et al., 2008; Peterson et al., 2011). It is not permanent trait, like personality, when it can be increased with interventions. For example, 1-4 hours micro-interventions have been noted to have positive impact on the participants' psychological capital (Lupsa et al., 2019). Interestingly, leaders' have impact on their team members' psychological capital and psychological safety plays a role on individual's level of psychological capital (Brandt, 2022; Brandt & Rinne, 2024).

Here this study focuses on the relationship of innovativeness and entrepreneurial intentions and impact of entrepreneurial camp on the participants' psychological capital. Also, interest is to compare USA and European students in these perspectives. As previous studies indicate culture has direct and indirect effects on different dimensions of entrepreneurship (Amway Global Entrepreneurship Report, 2013; Gonzales-Serrano et al., 2018).

Entrepreneurial intentions

The Theory of Planned Behavior (TPB) (Ajzen, 1991) is one of the models in the study of entrepreneurial intent in different countries (Autio et al., 2001; González-Serrano et al., 2016; Krueger et al., 2000; Liñán & Fayolle, 2015; Moriano et al., 2012). Ajzen (1991) postulates that behavior is a function of beliefs that influence a certain behavior. These beliefs are considered important premises that determine personal attitude, intention and perceived behavior control. The more favorable the subjective norms and attitudes towards behavior, the greater the perceived degree of control of the individual, leading to a stronger intention to perform a certain behavior (Ajzen, 1991). Previous studies have used TPB to predict certain variables that are related to entrepreneurship. These variables include entrepreneurial intentions, entrepreneurial behavior and entrepreneurial skills and attitudes. Entrepreneurial intention is the "self-acknowledged conviction by a person that they intend to set up a new business venture and consciously plan to do so at some point in the future" (Thompson, 2009, p. 676). Entrepreneurial intention is the first step towards taking entrepreneurial action such as contemplating a start-up. The second variable of interest is entrepreneurial behavior. Based on the TPB, intentions are correlated with behavior and linked to behavioral control. Intention plays a central role in TPB by connecting norms, attitudes and behavioral control with enacted behaviors.

Entrepreneurial qualities and innovativeness

Entrepreneurial qualities have typically been related to ability to take risks (Frishamme & Andersson, 2009) and various research indicates this (e.g. Begley & Boyd, 1987; Carland et al, 1995; Karabey 2012; Zhang et al, 2015). Other authors have shown that highly risk-minded entrepreneurs are generally willing to take on high-risk ventures for the chance of high returns (Covin & Slevin, 1989). Some research indicates that with risk-taking ability the need for autonomy in decision making is also needed. The stronger the risk-taking tolerance of the individual has, and the stronger is their preference for decision-making autonomy, the stronger is their intention to be self-employed (Douglas & Shepherd, 2002). The intervention study indicated that people could learn to take risks (Kyrö & Tapani, 2008). Researchers studying students used a variety of measures for entrepreneurial attitudes that included a mixture of attitude and trait measures, often including items referencing risk-taking and innovativeness (Langkamp-Bolton & Lane, 2011; Levenburg & Schwarz, 2008; Macko & Tyszka, 2009; Zampetakis et al., 2009) as well as proactivity (Langkamp-Bolton & Lane, 2011; Zampetakis et al., 2009).

Earlier research suggests that psychological and personality characteristics are the main drivers that predict individuals' innovativeness. While some believe most individuals can be innovative, creating new ideas is easier for some. For example, Rogers (1962) regarded innovativeness as a context-consistent personality trait. Other scholars meanwhile have argued that innovativeness is influenced by a variety of personality traits and sociological characteristics (Midgley & Dowling, 1978). Despite these differing viewpoints, both approaches maintain that innovativeness, whether conceptualized as a personality trait or adoption to innovations, is to anticipate and influence innovative behavior (Sternberg & Shoham, 2022).

In a business setting, a preference for innovation refers to a willingness and inclination toward experimentation and creativity when developing and introducing new products and services (Lumpkin & Dess, 2001). Therefore, in business settings the innovation process and performance indicators have been studied widely (Nappi & Kelly; 2022). Innovation also needs proactivity, as proactive individuals scan the environment for opportunities, show initiative, and persevere until they bring about change (Bateman & Crant, 1993).

Studies indicate that innovative individuals are persistent (Hurt et al., 1977; Sandberg et al., 2013), self-confident, open to experience, original, independent, and have tolerance for ambiguity (Barron & Harrington, 1981; George & Zhou, 2001; Patterson, 1999; West & Wallace, 1991). Innovators are also willing to change (Hurt et al., 1977), have innovative consumer and employee behavior (Sternberg and Shoham, 2022), are eager to try new ideas (Rogers & Shoemaker, 1971), and exhibit a propensity towards problem-solving (Scott & Bruce, 1994). Additionally, they can inspire others and build networks (Akrich et al., 2002). Regarding personality, studies have found positive correlations between openness, extraversion, and creativity (Bender et al., 2013; Hughes et al., 2013). These layers of innovativeness enhance the ability of entrepreneurs to seize these opportunities and convert them into successful ventures. Extant literature consistently highlights the positive relationship between innovativeness and entrepreneurial orientation (Umar et al., 2018), in addition to risk-taking, proactiveness, autonomy, and competitive aggressiveness (Covin & Slevin, 1991).

Innovativeness allows entrepreneurs to differentiate themselves, attract customers, and create value in dynamic and competitive business environments. For example, Harris and Gibson (2008) found that personal control, innovation, self-esteem, and achievement concerning business involvement were correlated with intentions to become an entrepreneur. Similarly, Florin et al. (2007) have studied student attitudes promoting entrepreneurship and found that innovation, nonconformity, proactive disposition, self-efficacy, and achievement motivation are crucial. Other researchers studying students used a variety of measures for entrepreneurial attitudes that included a mixture of attitude and trait measures, often including items referencing risk-taking and innovativeness (Langkamp-Bolton & Lane, 2011; Levenburg & Schwarz, 2008; Macko & Tyszka, 2009; Zampetakis et al., 2009) as well as proactivity (Langkamp-Bolton & Lane, 2011; Zampetakis et al., 2009). These qualities are required for entrepreneurs, both students and non-students, to successfully undertake entrepreneurial ventures (Wahee et al., 2022). Entrepreneurial orientation represents the strategic mindset and behavior of individuals, or indeed organizations, that engage in entrepreneurial activities, of which innovativeness is a central dimension. The study by Brandt et al., (2025) shows that innovativeness is crucial factor in entrepreneurial intentions at individual level, however also culture has impact on that.

Psychological capital and entrepreneurial tendencies

A comprehensive definition of Psychological capital (PsyCap) is "an individual's positive psychological state of development that is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (Luthans et al., 2007, p. 3).

In working life, it has been noted that psychological capital has a huge impact on the individuals' experiences and success. There are multiple studies of its positive impacts on individuals' life at organizations and work-related matters (Avey et al., 2011; Bergheim et al, 2015; Luthans et al, 2008; Peterson et al, 2011). For example, Karatepe and Karadas (2015) found that employees scoring high on psychological capital are more satisfied with their jobs, careers, and lives. It has also been associated with positive career mobility (Järlström & Brandt, 2017) and objective career success measured in wages and hierarchical career progression (Järlström et al, 2020). At the organizational level, it is connected to organizational performance (Hmieleski & Carr, 2008), business excellence (Hsu et al., 2014) and competitive advantage (Youssef & Luthans, 2010).

In relationship with entrepreneurship, psychological capital seems to have also positive connection. According to the study of Contreras et al. (2017) with the sample of 100 persons, the results indicate that entrepreneurial intention is related to psychological capital with dimensions of self-efficacy and resilience and as an integrated construct. A study by Ebhrem et al (2019) highlighted the importance of psychological capital in explaining why some students are more willing to start-up business than others. Indeed, the higher the student's psychological capital, the higher the intention to start-up a business. Further, according to study of Brandt (2022) with 457 persons, the PsyCap correlated with Entrepreneurial tendencies as well as Growth orientation. The Entrepreneurial tendencies correlated all dimensions but Hope and Growth correlated with all dimensions. Both were correlated with whole construct of PsyCap. Concerning psychological capital dimensions, the relation between self-efficacy and entrepreneurial behaviour has been widely established (Akmaliah & Pihie, 2009; Chandler & Jansen, 1997; Chen et al, 1998; Saeid et al., 2011). Also, optimism (Lingfei & Li, 2011; Robledo et al, 2015) and hope (Laguna, 2006) are predictors of entrepreneurial intention and hope indicates entrepreneurs' satisfaction with business ownership according to Jensen and Luthans (2002). According to these studies it seems like persistence is the only dimension which has not been studied as a relationship with entrepreneurship.

Methodology

Sample

Totally, 180 students responded to the questionnaire. Most of them were between 21-30 years old (67,4%), and some of the under 20 years (19,9%). Only few of them were between 31-40 years (8,3%) and even less over 41 years (2,2%). There were 50,8% women and 46,4% men as respondents, and most of them were students at university, only some of them were students from upper secondary school (3,9%). Field of education was technology of most of the students (37,6%) or business (27,1%). Some respondents were health and social work field (6,1%), natural sciences (6,1%), and humanistic & art field (5,5%). Most of the respondents were European (61,3%) and secondly most from USA (24,3%). Some respondents did not want to inform the country of origin.

European Innovation Academy (EIA)

The European Innovation Academy (EIA) (https://www.inacademy.eu/portugal/) is the 3 weeks study camp fostering innovativeness and entrepreneurship with students. Students will form the enterprise with international teams during camp. They will get help from mentors with the business background. The best ones will get rewarded after the final pitch day.

Measuring Innovativeness

Innovativeness questionnaire has been used in international studies, and its reliability has been regarded very good (see e.g. Brandt et al., 2025). The respondents were asked to rate their innovative and proactive behavior at the Likert scale 1-7. Factor analyses (Varimax) divided as planned two dimensions. Creativity was measured with 6 items, such as “I consider innovative opportunities”. Cronbach’s alpha was 0.841. Proactiveness was measured also with 6 items, such as “I make important organizational members enthusiastic for innovative ideas”. Cronbach’s alpha was 0.878.

Measuring impact on psychological capital

Students were asked to rate honestly the impact of the EIA on their psychological capital ranging from -3 to +3, indicating if the camp decrease or increase this psychological capital item. Factor analyses (Varimax) have been earlier made with different dataset (e.g. Brandt, 2022) so those factors were used here as well. Cronbach’s alphas were as following: Self-Efficacy 0,894, Hope 0,912, Optimism 0,729, Resilience 0,778.

Results

Here the results of the entrepreneurial intentions and its connection with innovativeness is presented. Also, the impact of entrepreneurial camp to psychological capital, as well as psychological capital and its impact on entrepreneurial intentions and innovations. Finally, we present cultural differences and its relationship with variables, as well as impact of other background variables.

Entrepreneurial intentions of the participants

The interest was to see if the students will have the interest to become entrepreneur after the EIA-camp. Results were:

- 3,3% (n=6) will not definitely start own business at the future
- 8,3% (n=15) will not probably start own business at the future
- 32,6% (n=59) did not know if they will start own business at the future
- 33,1% (n=60) will probably start own business at the future
- 22,1% (n=40) will definitely start own business at the future

There were 100 respondents who said they will most likely, or definitely start own business, and 80 persons who were not sure, or said they will not start own business. These two groups were formed and were analyzed further.

➔ Group A) unsure or no entrepreneurial intentions (N=80, 44,4%)

➔ Group B) High entrepreneurial intentions (N=100, 55,5%)

Relationship between innovativeness and entrepreneurial intentions

As can be seen from Table 1 the entrepreneurial intention correlates statistically significantly with creativity, proactiveness and total innovativeness. When looking at the means of the low and high entrepreneurial intentions group (Table 2) the means are clearly higher with the group of high entrepreneurial intentions. Independent samples *t*-test produced statistical differences between high and low entrepreneurial intentions and all variables of innovativeness.

		Entr. Intention	Creativity	Proactiv.	Total INNOV.
Entrepreneurial Intention	Pearson Correlation	1	,431**	,363**	,428**
	Sig. (2-tailed)		<,001	<,001	<,001
	N	180	180	180	180
Creativity	Pearson Correlation	**,431****	1	,657**	,872**
	Sig. (2-tailed)	**<,001**		<,001	<,001
	N	**180**	180	180	180
Proactiveness	Pearson Correlation	**,363****	,657**	1	,942**
	Sig. (2-tailed)	**<,001**	<,001		<,001
	N	**180**	180	180	180
Total INNOV.	Pearson Correlation	**,428****	,872**	,942**	1
	Sig. (2-tailed)	**<,001**	<,001	<,001	
	N	**180**	180	180	180

**. Correlation is significant at the 0.01 level (2-tailed).

Table 1. Pearson correlation analyses of Entrepreneurial Intentions and Innovativeness

	Creativity Mean (std)	Proactiveness Mean (std)	Total Innovativeness Mead (std)
Low intentions	5,44 (0,747)	4,66 (1,089)	5,05 (0,838)
High Intentions	6,03 (0,761)	5,44 (1,140)	5,74 (0,846)
F-value	0,206, p<0,001	0,081, p<0,001	0,04, p<0,001

Table 2. Means of low and high entrepreneurial intentions groups in Innovativeness, results of *t*-test.

Impact of the camp to psychological capital and its impact on entrepreneurial intentions and innovativeness

Dimensions of psychological capital all were evaluated higher because of the camp as can see in the Table 3. Least increase was in resilience, and most in self-efficacy and hope. Those students with high entrepreneurial intentions had statistically significantly more raise in every dimension of psychological capital.

	Mean (std)	**Range**	**Low Entr. intentions Mean (std)**	**High Entr. intentions Mean (std)**	**F-value sig (t-sided)**
Self-Efficacy	1,44 (0,857)	-0,12 to +3,00	1,20 (0,737)	1,62 (0,901)	6,069 p<0,001***
Optimism	1,10 (0,839)	-1,00 to +3,00	0,91 (0,749)	1,26 (0,876)	2,700 p=0,004*
Hope	1,47 (0,921)	-1,00 to +3,00	1,24 (0,821)	1,66 (0,961)	3,923 p=0,002*
Resilience	0,806 (1,011)	**-1,2 to +3,00**	0,59 (0,904)	0,98 (1,06)	3,711 p=0,009*
Psychological Capital TOTAL	1,20 (0,783)	-0,23 to +3,00	0,98 (0,646)	1,38 (0,839)	6,202 p<0,001***

Table 3. Psychological capital and low and high entrepreneurial intentions

Cultural differences (USA vs. Europe) related to entrepreneurial intentions and innovativeness

When comparing US and European students there were no differences in entrepreneurial intentions, but US students were experiencing more increase in dimensions of psychological capital (see Table 4). The statistically significant differences were in self-efficacy and hope. The proactivity and total innovativeness were also statistically significantly higher with US respondents.

Gender and educational field in comparison

There were no differences when comparing most fields represented (business vs. technology). In case of gender, there were no difference, but only in case of resilience (F=0,025, p<0,001) when women felt having less raise in resilience (men, mean=1,132, women=1,07).

	Europe **n=111**	**USA** **n=44**	**F-value** **t-sided p.**
Self-Efficacy	1,30 (0,829)	1,75 (0,875)	0,186 p=0,004**
Optimism	1,00 (0,999)	1,26 (0,999)	1,207 p=0,071
Hope	1,34 (0,902)	1,78 (0,915)	0,004 p=0,007**
Resilience	0,694 (0,901)	0,932 (1,25)	9,031 p=0,189
Psychological Capital TOTAL	**1,08** **(0,724)**	**1,43** **(0,860)**	**1,073** **p=0,006****
Entrepreneurial intention	**3,63** **(1,061)**	**3,64** **(1,036)**	**0,007** **p=0,976**
Creativity	5,67 (0,779)	5,89 (1,156)	0,270 p=0,064
Proactivity	4,88 (1,156)	5,37 (1,197)	0,719 p=0,010**
Innovativeness Total	**5,27** **(0,885)**	**5,63** **(0,927)**	**0,525** **p=0,014***

Table 4. Cultural differences between USA and Europe. Means and standard deviations.

Discussion

After this entrepreneurial camp there were 56% of students who were most likely to start own business after some years. When comparing this to the larger sample (n=1 460) of international students the average intention of them was 46% (Brandt et al., 2025). This indicates that this kind of pedagogical camps are important when creating entrepreneurial mindset and the likeliness to start own business.

The results indicate that creativity, proactivity and innovativeness are connected to entrepreneurial intentions. These results support the earlier studies of importance of innovativeness in entrepreneurship. In regards of pedagogical applications, enhancing students' innovativeness, proactivity and creativity should be more in the curriculums. Especially in Europe proactiveness should be also emphasized in the studies. Concrete idea pitching and selling could be some ways to increase self-esteem of students.

All the aspects of the psychological capital were increased after the camp, and especially with those students who planned to start their own business in the future. Most probably those students' who applied and travelled to the EIA, already had their psychological capital at very high level, but interestingly, this experience still did increase that. It would be interesting to study the psychological capital at team level, if the EIA camps of the winning top ten teams have higher psychological capital than others.

From dimensions of psychological capital, especially self-efficacy and hope were increased. Self-efficacy means trust into own abilities in problem solving, having own opinions, and giving presentations if needed. It seems like EIA's lectures, mentors and presentation coaches were doing their job in excellent way, when the self-efficacy of students increased so much. Those people giving lectures and mentors are businesspeople, most from Silicon Valley, and they told their unique story and struggles they have faced, alongside the information about the business. This kind of genuine and encouraging way to support young people to find their path clearly impacted their self-efficacy. Also, the international teams they worked with, seem to give confidence for them. Feeling accepted and being able to contribute and communicate despite high pressure might be reasons for increase of self-efficacy. Hope means target setting and finding the different paths to gain the target. It may be that the camp's targets all the time were so clear that those impacted how the students started to think more target-orientated way. Resilience was the dimension which did had lowest increase (but still did increase), especially with women. The lower increase in resilience might be because many students experienced the camp as very demanding, there were long days to build the business and gain the clients, with team members you did not know earlier. Using English all the time was not easy to all the European students. Students needed to extend their capabilities in many ways as adapting new surroundings, new people and new working methods in very fast way. Increase of the psychological capital with 3-weeks entrepreneurial camp gives new perspectives on the ways to increase psychological capital, when earlier studies indicate that most effective interventions are only couple of hours long (Lupsa et al., 2019). Here it seems that also long and intensive interventions are working well also.

When comparing US and European students, they had the same average on the intentions to start business. The study of Brandt et al. (2025) of cultural differences indicated that lower levels of entrepreneurial intention among students from US, Nordic and European countries in contrast to their counterparts from the Middle East, India, and the Caucasus region. It may be, that western countries are experiencing quite good circumstances in working life, so the pushing factors towards entrepreneurship are weaker than other cultures. There were differences between US and European students in case of psychological capital and innovativeness. The camp had more positive impact on US students' psychological capital. Especially self-efficacy and hope increased more with US students than European ones. It should be noted that he beginning state of the psychological capital was not known, because we did not measure it when students arrived at the camp - so it is not known if the US students were having lower levels of psychological capital in advance. It may also be that even the program is European (created by Estonians), it has largely been impacted by universities from US and many speakers and mentors are from US as well. Thus, it may be that the program is especially suitable for US students, and thus they experience it more positively in regards of psychological capital.

The US students were rating themselves higher in proactivity and total innovativeness. Proactivity means selling the idea to others, systematically approaching important organization's people about the idea and acquiring new customers. It means social activity to get others involved and enthusiastic about the new ideas. It seems that US culture emphasizes and supports proactive behavior, when we stereotypically expect US people to act as socially active and confident ways. Maybe also long history in business and sales have made US people more active, when the 'land of possibilities' is there, if you are active. European people tend to be more modest and e.g. sales is typically not very attractive work for Europeans.

Overall, the students with entrepreneurial intentions increased their psychological capital during the camp. It seems like camp gave them important attitudes and perspectives that are crucial in many aspects of entrepreneurship and working life. This entrepreneurial camp had impact on the wider construct of persons' attitudes, including self-esteem. Some of the studies of entrepreneurial education show that education can exert positive effects on entrepreneurial self-esteem (e.g. Jones et al., 2008) and this kind of intensive well-built camp can do it very well.

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Pharmacists' knowledge and perceptions of financial literacy

Miljan Adamović
Stefan Milojević
Educons University, Faculty of Business Economics, Republic of Serbia

Snežana Knežević
Educons University, Faculty of Business Economics, Republic of Serbia
University of Belgrade, Faculty of Organizational Sciences
Belgrade, Republic of Serbia

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Abstract

Success in today's rapidly evolving pharmaceutical industry requires more than groundbreaking research and innovative products - it demands sound financial decision-making. Financial literacy has become a crucial skill for managers tasked with steering their organisations through high-stakes investments, regulatory pressures, and intense market competition. This article highlights why financial literacy is essential for pharmacists and how targeted training can drive smarter decisions, better resource management, and sustainable growth. The purpose of this study was to assess the level of financial literacy among pharmacists. A self-assessment postal survey of more than 40 questions was developed and distributed to pharmacy institutions across the Republic of Serbia - three pharmacy groups. Serbia is home to 4,000 operating pharmacies. Over three months, 202 out of 230 surveys were completed and returned. Respondents recognized the importance of financial skills and knowledge for their work and expressed a need for training. Policymakers should consider incorporating financial literacy programs into pharmacists' curricula.

Introduction

In the modern era, where financial decision-making is one of the most complex human behaviors, individuals require a broad set of skills to make wise financial choices. Understanding economic principles, managing risks, and recognizing potential fraud have become essential skills. The digitalization of financial transactions and the expansion of artificial intelligence further complicate the decision-making process, making financial literacy necessary not only for individuals but also for organizations.

Various definitions of financial literacy can be found in the literature. One definition describes it as the ability to analyze financial options, plan for the future, and respond appropriately to events (Tejero et al., 2019, p. 138). One of the critical competencies required is pharmacy accounting and financial management (Alomi et al., 2023). Financial literacy is essential for effective financial management. It encompasses the essential knowledge and terminology individuals need to effectively manage personal finances and navigate functions in modern society.

With the growing availability of financial products and services, both individuals and companies face challenges in evaluating costs, benefits, and the long-term consequences of their decisions. In this context, the role of forensic accounting and auditing is becoming increasingly significant, as it enables the detection of irregularities, strengthens investor confidence, and improves regulatory frameworks. Financial literacy, supported by technological innovations and education, can significantly contribute to risk reduction and informed decision-making in today's business environment. Research indicates that higher levels of financial literacy within a community are associated with greater prosperity. As a result, financial literacy has garnered the attention of governments worldwide.

Changes in the business environment are intense, and pharmacy managers are expected to measure and respond to the financial impact of these changes (Abu Assab et al., 2024). The ultimate goal is to improve the financial health of pharmacies. Planned changes should ensure that pharmacies continue to grow and provide high-quality services to meet the needs of the communities they serve.

Literature Review

Healthcare organizations today face numerous challenges as they strive to improve service quality while reducing costs. Healthcare providers are increasingly under pressure to curb rising healthcare expenses in a dynamic environment. Efficient service delivery requires the application of methodologies tailored to the specificities of healthcare (Milojević et al., 2024). Effective financial management plays a crucial role in the functioning of the healthcare system, as well as in the implementation of these methodologies. In challenging conditions, healthcare organization managers must develop skills and knowledge that go beyond their primary clinical competencies, including leadership abilities (Gačić et al., 2023). This study focuses on examining financial literacy in pharmacies, as this issue has so far been insufficiently explored. In the modern, dynamic healthcare environment, pharmacists are increasingly taking on key managerial roles in pharmaceutical practice. For over a decade, there has been a growing trend of pharmacy ownership by multiple contractors, leading to many pharmacies being managed by pharmacists in managerial roles (Adamović, 2024). This research examines the key responsibilities of pharmacists as managers in pharmaceutical organizations, including financial management, human resource management, inventory control, and strategic planning. In this context, it presents an interesting hierarchy of the management structure (Figure 1).

Figure 1. Management Hierarchy
Source: De Silva, T. (2013). Essential Management Skills for Pharmacy and Business Managers. New York: Productivity Press (p. 7).

According to the author, communication styles vary depending on the hierarchical structure within an organization. For instance, communication between the general director and their subordinates typically occurs almost exclusively in a financial context, which can be described as the "language of money." On the other hand, managers communicate with frontline staff using operational language, which focuses on daily functions and tasks. Therefore, both managers and pharmacists need to master and understand both languages—financial and operational—to effectively manage communication within the organization.

Community pharmacists play a key role in the healthcare system, acting as easily accessible healthcare providers and entrepreneurs. Over time, the role of community pharmacists has significantly evolved, expanding beyond the traditional function of dispensing medications to a broader range of responsibilities. This transformation includes additional aspects of healthcare, such as providing advisory services, managing therapies, promoting public health, and educating patients. This expansion of pharmacists' roles reflects changes in community healthcare needs and highlights their importance as key players in the healthcare team. In this context, it is also necessary to emphasize the redefinition of pharmacy management roles towards implementing strategies for cost optimization, improving operational efficiency, and differentiating services to maintain competitiveness and ensure long-term financial stability.

To successfully manage community pharmacies, pharmacists must possess financial literacy and apply relevant financial indicators. However, research on pharmacists' awareness of financial indicators remains very limited. This highlights the need for further studies in this field to improve understanding and application of financial principles in pharmacy operations (Assab et al., 2024). It is important to note that financial literacy encompasses both knowledge and financial behavior (Lusardi, 2019). Furthermore, as Özyeşil and Tembelo (2025) state, financial literacy includes multiple dimensions, emphasizing not only knowledge itself but also the ability to acquire and effectively apply it.

As noted by Bergin (2016), pharmacy owners and managers face the imperative of maintaining high-quality patient services while simultaneously adapting to key factors affecting the financial stability of the pharmacy sector. Some of the most significant challenges include:

- Reforms and price reductions within the existing benefits system, directly impacting the revenue structure of pharmacies.
- Co-payment discounts, which modify the economic viability of certain pharmaceutical products.
- High-cost medications with fixed margins, which may limit profitability, particularly in specialized therapies.
- Implementation of professional services, which require additional resources but can contribute to revenue diversification.
- Competitive pressures, manifesting through:
  - The increasing influence of discount offers that attract consumers with pricing advantages.
  - The consolidation of pharmacy groups, currently a trend in Serbia, which affects their bargaining power in procurement processes and indirectly influences market prices.
- Trends in operational costs, including rising rents and employee wages, which increase fixed expenses and impact the overall financial sustainability of pharmacies.

Individuals with adequate financial knowledge are more likely to achieve their financial goals. Conversely, a lack of such knowledge can hinder effective personal financial management, lead to financial difficulties, and negatively affect overall financial well-being. Another important reason for improving financial literacy in pharmacies is the ability to recognize and prevent fraudulent activities by employees.

Research Methodology

In this study, data were analyzed using the software tool SPSS (IBM SPSS Statistics), version 20. Descriptive statistics were applied for data analysis, with results for numerical variables presented as the arithmetic mean (mean) and standard deviation (SD), while categorical variables were represented by the number of respondents and their percentage. Pearson's correlation coefficient was used to analyze the correlation between numerical variables. Additionally, an independent samples t-test was used to test differences between two independent groups, while ANOVA was applied to compare multiple groups and identify significant differences among them. The results were presented in tabular format as well as through appropriate graphical representations.

Results

Sociodemographic Characteristics of Respondents

The empirical research was conducted using a survey method on a selected sample. The sample consists of 202 pharmacists, of whom 132 (65.3%) are female and 70 (34.7%) are male. An analysis of the age structure of the respondents shows that 42 pharmacists (20.8%) are under 25 years old, while the largest group consists of respondents aged 25 to 34 years—68 (33.7%). The age category of 35 to 44 years includes 62 respondents (30.7%), while 26 (12.9%) fall into the 45 to 54 age group. The fewest pharmacists are older than 55 years—only 4 (2.0%). Regarding educational background, most respondents have completed undergraduate academic studies—86 (42.6%), while 46 pharmacists (22.8%) hold a master's degree. Specialist studies have been completed by 20 respondents (9.9%), and 8 pharmacists (4.0%) have obtained a doctoral degree. Other types of education were reported by 42 respondents (20.8%). An analysis of work experience shows that 62 pharmacists (30.7%) have less than five years of experience, while 54 (26.7%) have between 5 and 10 years. In the categories of 11–15 and 16–20 years of experience, there are 34 (16.8%) and 36 (17.8%) pharmacists, respectively. The fewest respondents have over 20 years of work experience—16 (7.9%). The sociodemographic characteristics are presented in Table 1.

SOCIODEMOGRAPHIC CHARACTERISTICS	***N (%)***
Gender	
Female	132 (65,3%)
Male	70 (34,7%)
Age	
Under 25	42 (20,8%)
25-34	68 (33,7%)
35-44	62 (30,7%)
45-54	26 (12,9%)
55 and older	4 (2,0%)
Education Level	
Undergraduate academic studies in pharmacy	86 (42,6%)
Master’s degree in pharmacy	46 (22,8%)
Specialist studies in pharmacy	20 (9,9%)
Doctorate in pharmacy	8 (4,0%)
Other	42 (20,8%)
Years of Work Experience	
Less than 5 years	62 (30,7%)
5-10 years	54 (26,7%)
11-15 years	34 (16,8%)
16-20 years	36 (17,8%)
More than 20 years	16 (7,9%)

Table 1. Sociodemographic Characteristics of Respondents

Out of the total number of pharmacists included in this study, 130 (64.4%) work in privately owned pharmacies, while 72 (35.6%) are employed in state-owned pharmacies. The distribution of respondents by the type of pharmacy in which they are currently employed is shown in Figure 2.

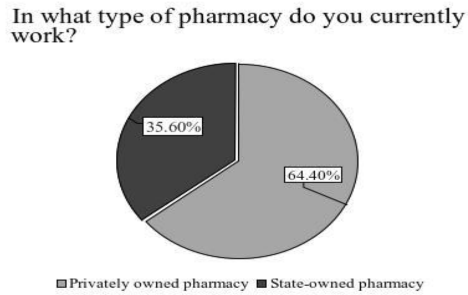

Figure 2. Distribution of Respondents by Type of Pharmacy in Which They Are Currently Employed

The self-assessment of financial literacy among respondents shows that 24 pharmacists (11.9%) rate their level of financial literacy as very low, while 28 respondents (13.9%) consider their level to be low. The largest portion of the sample, 79 pharmacists (38.6%), assess their financial literacy as moderate. A high level of financial literacy was reported by 53 respondents (25.7%), while 20 pharmacists (9.9%) believe they possess a very high level of financial literacy. Figure 3 shows the distribution of respondents based on their self-assessment of financial literacy level.

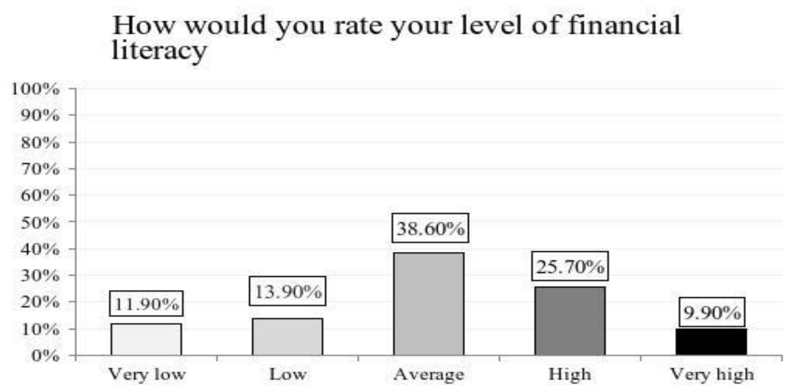

Figure 3. Distribution of respondents based on their self-assessment of financial literacy level

The analysis of respondents' attitudes toward the importance of financial literacy for pharmacists shows that 10 pharmacists (5.0%) do not consider financial literacy important at all, while the same percentage, 10 respondents (5.0%), express disagreement. A neutral stance on this issue is held by 40 pharmacists (19.8%). The largest percentage of respondents, 78 (38.6%), agree that financial literacy is important for pharmacists, while 64 pharmacists (31.7%) fully share this view. Figure 4 shows the distribution of respondents based on their opinion on the importance of financial literacy for pharmacists.

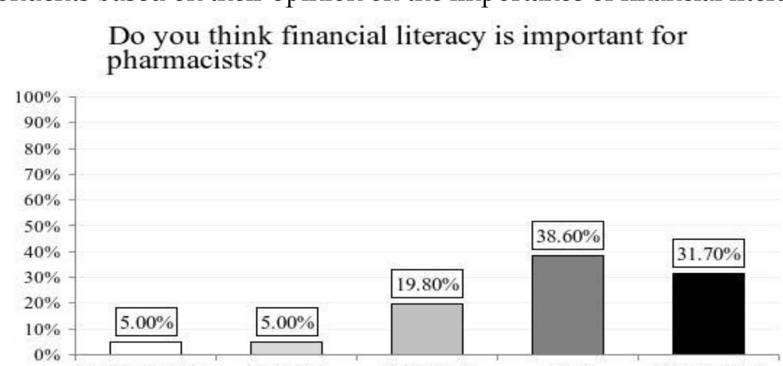

Figure 4. Distribution of respondents based on their opinion on the importance of financial literacy for pharmacists

Perceived Importance of Financial and Digital Education in the Pharmacy Profession

Respondents assessed their level of agreement with seven statements related to various aspects of financial and digital literacy in the pharmacy profession. Ratings were given on a Likert scale from 1 to 5, where lower values indicate disagreement, while higher values reflect a greater degree of agreement. The total score was calculated by summing the individual ratings, with a higher score indicating greater awareness of the importance of financial and digital education, as well as more positive attitudes toward improving the pharmacy profession through financial management and technology implementation. The research results indicate that respondents moderately positively evaluate the importance of financial and digital education in the pharmacy profession, with average ratings for individual statements generally above the mid-point of the scale (rating 3), ranging from 3.49 to 3.76 (Table 2).

RESPONDENTS' PERCEPTION OF THE IMPORTANCE OF FINANCIAL AND DIGITAL EDUCATION IN THE PHARMACY PROFESSION	***Mean±SD***
I need additional education in the field of finance	3,55±1,209
Financial literacy should be part of pharmacy education	3,70±1,151
Poor financial management is a common problem in pharmacies	3,73±1,110
I believe financial education would improve pharmacy business operations	3,76±1,057
The use of digital tools can enhance pharmacy business efficiency	3,71±1,105
It is important to regularly update knowledge about digital technologies used in the pharmaceutical sector	3,67±1,121
Artificial intelligence offers unlimited possibilities for improving drug management	3,49±1,177
TOTAL SCORE	**25,62±7,115**

Table 2. Respondents' Perception of the Importance of Financial and

Digital Education in the Pharmacy Profession

Respondents also rated the importance of topics related to various aspects of financial management in pharmacies using a Likert scale from 1 to 5. The results showed that respondents assign high importance to different aspects of financial management, with all average ratings above the mid-point of the scale (rating 3), as shown in Table 3. The highest-rated topic was *employee incentive programs* (4.21 ± 0.885), indicating that pharmacists recognize the importance of motivation and appropriate reward policies in pharmacy business operations. Additionally, *cost planning* (4.17 ± 0.904) and *pricing of pharmaceutical and non-pharmaceutical products* (4.16 ± 0.878) were rated highly, suggesting that these aspects are crucial for the financial sustainability of pharmacies. *Efficient liquidity management* (4.04 ± 0.956) and *inventory management* (4.04 ± 0.891) were also recognized as important factors for successful business operations. On the other hand, the lowest average ratings were given for *seasonal variations in business operations* (3.84 ± 1.063) and the *impact of regulations on financial flows* (3.91 ± 0.958). This may indicate that respondents do not perceive these topics as key challenges in pharmacy management or that they lack specific knowledge and experience in these areas.

IMPORTANCE OF SPECIFIC TOPICS IN FINANCIAL MANAGEMENT OF PHARMACIES	***Mean±SD***
Pricing of pharmaceutical and non-pharmaceutical products	4,16±0,878
Revenue planning	4,11±0,956
Cost planning	4,17±0,904
Inventory management	4,04±0,891
Employee incentive programs	4,21±0,885
Seasonal variations in business operations	3,84±1,063
Efficient liquidity management	4,04±0,956
Properly calculated price margins	4,02±0987

Revenue diversification in pharmacy	3,92±0,964
Identifying financial opportunities and threats in pharmacy	4,02±0,997
Profitability analysis of opening a new pharmacy or expanding operations	4,01±0,941
Managing financial risks in pharmacy operations	3,94±0,944
Solvency	3,96±0,935
Impact of regulations on financial flows	3,91±0,958
Investment in new equipment or technology	3,97±1,002

Table 3. Importance of Specific Topics in Financial Management of Pharmacies

According to Respondents' Ratings

Respondents evaluated the importance of various forms of training and education in financial management in pharmacies in the same way (Table 4). The results show that pharmacists assign high importance to continuous education and additional training in financial management, with all ratings above 4.00. The highest average rating was given to the *need for participation in financial literacy workshops or seminars* (4.20±0.914), indicating a strong awareness of the importance of practical training in this field. The lowest, yet still high, rating was given to the *availability of resources and tools for improving financial management in pharmacies* (4.14±0.936), suggesting a need for enhancing the accessibility of materials and tools that would help pharmacists manage finances more efficiently.

IMPORTANCE OF TRAINING AND EDUCATION	*Mean±SD*
Continuous education on financial skills for pharmacists	4,18±0,851
Participation in financial literacy workshops or seminars	4,20±0,914
Integration of financial topics into pharmacy education programs	4,15±0,896
Availability of resources and tools for improving financial management in pharmacies	4,14±0,936

Table 4. Importance of Training and Education in Financial Management of Pharmacies

Respondents also evaluated the significance of various problems encountered in pharmacy business operations (Table 5). To gain insight into the overall challenges pharmacists face, a cumulative problem score was calculated for each respondent by summing individual ratings on the Likert scale. This cumulative score reflects the overall perception of business challenges—higher values indicate that respondents experience more or more severe challenges. The results show that the biggest challenges pharmacists face are related to the shortage of qualified personnel and financial aspects of business operations. The highest average rating was given to the issue of a shortage of pharmacists in the labor market (4.11±1.016), indicating a significant workforce deficit in this profession. Other major challenges include difficulties in employee salary payments (3.91±1.164) and stock shortages (3.89±1.064), suggesting potential financial management and procurement challenges. Issues related to delayed supplier payments (3.65±1.176) and liquidity problems (3.74±1.080), while relevant, received slightly lower ratings compared to other challenges.

KEY CHALLENGES PHARMACISTS FACE IN PHARMACY BUSINESS OPERATIONS	*Mean±SD*
Liquidity issues	3.74±1.080
Difficulties in employee salary payments	3.91±1.164
Issues with delayed payments to suppliers	3.65±1.176
Problems related to inadequate discounts and cash rebates from suppliers	3.77±1.092
Stock shortages	3.89±1.064
Frequent regulatory changes affecting financial operations	3.84±1.072
Unfair competition	3.76±1.112
Intense market competition	3.80±1.111

Shortage of pharmacists in the labor market (workforce deficit)	4.11±1.016
Unfavorable market trends	3.85±1.001
Issues related to tax payment obligations	3.70±1.089
Lack of financially literate staff in the pharmacy	3.86±0.998
TOTAL SCORE	**42.00±9.486**

Table 5. Key Challenges Pharmacists Face in Pharmacy Business Operations

The results of the correlation analysis (r = 0.478, p<0.001) indicate a statistically significant and positive relationship between the score measuring awareness of the importance of financial and digital education and the score reflecting the perception of challenges in pharmacy business operations. This correlation suggests that pharmacists who recognize the importance of financial and digital literacy more strongly also perceive business challenges in pharmacies more intensely. Respondents who are more aware of the significance of financial management and technology also identify greater problems in their daily work, which may suggest that a lack of adequate knowledge contributes to the perception of business difficulties (Figure 5).

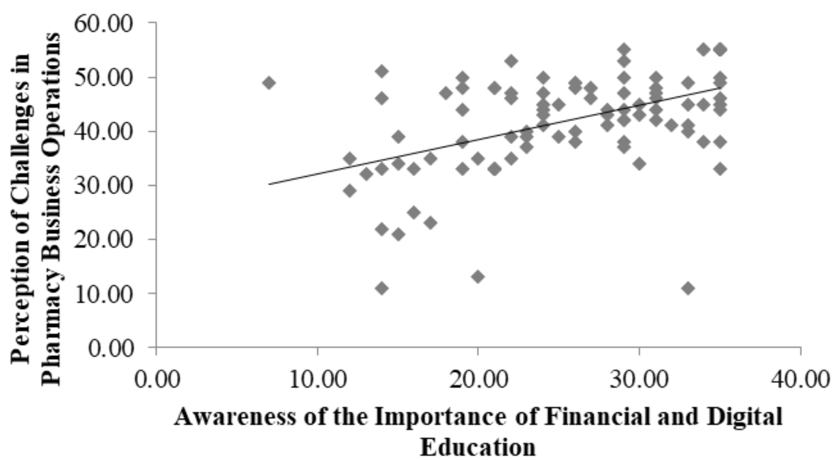

Figure 5. The relationship between awareness of financial and digital education and the perception of business challenges in pharmacies

The relationship between respondents' sociodemographic characteristics and their opinions on the importance of education, as well as their perception of challenges in pharmacy business operations, was analyzed. Statistical testing examined differences in the mean values of these two scores concerning gender, age, level of education, and years of work experience (Table 6). The results show that gender did not have a significant impact on the perception of the importance of education (p = 0.148) or the perception of challenges (p = 0.215). Regarding age, significant differences were found in both scores. Respondents from the youngest group (under 25 years) and those in the 25–34 age group had lower average scores for awareness of the importance of education (24.19±8.291 and 24.35±6.228), whereas the oldest group (55 years and older) had the highest value (31.00±4.618), indicating that awareness of the importance of education increases with age (p = 0.011). The perception of business challenges also showed significant differences (p = 0.044), with respondents aged 45–54 years reporting the highest perception of challenges (45.54±8.584), while the 35–44 age group had the lowest value (39.38±12.431). In terms of education level, respondents with different educational backgrounds significantly differed in their awareness of the importance of education (p = 0.004), with those holding a PhD scoring the highest (30.75±4.432). There was also a highly significant difference in the perception of challenges (p = 0.000), with respondents holding a bachelor's degree (45.65±7.194) and a PhD (45.75±2.314) reporting the highest perception of challenges, while those with "other" education had the lowest value (35.05±12.287). These findings suggest that a higher level of education contributes to greater awareness of the need for education, but also to a stronger recognition of challenges in pharmacy business operations. Years of work experience also showed significant differences in both scores (p = 0.000). Respondents with less than five years of experience had the lowest awareness of the importance of education (22.90±8.267), while those with more than 20 years of experience had the highest value (31.00±3.098). Similarly, the perception of challenges was lowest among respondents with the least experience (38.03±11.410), whereas pharmacists with over 20 years of experience reported the highest value (50.25±3.924).

SOCIODEMOGRAPHIC CHARACTERISTICS	**Awareness of the Importance of Education *(Mean±SD)***	**Perception of Challenges *(Mean±SD)***
Gender		
Female	26,15±7,139	43,12±9,850
Male	24,63±7,011	40,91±8,432
Age		
Under 25	24,19±8,291	43,67±6,365
25-34	24,35±6,228	42,12±7,781
35-44	26,16±6,638	39,38±12,431
45-54	29,15±7,352	45,54±8,584
55 and older	31,00±4,618	40,50±8,660
Education Level		
Undergraduate academic studies in pharmacy	26,93±6,820	45,65±7,194
Master's degree in pharmacy	24,13±6,355	40,91±8,993
Specialist studies in pharmacy	26,70±6,473	42,00±5,005
Doctorate in pharmacy	30,75±4,432	45,75±2,314
Other	23,09±8,144	35,05±12,287
Years of Work Experience		
Less than 5 years	22,90±8,267	38,03±11,410
5-10 years	25,63±5,583	44,25±7,328
11-15 years	27,17±6,534	41,53±7,492
16-20 years	26,44±7,117	42,27±9,044
More than 20 years	31,00±3,098	50,25±3,924

Table 6. Relationship between sociodemographic characteristics, awareness of the importance of education, and perception of challenges in pharmacy business operations

The results show that there is no statistically significant difference in the awareness of the importance of education between employees in private and state-owned pharmacies (p=0.241). Although the average value suggests slightly higher awareness of education among pharmacists in private pharmacies (26.06±7.17) compared to those in state-owned pharmacies (24.83±6.99), this difference is not pronounced enough to be statistically significant. These results suggest that the type of pharmacy in which pharmacists work does not significantly influence their perception of the importance of financial and digital education (Figure 6). Additionally, the difference in the perception of challenges between pharmacists in private (41.23±10.99) and state-owned pharmacies (43.42±5.65) is not statistically significant (p=0.117). Although pharmacists in state-owned pharmacies have a slightly higher average score for problem perception, the results indicate that the type of pharmacy does not significantly affect how pharmacists perceive business challenges.

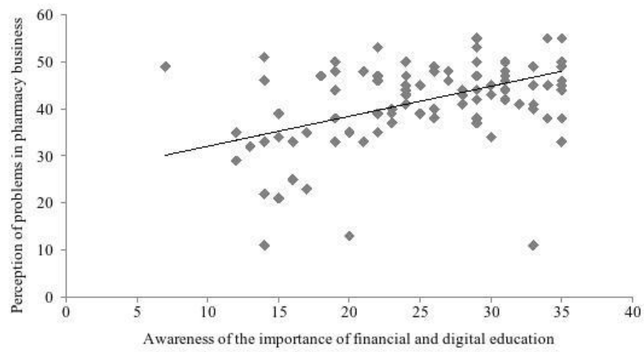

Figure 6. Awareness of Education and Perception of Challenges in Relation to the Type of Pharmacy

Discussions and Conclusions

The results of this study show that respondents moderately positively assess the importance of financial and digital education in the pharmacy profession, with higher levels of education and more years of work experience contributing to greater awareness of the need for continuous education. Pharmacists recognize various challenges, including liquidity issues, inventory management, delayed payments, and unfair competition. The perception of challenges is more pronounced among pharmacists with longer work experience and higher education. The type of pharmacy (private or state-owned) does not significantly impact pharmacists' awareness of the importance of education or their perception of business challenges. The positive correlation between awareness of the importance of education and the perception of problems in pharmacy business operations suggests that pharmacists who are more aware of the importance of financial and digital education also better recognize the issues they face in business operations. This result indicates that education may play a key role in developing the ability to identify and address financial and operational challenges in pharmacy practice. In general, this study highlights the need to improve education in financial management and digital literacy in pharmacy, particularly through formal education and continuous professional training. Additionally, addressing key issues in pharmacy business operations requires systemic solutions, including better financial planning and regulatory reforms.

The findings highlight the importance of enhancing pharmacists' financial literacy and integrating financial management principles into pharmaceutical education. A lack of financial literacy significantly hinders the achievement of positive business and professional outcomes. Continuous professional development programs are essential for improving pharmacists' financial competence. More than ever, there is a need for collaborative efforts among policymakers, pharmaceutical faculties, and professional associations to advance financial education and promote research in this critical area. Financial literacy is crucial for every pharmacist, especially those who own or manage pharmacies. Pharmacists and pharmacy staff with financial knowledge will be better prepared to take on and execute tasks related to financial management.

Limitations and Direction for Future Research

It is essential to provide adequate education and training for all pharmacy technicians, pharmacists, and clinical pharmacists to ensure the efficiency and quality of services provided. However, the lack of focused research on these aspects may hinder the identification of specific educational needs and the development of effective training programs, limiting the implementation of new initiatives and their impact on healthcare. Future research should focus on developing specialized financial literacy programs tailored to the needs of different levels of pharmacists.

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Supply chain risk and performance of freight forwarders in South Africa

Hemisha Makan
Joash Mageto
University of Johannesburg
Department of Transport and Supply Chain Management, South Africa

Keywords
Supply chain risk; financial performance; operational performance; resource dependency theory; freight forwarders; South Africa

Abstract
Global trade exposes firms to heightened supply chain risks, including long lead times, diverse regulations, political instability, and currency fluctuations. Freight forwarders, as intermediaries in international trade, are particularly vulnerable. This study investigates the impact of supply chain risks on the performance of freight forwarders in South Africa. Data were collected from 156 freight forwarders using a structured questionnaire. Descriptive statistics, correlation analysis, and dimension reduction techniques were employed to analyse the data. The analysis identified key supply chain risks, including supplier reliability issues, currency fluctuations, and political instability. Currency fluctuations and political instability revealed a positive correlation with financial performance. These findings suggest that while freight forwarders should address the identified risks, prioritizing mitigation strategies for currency fluctuations and political instability is crucial for profitability. This study contributes to literature by applying resource dependency theory, thereby broadening its theoretical application especially in an emerging economy context.

Introduction

Globalisation has made it possible for firms to broaden their supply sources to international markets in search of low cost of materials and labour. Global supply chains consist of multi-tiered and multifaceted aspects that enable lean production, just-in-time manufacturing and on time delivery of goods and services (Piya et al., 2021), at lower costs. However, the complexity and vulnerability of global supply chains intensify when there are various threats such as natural disasters, pandemics, cyberattacks and trade wars, thereby placing organizations at risk (Azadegan and Jayaram, 2018, Piya et al., 2022). According to Aqlan and Lam (2015), factors such as increasing complexity, global expansion of sales and manufacturing as well as the occurrence of risk both internal and external has made supply chain more susceptible to vulnerability and risk. Firms are attracted to the global source markets by the need to reduce costs and increase competitiveness, which results in overreliance on these supply networks which are usually complex in nature (Durowoju et al., 2012, Le et al., 2013). Thus, globalization increases the risk of exposure of these firms due to the likely disruption in the flow of materials caused by political instability, exchange rate volatility, delays or breakdowns of international logistics networks caused by unforeseen events such as severe weather. The disruption of the flow of goods and services can result in huge supply chain risks to local firms as previously witnessed during the pandemic and severe weather events. The supply chain risk resulting from global supply sources has the potential to disrupt the flow of goods and services, making it difficult for all role players within the supply chain including freight forwarders. Despite the well-documented challenges and risks associated with global supply sources—such as port delays and inefficiencies in South Africa—the freight forwarding industry continues to thrive, with a projected 6.4% CAGR market growth between 2025 and 2030 (Mordor Intelligence, 2025). This raises the question: To what extent are freight forwarders impacted by supply chain risks?

While supply chain risk factors have been extensively explored in literature, their direct impact on the performance of freight forwarders remains underexplored, particularly in emerging markets of the Global South. Understanding this relationship is crucial for assessing the resilience and adaptability of freight forwarders operating in these dynamic environments. Increasing production of commodities, together with the expansion of trade and transportation, resulted in the emergence of freight forwarders (Skiba and

Karaś, 2022). Considering the challenges pertaining to international trade, many global players collaborated with specialized freight forwarders (Petkevičiūtė–Stručko and Yauhen, 2018, Skiba and Karaś, 2022), who play a critical role in global trade, expediting the movement of goods between countries and across borders (Rajesh et al., 2023). The freight forwarding industry in South Africa facilitates over 80% of global trade (GlobeNewswire, 2024). The anticipated value added for 2025 is projected at US$ 19.98bn, with volume of goods being transported by freight forwarders amounting to 299.50bn TKM (Statista, n.d.).

Much research has emerged regarding supply chain risk. For instance, Simba et al. (2017), stated that most research on supply chain risk management is based in countries such as Asia, America and Europe. Other research, such as that of Diabat et al. (2012), viewed supply chain risk within the food supply chain, while Chen et al. (2013) study was based on collaborative efforts to mitigate supply chain risk with focus on supply, demand and process risk. In South Africa, Mvubu and Naude (2020) established that Third-Party logistics firms engage in risk identification and mitigation strategies. Van Niekerk (2023) identified cybersecurity as one of the major risks in supply chains in South Africa. These studies did not investigate supply chain risk and its effect on freight forwarders performance, especially from a South African context.

Given the dependence on freight forwarding services for trade facilitation, understanding this supply chain risks and their effect on performance is crucial for ensuring efficient logistics operations. Thus, this study fills the gap by answering the following research questions:

1. What are the top supply chain risks affecting freight forwarders in South Africa?
2. What is the relationship between supply chain risk and the performance of freight forwarders?

The structure of this paper is as follows: the next section provides the literature review pertaining to supply chain risk, various risk affecting freight forwarders in south Africa, the underpinning theory. The next section deals with the methodology undertaken for this study. The section after provides the data analysis and discussion followed by managerial implications, future research study and conclusion.

Literature Review

Supply chain Risk

Supply chain risk relates to the disruption in the flow of products and information from the point of origin to the end users. It includes uncertainties related to outcomes and their impact on the performance of the overall supply chain (March and Shapira, 1987, Peck, 2006). It is noted that supply chain risk extends beyond unexpected problems but also includes anticipated fluctuations that may affect the flow of goods along the supply chain. As such, it becomes essential for freight forwarders to understand the risk to mitigate the impact of these risks on the operational performance, thereby making their supply chain resilient.

Freight Forwarder

Growth in global trade together with the expansion of geographical markets has led to an increase in the flow of goods, resulting in a demand for freight forwarders (Poliak et al., 2022). The freight forwarder is regarded as an agent that connects the client and cargo carriers, undertaking numerous logistics functions along the supply chain, thereby adding value to products (Baluch, 2006, Poliak et al., 2022). Some of the tasks performed by freight forwarders includes consolidating shipments, loading and offloading goods, compiling customs documentation, labelling and packaging and arranging transportation of commodities by means of various modes such as road, air, rail and water transportation (Poliak et al., 2022). Acknowledging the multiple roles played by freight forwarders, organizations have a high dependency on them and consequently risk within the supply chain can have an adverse effect on their operations leading to customer dissatisfaction.

Within sub-Saharan Africa, the top five disruptions that have been identified are: 1) disruption in transportation network, 2) currency exchange rate volatility, 3) civil unrest, 4) loss of expertise and 5) outsourcing failure (Nel et al., 2018). In addition to the abovementioned risk, the South African freight forwarding industry face numerous other challenges that impedes delivery of products resulting in delays and escalating cost. Supply chain disruptions such as natural disasters and geopolitical conflict exacerbate these challenges. For instance, the Covid-19 pandemic impacted transportation leading to disruptions in the global supply chain (Statista, 2025). Furthermore, the war in Ukraine had a substantial impact on the transportation market, resulting in delays, interrupting key trade routes and increasing costs for businesses who were reliant on the connection between Western and Eastern Europe (Statista, 2025).

Logistics infrastructure is regarded as a catalyst to positive economic transformation, making the economy stronger, sustainable and all-encompassing (van den Berg, 2024). South Africa faces ongoing infrastructure issues ensuing logistical problems which hampers the success of freight forwarders. Inefficiency at ports and Harbors are additional risk faced by freight forwarders (Simba et al., 2017). According to Dr Maree, CEO of the South African Association of Freight Forwarders (SAAFF), delays at ports, disruption of rail and bottleneck due to infrastructure has contributed to losses amounting to R1 billion each day due to missed opportunities in trade (Staff Reporter, 2025). Furthermore, Dr Maree added that major ports like Durban and Cape Town are experiencing ongoing congestion, there are constant interruption within the Transnet rail corridor and road conditions are deteriorating, worsening the issue and resulting in a systemic decline in logistics systems (Staff Reporter, 2025).

Complying with regulations (customs, safety and environmental regulation) is another challenge faced by the country as it can be a tedious and costly task impacting the businesses efficiency and profitability (Rajesh et al., 2023). South Africa's freight forwarders face numerous regulatory hurdles such as complicated custom procedure resulting in delays in clearance processes, vague documentation requirements, contradictory regulations, bureaucratic red tape resulting in barriers to efficient trade and corruption at border post (Olatunbosun, 2024). Labour issues have also been identified as a prominent disruption. Labour strikes in South Africa is common and can disrupt the supply chain (Nel et al., 2018). For instance, the recent strike at Grindrod Logistics regarding the retrenchment of employees disrupted the operation and affected the movement of goods (Comins, 2024).

The industry plays an integral role in South Africa, facilitating seamless global trade through its extensive network of ports, airports and logistics hub. However, the freight forwarding industry faces numerous challenges impacting their performance. Some of the key underlining factors that exacerbate these challenges include but are not limited to infrastructure issues, poor deteriorating roads, fluctuation in the exchange rate, port inefficiencies as well as economic slowdowns (Davis, 2024). As such, identifying and managing this risk becomes imperative, as it not only damages the local economy but also has an effect on global economy (Escaith et al., 2011).

Taking the above risks into consideration and knowing the negative impact it has on firms' operation and performance, it becomes vital for firms to ensure they have resilient abilities to mitigate the effects of disruptions (Johnson et al., 2013, Urciuoli et al., 2014).

Underpinning theory

Studies on supply chain risk have used crisis management theory and risk management theory to address uncertainties(Wang, 2018). However, with the rising trend of outsourcing functions to external organisations, it has led to an increased dependency between role players making it difficult to absorb delays and disruptions within the supply chain. As such, the theory that best fits this research is the resource dependence theory (RDT). RDT is a framework for understanding how organizations manage their dependencies on external resources to reduce uncertainty and increase autonomy (Hillman et al., 2009). RDT is particularly relevant in the context of supply chain management, where firms often depend on external resources such as suppliers and customers for critical resources. This dependency can introduce risks and disruptions in the supply chain which can significantly impact a firm's operations and performance (M Kulkarni and Nayak, 2023). For instance, the COVID-19 pandemic highlighted how external disruptions can affect supply chain management, necessitating firms to adapt their strategies to mitigate risks. The theory suggests that firms can manage these risks by developing strategies such as localization, agility, and digitization to enhance supply chain resilience, which aligns with SDG 12 (Nandi et al., 2021).

Research Methodology

The quantitative study was underpinned by the positivism paradigm, which emphasizes hypothesis testing, replication and generalizable inferences (Park et al., 2020). The objective reality of positivism helped to test the relationship between supply chain risks and performance of freight forwarders. A quantitative descriptive survey methodology was followed to establish the relationship between supply chain risk and performance of freight forwarders in South Africa. There is no existing comprehensive database of freight forwarders in South Africa although the South Africa Association of Freight Forwarders (SAAFF) has about 310 members (SAAFF, 2025), which formed a sample of this study. Quantitative data was collected from 156 practitioners using a structured questionnaire. The data was analyzed using descriptive statistics and relationships were tested using correlation analysis. The study received relevant ethical clearance from the university of Research Ethics Committee.

Findings and results

Demographics of respondents

The sample size had an equal gender split implying that as many males as females responded to the questionnaire as illustrated on Table 1. About 65% of the respondents had at least obtained a bachelor's degree, implying that they understood the questions and provided valid responses. Many of the respondents were working for medium and large enterprises based on the number of employees. Most of the respondents had working experience of less than five years, however, some had a lot of experience of having worked for 25 years.

Gender	Percent
Male	49.40
Female	50.60
Education	Percent
High School	4.50
Certificate/ Diploma	30.80
Bachelor's degree	46.80
Honour's degree	13.50
Master's degree	3.80
PHD	0.60
Size of organization	Percent
sole trader	1.30
less than 20 employees	6.40
21-50 employees	10.30
52-100 employees	19.90
101-200 employees	21.80
201-500 employees	14.10
500-1000 employees	10.90
more than 1000 employees	15.40
Working experience	Years
Mean	4.995
Median	3.000
Mode	1.000
Std. Deviation	4.921
Range	25.000

Table 1: Demographic information

The study sought to investigate the perceptions of practitioners regarding supply chain risk factors which were identified as supplier disruptions, transport delays, currency fluctuations, and political instability. The mean of the indicators of each of these factors were calculated and presented in the following table. Table 2 presents the mean statistics of the supplier disruptions indicators, revealing that supplier delays and unforeseen events are likely to create high supply chain risks in South Africa. This finding aligns with prior findings which have reported unforeseen events such as protests, weather and attacks on truck drivers in South Africa cause supply delays (Wasserman et al., 2018). The mean of supply chain disruptions ranged from 3.54 to 3.94, implying that the respondents agreed with the statements.

Indicators of supplier disruptions	Mean	Std. Deviation
Supplier delays or failures to deliver goods have a significant impact on our ability to meet customer demands	3.94	1.17
Unforeseen events or circumstances often lead to disruptions in the supply chain from our suppliers	3.94	0.97
Supplier disruptions such as production shutdowns or quality issues result in delays or cancellation of shipments in our operations	3.87	1.11
Changes in the supplier availability or capacity affect our ability to maintain a consistent flow of goods for our freight forwarding services	3.76	1.15
Our freight forwarding operations are frequently impacted by disruptions in the supply of goods from our suppliers	3.54	1.01

Table 2: Mean ranking of supply chain disruptions

Transport delays caused by traffic congestion or road closures emerged top among the indicators. Terminal congestion also creates transport delays. The finding aligns well with recent findings which have reported port congestion in the Durban Port container terminal (Chinedum, 2018). As illustrated in Table 3

Indicators of transport delays	Mean	Std. Deviation
Transport delays such as traffic congestion or road closure frequently affect the timely delivery of goods	3.99	1.07
Port or terminal congestion frequently leads to delays in the transportation of goods in South Africa	3.94	1.02
Delays in transit times are a common occurrence in the transportation of goods	3.95	0.96
Delays in customs clearance processes significantly impact on the transportation of goods in our freight forwarding services	3.95	1.04
Adverse weather condition often led to delays in the transportation of goods in our freight forwarding operations	3.78	0.99

Table 3: Mean ranking of transport delays

Currency fluctuations affect pricing of imported goods and can cause a significant supply chain risk, especially when the volatility increases the cost of doing business. The highly ranked indicators have an effect on pricing, cause financial risk and can lead to financial uncertainties in financial performance as illustrated in Table 4.

Indicators of currency fluctuations	Mean	Std. Deviation

Currency fluctuations frequently affect the pricing of imported goods and services	4.00	0.91
Changes in exchange rates pose a significant challenge in managing financial risk associated with international transactions in our operations	3.79	0.96
Volatility in currency exchange rates often leads to uncertainties and risks in our financial performance	3.78	0.93
Fluctuations in currency exchange rates often impact the costs and profitability of our freight forwarding operations	3.72	1.03
Currency fluctuations impact our ability to accurately forecast and plan for future costs and revenues in the freight forwarding business	3.48	1.10

Table 4: Mean ranking of currency fluctuations

Changes in government policies and decreased confidence from international partners were identified as the top indicators of political instability (Table 5) based on high mean statistics. This finding is aligned with prior study by Liu (2024), which established that political instability creates supply chain risk by forcing businesses to price in political factors and respond to political demands, leading to increased risk of interruption of supplies.

Indicators of political instability	Mean	Std. Deviation
Changes in government policies and regulations often disrupt the supply chain and logistics operations within the freight forwarding industry	3.91	0.92
Political instability affects the confidence of international partners and customers in our freight forwarding services	3.88	0.93
Political unrest or conflicts in the country result in disruptions and uncertainties in our freight forwarding operations	3.85	0.86
Political instability in South Africa poses challenges in managing business risks and maintaining a stable operating environment.	3.80	0.82
Political instability in South Africa has a significant impact on the operations of our freight forwarding business	3.58	1.01

Table 5: Mean ranking of political instability

The study sought to establish the opinions and attitudes of freight forwarders operational and financial performance. Many of the respondents agreed with the indicator statements as illustrated in Table 6. Effective systems and processes that track shipments was the top indicator of operational performance among freight forwarders in South Africa. Accuracy and reliability were also identified as top indicators of operational performance.

Indicators of operational performance	Mean	Std. Deviation
We have effective systems and processes in place to track and monitor the progress of shipments throughout the supply chain	4.01	0.80
Our freight forwarding services in South Africa demonstrate a high level of accuracy and reliability in delivering shipments	3.66	0.91
We achieve high levels of efficiency and productivity in our day-to-day operations	3.65	1.00
Our operations consistently achieve on-time delivery of goods to customers	3.50	1.03
Our freight forwarding operations in South Africa consistently meet or exceed customer expectations	3.49	1.02

Table 6: Mean ranking of operational performance

The financial performance of freight forwarders was investigated using five indicators as illustrated in Table 7. Cost reduction, working capital management and revenue growth were identified as the top indicators of financial performance.

Indicators of financial performance	Mean	Std. Deviation
We effectively manage costs and expenses to maintain healthy financial performance	3.80	0.81
We have a positive cash flow and effectively manage working capital in our freight forwarding operations.	3.79	0.85
We experience steady revenue growth in our operations	3.67	0.84
Our freight forwarding business consistently achieves favorable financial results	3.60	0.94
Our profitability margins are above industry averages	3.44	0.84

Table 7: Mean ranking of financial performance

The relationships between supply chain risk factors and performance of freight forwarders were tested using correlation analysis. Partial correlation analysis was conducted, and results were presented in Table 8. The results reveal that operational performance had no significant relationship with any of the supply chain risk factors. However, it had a positive and significant relationship with financial performance. Financial performance had a positive and significant relationship with currency fluctuations and political instability. However, the positive correlation does not imply causation, implying that there might be other factors that influence the financial performance of firms. While we rule out causation, we argue that in situations where there is high currency fluctuations and increased cases of political instability there is a possibility firms reporting poor financial performance (Alagidede & Ibrahim, 2017) although this might vary from industry to industry.

Control Variables		Supply Disruption	Curre Fluctuation	Political Instability	Ops Perf	Financial Perf	Transport Delays
Gender	SupplyDisruption	1.000					
	CurreFluctuation	0.724*	1.000				
	PoliticalInstability	0.486*	0.522*	1.000			
	OpsPerf	-0.050	-0.043	0.062	1.000		
	FinancialPerf	0.040	0.172*	0.237*	0.469*	1.000	
	TransportDelays	0.762*	0.684*	0.481*	-0.030	0.108	1.000

Table 8: Relationship between supply chain risk and performance

The key factors of supply chain risk were established by conducting a factor analysis on all the supply chain risk factors. The 20 items of supply chain risk were subjected to principal components analysis (PCA) using SPSS version 30. The suitability of data for factor analysis was assessed and resulted in a KMO of 0.898, with a statistically significant Bartlett's Test of sphericity. Principal components analysis revealed the presence of three components with eigenvalues exceeding 1, explaining 61.9% of the total variance. A varimax rotation was performed to assist in the interpretation of the three components. The supplier disruptions and transport delays factors loaded strongly on component 1 and were renamed supplier reliability issues, currency fluctuations and political instability factors loaded strongly on components 2 and 3, respectively.

Supply Chain Risk factors	Components		
	1	2	3
SD1	0.673		
SD2	0.654		
SD3	0.446		
SD4	0.731		
SD5	0.774		

TD1	0.810		
TD2	0.663		
TD3	0.581		
TD4	0.773		
TD5	0.742		
CF1		0.697	
CF2		0.742	
CF3		0.761	
CF4		0.636	
CF5		0.694	
PI1			0.630
PI2			0.836
PI3			0.620
PI4			0.733
PI5			0.713
KMO	0.898		
Tota variance	28.606	18.389	14.978
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.a			
Rotation converged in 6 iterations.			

Table 9: Factor analysis of supply chain risk factors

Discussion and conclusions

In this study we highlight that supply chain risks among freight forwarding companies are identified as supplier reliability issues, currency fluctuations and political instability. Supplier reliability issues are related to delayed deliveries, disruptions by unforeseen events, traffic congestion, road closures as well as port terminal congestions and inefficiencies. The finding adds on to the studies of Mvubu and Naude (2020) who identified risk management strategies by classifying the specific risks that freight forwarders should focus on to minimise risk. While Van Niekerk (2023) identified cybersecurity as one of the risks, our study emphasises that cyber-attacks are likely to slow down port processes resulting in port congestion as a key supply chain risk factor that can affect supplier reliability in South Africa. Currency fluctuations is identified as key risk factor in supply chain due to its effect on pricing of goods and services and likely reduction of demand especially in developing countries who are always on the receiving end. This finding aligns with the study by Ogunranti et al. (2021) who advocated making payment in supplier currency. Political instability especially in Africa poses a huge supply chain risk on freight forwarding firms in terms of changing of policies, limited confidence from international partners and general disruption of supply chains due to unrest and armed conflicts. The finding aligns with Meyer et al. (2019) who established that labour unrest and cyber-attacks can cause supply chain vulnerability.

While there was no causal link established between supply chain risk factors and performance of freight forwarders, we argue that proper management of supply chain risk can result in high performance in the public sector as established by Mhelembe and Mafini (2019). However, it is worth noting that currency fluctuations and political instability can influence financial performance of freight forwarding companies. While this study has established the key factors in supply chain risk that freight forwarding companies can seek to mitigate, we claim that continuing growth in the freight forwarding market value is an indicator that these firms have established risk mitigation strategies to manage the political and currency risks. The study extends the application of RDT to supply chain risk research by identifying that dependence on global suppliers and other external resources can pose huge risks to firms. Specifically, this study advocates for establishing local sources and application of advanced technologies such as big data analytics to sense supply disruptions to develop resilient supply chains in line with the tenets of the RDT.

Managerial implications

The findings imply that managers should diversify their supply base to avoid over-reliance on a few suppliers thus spreading the risk associated with delays or disruptions in supply chains. In some cases, supply disruptions are caused by port delays due to inadequate infrastructure causing congestion especially in Africa, thus it might add value if private firms can collaborate with port agencies to improve efficiency. In addition, freight forwarders can minimise the effect of currency fluctuations by pricing using stable currencies such as USD or embrace forward contracts to lock in stable rates. Managers are informed that political instability can result in border closures and proper scenario planning is required to establish flexible supply networks and have back suppliers to facilitate operations during disruptions. The findings encourage industry practitioners to develop resilience by encouraging intra-African sourcing to lessen dependence on global suppliers, modernisation of port infrastructure and advocating stable political climate.

Limitations and direction for future research

The current study study is limited to the cross-sectional data collected from freight forwarding companies in South Africa. Future studies can collect longitudinal data to identify seasonal supply chain risk factors per industry. The findings reported in this study are based on the opinions and attitudes of the respondents and might be generalised with caution as they may not represent the views of all freight forwarders. The supply chain risk factors may vary from country to country, thus, a multiple country comparison might provide a sufficient information for decision makers involved in international trade.

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Could policymakers do more to eliminate cumulative poverty sustainably, in the battle against global poverty? A social marketing approach- An empirical study

Ebikinei Stanley Eguruze
Dominique Porter-Whitaker
Diane Coulson-Bisiker
Regent College London, UK

Keywords
Cumulative-poverty and sustainability; Battle against global poverty; Social Marketing Techniques.

Abstract

Purpose: *The paper investigates four fundamental research questions: (i) What more could global policymakers do to eliminate cumulative poverty sustainably? (ii) How do we adopt an inclusive approach driven by grass roots levels? (iii) How do we strengthen/broaden support for existing poverty intervention mechanisms worldwide? (iv) What is social marketing technique (SMT) and how would SMT help eradicate poverty/sustainability?*

Design/methodology*: A mixed-methods research design engaging qualitative and quantitative approaches; involving 254 respondents; aged 18 years and older from 24 countries and five continents were surveyed at Regent College London.*

Results/Findings*: The study revealed global citizens of all ages and support for the needs of global communities across the world are inadequately addressed. A great deal of change/more is needed. Global policymakers could do more.*

Practical implications*: This study is aimed at enhancing/expanding or strengthening existing or previous global poverty reduction and sustainability interventions.*

Conclusions: *Co-authors argue highlighting additional/alternative strategies for global policymakers, inclusive approaches driven by grass roots levels, and utilising persuasive social marketing techniques are likely to enhance the probability of ending cumulative poverty sustainably.*

Introduction

Cumulative poverty, like climate change, is perceived as an existential threat to 21st century world which must be contained if humanity is to survive beyond generations forthcoming. Both concepts (cumulative poverty and climate change) have become an inherent part of the sustainability concerns. Contemporary human thoughts must put poverty and sustainability issues at the heart of academic discourse.

The empirical paper is arranged as follows: Introduction (includes a research problem, research question and research objectives, Literature review, research Methodology, Findings/results, Discussions/conclusions, Limitations/direction for future research, Appendices, and References

Research objectives

The study sets out to identify and critically analyse (i) what global policymakers must do to *eliminate cumulative poverty sustainably*, in relation to the needs, causes, and experiences of global citizens, global youths and global communities; (ii) to adopt/engage inclusive approaches driven by grass roots levels, (iv) to highlight ways of strengthening, widen/broaden support for existing poverty intervention mechanism sustainably, and (iv) to advance the of theory of persuasive social marketing techniques, and its application/adoption processes, as well as provide recommendations/suggestions.

Literature review

The theoretical framework underpinning this study comprises following key previous cases: (Eguruze, 2106, 2017, 2019, Uddin & Uddin, 2013, Kumari, 2020, and Kumari and Eguruze, 2021); Nwafor and Eguruze (2023) Eguruze, Porter-Whitaker and Coulson-Bisiker, 2024).

What more could global policymakers do to eliminate cumulative poverty in the battle against global poverty and sustainability?

The case Eguruze **(2016) *"Tackling Poverty" in Bayelsa State of Nigeria***; was an empirical paper focused on a state in Nigeria – Bayesla State, which is a very rural community, where Nigerian oil/gas was first discovered, explored, exploited and commercialised since 1957, and yet cumulative-poverty is still rife.

Eguruze (2017) *"**Strategy for Tackling Poverty in Nigeria,**"*; another empirical paper. This was a survey reflecting poverty in Nigerian national context. This study represents a remarkable contrast from the previous: a post-Doctoral work; national-level research whereas the previous was a local or state-level study. This is "an evaluation of what the National Youth Service Corps (NYSC) members' community perceives as their support needs in Nigeria in 'Tackling Poverty' and how to sway policy makers, using social marketing techniques.

Eguruze, Bennison, & Lloyd(2017) In Cumulative Support Need(Cumulative poverty), a review/conceptual development paper, highlights a gap in the definition and meaning of poverty in its different forms, shapes and impact. Additionally, this case represents an advocacy for a new definition, cumulative poverty (ie in-cumulative support); backed up with the poverty tree concept mapping), as noted above. Cumulative poverty definition is notably different from previous ones: including Sen (1982); UNDP (1979); University of Oxford HDI (2010), World Bank (2008(IMF,20008), Millennium Development Goals (MDGs) and Sustainable Development Goal (SDGs).

Adopting/engaging/inclusive approach driven by grass roots levels

Santiago and Roxas(2013) This study revealed how much of the resources for mitigating the impact of poverty found their ways into new technologies projects; suggesting mismanagement or diverted funds during project implementation processes in the in the **Philippines**. The study focused on (or challenged how and why) energy access (electricity supply) to the poor in the bottom of the pyramid (BOP) irregular, whilst billions of sums have been spent 'and will continue to be spent on projects such as expensive line extensions or solar panels to the poor living in 'last mile' communities, and yet poverty persists. This study reviewed traditional responses to (focused on methods of tackling) income and energy poverty, and innovated a sustainable community (oriented or driven) model, to address the poor at the BOP. **Suggesting social distance** could have a devastating impact of the capabilities of people in deprived or marginalized communities across the world. This suggests more training and support is needed, targeted/aimed at the most vulnerable global citizens, global communities, and global youths.

Similarly, in **Pernia, (2003**), how pro-poor policies played important roles in helping the re-emergence of Vietnam from extreme poverty, following devastating war with a global super power in the early 1970s. The study found that engaging the most vulnerable at grass roots levels is a viable strategy.

In **Ratnesh(2019**) the study relating to work life balance attempted to highlight implications of social exclusivity (discriminative practices) against rural female bank employees in Bihar, India, in an attempt to engage/involve more female bank workers in the private banking sector, could help alleviate poverty, amongst women at rural communities. The study highlighted exclusive policies do have consequences that impact female workers which could be avoided through a work-life balancing act.

By inclusive approach driven at grass roots level, meaning the extent to which the most vulnerable peoples' opinions or perceptions were sought, reflected, or involved. In this regards (i) these cases were conducted at the rural areas of Nigeria, India and Vietnam, the Philippines, to name but a few; (ii) in these rural areas, these cases involved, young people, women, community organizations, local small scale farmers/entrepreneurs, female employees in private banking sectors, to name but a few.

By engaging, involving, and/or allowing the most vulnerable, the most disadvantaged and less privileged in the policy determining process, policy decision making process and implementation processes could be more beneficial than not, if cumulative global poverty is to be eliminated sustainably.

Ways of strengthening/broaden support for existing poverty intervention mechanisms worldwide?

To this, four key case studies demonstrated/supported ways of enhancing global poverty reduction intervention mechanisms:

Eguruze (2015) Methodology model for global poverty intervention significantly reduces cumulative-poverty, using social marketing techniques - an empirical paper; PhD studies;

Eguruze (2022) Methodology model for poverty intervention (MMPI): seeking validation and evaluating efficacy, using social marketing techniques (SMT**) (**Working Paper II). This was a research conference paper. This was a methodological development paper, which was presented at the CBER Conference held at University of Oxford, Said's School of Business, 8-9 August 2022.

Eguruze, et al, (2023) Methodology model for global poverty intervention (MMGPI) significantly reduces Cumulative-poverty, using social marketing techniques (Working Paper III). This was another methods development/conference paper that was presented at the Medgar Ever College, City University, NY, Brooklyn NY, USA, 10-12th April 2023. The purpose was to review traditional responses to cumulative poverty (multidimensional poverty) processes and offer a solution, through MMGPI, whilst using SMT

Eguruze, Porter-Whitaker and Coulson-Bisiker, (2024**),** unpublished, but outline presented at the RRT- " Battle Against Global Poverty and Sustainability". This was also an empirical research conducted at Regent College London (RCL) between February, 2022 and November, 2023. The purpose of this research was to examine what global citizens, both young and old and their communities across the world perceive their support needs to be in "tackling poverty". A meta-analysis of these findings revealed there is need for an alternative approach to tackling global poverty reduction more sustainably.

Social marketing approach and its implications

Tackling poverty is deemed a public good. This view is widely supported. The Pioneers of social marketing (Wiebe, 1951, Kotler and Zaltman, 1971, p3-12) defined it as "an approach to planned social change" or a "designed implementation and control of programmes calculated to influence the acceptability of social ideas and involving considerations of product planning, communications and marketing research" (Zaltman,1971, p 3-12). Walsh (1964) also argues adopting social marketing values, principles and practises conveys public benefit; public good.

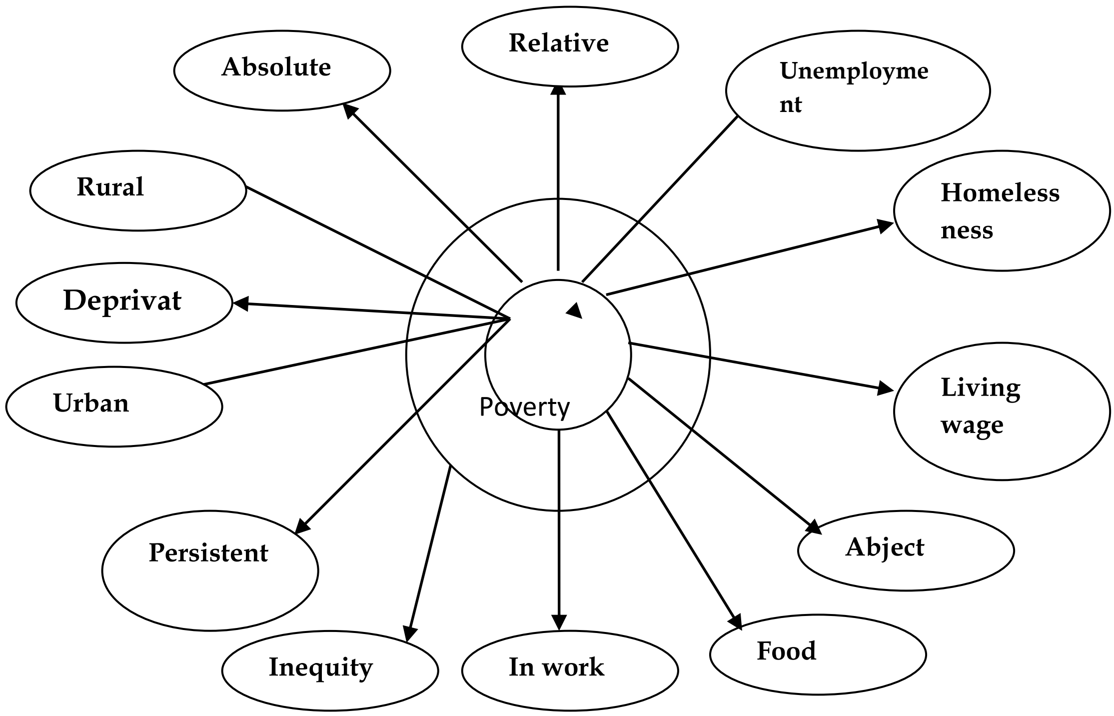
By adopting a more radical but yet subtle and different approach that involves persuasion and changing of attitudes, behaviours and the mindset or its cultural values would be a more appropriate way of tackling cumulative poverty (Eguruze, 2014, 2015, 2017, 2019, Eguruze and Kumari, 2020, 2022, Eguruze, et al., 2023, 2024).

Additionally, the sustainability of social marketing as a poverty reduction tool was previously supported (Andreansen,1995,2003,2004, 2006, Andreansen and Kotler, 2003; Kumari, Ratnesh and Eguruze(2020). By using social marketing techniques aimed at embracing policymakers and policy implementers, as well as vulnerable global youths, global communities, and global citizens may begin to change perceptions, attitudes and behaviours might also improve or change; this, in turn, could benefit the welfare and wellbeing , happiness, of all stakeholders, including both poor and rich.

Definition of poverty (cumulative poverty) and its implications

Poverty is a multi-dimensional and debatable topic, as it is reflected in Figure 1

Figure 1 Poverty Concept Mapping



Source: Author's Construction 2014, 2016, 2017, 2019, 2020, 2022

As seen in Figure 1, poverty is complex and multidimensional in nature. It comprises these aspects and others: inequality/inequity, in-work, food, low living wage, homelessness, unemployment, absolute, rural, deprivation, urban, persistent, as outlined in figure 1. Other forms of poverty may include extreme poverty, cumulative poverty, absolute poverty starvation, famine. These meanings are varied and different. As these were previously illustrated in a series of literature review papers, this current paper focuses on the methodology development. Despite the fact various interventions have been made over the years, extreme poverty and cumulative poverty persists. Whereas these various interventions are welcomed, they do not seem to go far enough. Cumulative poverty phenomenon is largely ignored, under-researched, and under-published. The solution therefore may rely on a new approach. This leads us to the MMPI/MMGPRI as in 2.2, Figure 2, below.

Cumulative poverty is the worst form of poverty experienced so far (Eguruze, 2014, 2015, 2016, 2017, 2019, Eguruze and Kumari, 2020, 2021, 2022, Eguruze et al, 2023, 2024). Cumulative poverty is a dissection between extreme and absolute poverty (2019). Cumulative poverty is also complex and most complicated to eliminate (as famed as Poverty mapping/Poverty Tree in the figure 3 below). Nevertheless, it could still be eradicated providing global policymakers are ready, willing, committed and passionate towards achieving same. Crucially, cumulative poverty has multi-dimensional, generational, intergenerational and trans-generational characteristics – as indicated in Figure 1 above.

Significance/Benefit of reducing cumulative poverty across the world?

When cumulative poverty burden is successfullly eliminated, it could be implied, a removal of a psychological burden, stress, emotional trauma, on the shoulder of that vulnerable person who is either experiencing cumulative poverty or at risk of experiencing it.

Eguruze, Kumari and Ayoola(2024), removal of cumulative poverty could invariably lead to less devastating level of impoverishment amongst the vulnerable segments of the world: global youths, global communities, and global citizens who are affected by cumulative poverty across the world regardless of geographical, location and geopolitical boundaries, race, religion, age, gender, sexual orientation, disability etc., of employment opportunities/creation of real jobs, empowerment of youths and women. In a different setting,

Sen (1999), argued removal of poverty could mean emancipation and freedom of opportunities, mindset, morale, behavioural and attitudes, change for the good of all stakeholders, across the world. Unemployment is usually a fundamental root cause of poverty, which has been found in several previous research studies (Uddin and Uddin, 2013; UNPA), 2012 ; Nwibo, 2013; Eguruze, 2014, 2015, 2016, 2017, 2019, 2020, 2021, 2022,2023, 2024), whilst it is equally critical to ensure a work-life balance, Ratnesh, 2019.

Comprehension of these strategic issues and challenges would help tackle poverty not only in strategic terms but also in human resources; imperative considerations (Dobre, 2013). Barriers and obstacles will continue to exist and pose a threat to billions of vulnerable people across the world: global children and mothers, global youths, global minority ethnic groups, global minority religious groups, migrants seeking asylum.

Regrettably, these challenges (barriers and obstacles in life) are largely structurally or socially constructed disadvantages that are still prevalent in 21st world environments (Kings, 1967). Hence, co-authors proposition theory is that, existential cumulative global poverty cannot be defeated sustainably, unless (we) all do more; more importantly, a supportive and enabling global leadership could lead to more sustainability in this context achieving a cumulative poverty free-world

Sustainability

Eguruze and Kumari, 2021, found that it is possible to eradicate, through a collaborative effort and synergistic impact of social marketing technique and social entrepreneurship. From this finding re-inforced/highlighted the emergence of a new definition of poverty (Eguruze, Bennison, & Loyd,2017). In cumulative Support Need(Cumulative poverty), above**),** but also justified its creativity/rationale for its innovation. Cumulative poverty is a creation of Eguruze(2014) during his PhD thesis research. Cumulative poverty is an intersection between extreme poverty and absolute poverty.

Additionally, through analysis of The Brundtland Report/World Commission of on Environmental and Development (WCED)(1987), we believe, cumulative poverty and sustainable issues are inextricably related; given the interconnectivity between the past, present and the future survival is critical and paramount to the welfare and wellbeing of humanity(WCED)(1987);Ratiu and Anderson, 2014:5); Al-Roubaie, and Alvi, 2014:242).

Present human activities could negatively or positively impact the future way of life. Everything depends on the way we humans conduct our lives: in relation to the management and usage of the planet (environment), business management (economics/profitability), social connections, relations within/outside of business management (individuals) (Delloite, 2023; Purgal-Popula,2024;WCED)(1987);Ratiu and Anderson, 2014:5); Al-Roubaie, and Alvi, 2014:242). So, by highlighting/tackling these issues and challenges in a consistent and resistant manner, cumulative poverty could be defeated over time.

What is the Researcher's Methodology Model for Poverty Intervention (MMPI)/(MMGPI)?

The MMPI is the original researcher's framework for poverty reduction that was invented in 2014 by the author. MPPI was designed for tackling poverty in in Bayelsa State of Nigeria, Nigeria, and the sub-Sahara African Region. Whereas the MMGPI is an extended version of the MMPI. Since MMPI was regional based, it was not appropriate for the global need or global use. So, the MMGPI represents the author's approach to overcoming the problem of poverty across the global, unlike MMPI. This is based on the belief that social marketing could offer a way to end poverty as the framework has been purposely designed to bring about constructive social change. This model functions in sequential process starting from left to right as below in Fig 2.

MMPI/MMGPI is defined as the structured process by which young people and community organisations, as well as policymakers and policy implementers identify, share, and exchange their perceptions on/of the meaning of poverty from their own different perspectives through the process of market research. Once their diverse definitions, understandings, perceptions/conceptualisations on poverty had been established, that data, is put together (as a single-document, conference paper) for the purpose of organising a strategy conference, in which to agree a common understanding. This is a form of action research. This is followed with Strategic planning (followed by community budgeting) and finally Joint Implementation of Programme of action. These are explained in more details below see (Eguruze 2014, 2015, 2016, 2017, 2020, 2022, 2023, 2024).

Benefits from application/adopting Social Marketing Techniques

Benefit and purpose of tackling poverty and adopting/promoting social marketing values? Pursuant of public good and good causes in general, ensuring a win-win for all stakeholders, whilst also creating a level playing field for all, is the best hope or most desirable outcome for humanity, are social marketing methods. That is the social marketing orientation. Social marketing is driven by people's happiness (welfare and well being of people). The Social marketing model constitutes saving lives , improving quality of life, improving poor living conditions, creating opportunities for all, creating a voice for the voiceless, structurally or disproportionatey disadvantaged, less privileged, vulnerable youths, vulnerable global communities and vulnerable global citizens a platform to celebrate, exchange, disseminate or share their experiences and views with colleagues, families and friends more broadly. By adopting a social marketing approach, we are creating a win-win for all stakeholders; and ultimately changing people's lives, which hitherto, probably unattainable or impossible.

The social marketing value is achievable through sustaining developmental freedom (Sen, 1999; Kings, 1967) or regaining economic freedom (Pradosa de la Ecosura, 2014; Kings, 1967), or promoting pro-poor policies (Pernia, 2003); via real jobs (Metcalf et al., 2014; Barnard, 2013; 2013; Eguruze, 2016, 2017 ,2020, 2022, 2023, 2024).

Social marketing conveys massive social benefits to mankind. Social marketing promotes good causes, which benefits humanity in general. The social responsibility and duty of care relating to saving lives, is something unquantifiable, as it implies not merely a compassionate attitude or mind-set but also exhibiting or adopting a positive behavioural pattern (Kotler and Zaltman, 1971; Andreasen, 1995, 2002, 2006; or deemed to be ensuring a 'social insurance' for those less privileged or disadvantaged (Beveridge report, 1942). It is deemed to be eliminating barriers, removing inequality and ensuring equality, equitability, fairness and sustainability, whilst ensuring all persons do have a level playing field, regardless of race, gender, disability, age, religion, geographical location, sexual orientation, and so on (Banga, 2023; Mishra, 2023). This social marketing dream/vision is plausible, providing more support and enabling leadership is offered by policymakers ((Nwafor and Eguruze, 2023) and provided there is support for social entrepreneurship (Kumari and Eguruze, 2020; 2021).

The mission of MMGPI is to ensure equitable provision of essential services. Also, to be fair and bring about "a different way of thinking to leadership (and delivering or providing essential services to meet the needs of people (Eguruze, 2016,2017,20202022, 2023; Eguruze, Porter-Whitaker, 2023, 2024);

Implementation is also a key to eradication of global poverty. Pankaj, 2020, theorises in his 'thinking into character' conceptualisation that it is better to acquire both skills of 'knowing' and 'doing' than just knowing, which has no substance. Combining learning/knowing and doing leads to a liberated mind-set that could drive individuals or peoples, including those less privileged or disadvantaged, to achieve substantially more than the ordinary (Pankaj, 2020). It could help overcome poverty. To eliminate global poverty a different way of achieving it is envisaged.

Research Methodology

This paper relies largely on data from a recent empirical study - Battle against global poverty and sustainability (Eguruze, Porter-Whitaker and Coulson-Bisiker, 2024); unpublished, forthcoming book. Battle against global poverty and sustainability adopted a mix-methods research that used both qualitative (interviews) and quantitative (questionnaires) approaches; involving 254 respondents; aged 18 years and older, from 24 countries and five continents. These were conducted at Regent College London (RCL). Of the 254 respondents 189 were retrieved successfully; signifying a response rate of more than 72%; with 3% marginal errors respected

Additionally, the current study reviewed more than 11 previous similar studies; some of which were undertaken by the co-authors, others were randomly selected based on relevant and convenience. These are outlined in Table 3, below

Data Analysis

Table 1; Indication a comparative cases analysis of most re;event 11 chain of contrasting studies

Study	Theory	Method	Sample size	Outcome/consequences /solutions
(1)... United Nations Population Fund (UNPF) (2012), Tackling poverty in Boznia,EU	Youth emigration crisis; brain drain in Boznia, EU	A review; originally an empirical/qualitative study	N/A	Poverty; linked to unemployment; nepotism, corruption, poor education , organised crime were identified as crucial poverty indicators
(2) Uddin & Uddin (2013); Causes, Consequences and Solutions to poverty in Nigeria	Poverty cause by unemployment	Review; based on secondary data	N/A	Poverty – jobs needed
(3) Pernia (2003);	Pro-poor growth strategy;	Review; based on literature analysis	N/A	Poverty – can be defeated by resilience and consistency; Vietnam was devastated by war in 1973, globally isolated; overcame poverty by adopting pro-poor strategies
(4) Nwibo (2013) cause & solutions of poverty in Nigeria	Poverty caused by youth unemploy-ment	Review based; seminar paper; secondary data	N/A	Cash gifts to the unemployed youths, revolving loan scheme-guarantees, targeted help/support, establish programme benefitting the poor, industrialisation, fighting corruption, poverty reduction programmes
(5) Eguruze (2016) Tackling Poverty Bayelsa State , Nigeria	Poverty eradication, using Social Marketing technique (SMT)	Empirical study; PhD thesis(Doctoral research)l; 301; Randomly selected Aged Group 18 -24; Young people & Community Organisations /Policy makers		More needed to be done by policy makers
(6) Eguruze (2017) Tackling poverty in Nigeria	Poverty elimination, using SMT	Empirical research ;Post-Doctoral; 351; Randomly selected; Respondents aged 18-35; Youths & Rural Community Organisations		A s above
(7) Eguruze (2019) Tackling poverty in Niger Delta region, Nigeria	Poverty reduction, using SMT	Empirical research; Post- Doctoral; 751 Randomy selected; Respondents aged 18-35 Youths & Community		As above

		Organisations		
(8) Eguruze, Porter-Whitaker & Coulson-Bisiker (2024) Tackling Global Poverty, London,UK	Global poverty elimination; using SMT ; helps connecting rural/regions/ to the bigger world stage, a significant contribution.	Empirical research Post-Doctoral ; 254; Randomly selected ;global students/ diverse staff ; RCL, London UK		The value of the research shows that a research conducted at a rural/regional level could be helpful/transformed to a global source, making a useful world-wide impact. Shows consistency , resilience & commitment to collaborate, help tackle/find a solution to a common global social problem.
(9) Kumari (2020) Tackling Poverty in Jharkhand, India	Tackling poverty through empowerment of women, using social entrepreneurship model	Empirical research relating to PhD thesis (Doctoral-research); 57 small businesses; respondents aged 18-59; in a village setting – Amadodi & Ghashila rural villages, Jharkhand, India. Qualitative; semi-structured interviews with consent, in their own workplace settings, used own language; transcribed, coded & translated		Social entrepreneurship has significant impact on relieving poverty and empowerment of women
(10) Kumari & Eguruze (2019;2020)	Tackling Global poverty through Social marketing techniques(SMT)/social entrepreneurshp (SE)	Review; secondary data	Review	There is high probability that a collaborative SMT/SE strategy leading to significant level global cumulative poverty elimination sustainably.
(11) Eguruze, Kumari & Ayoola (2024) Reducing CSR breaches and Poverty in Nigeria's Niger Delta region	Methods of Reducing CSR breaches and Poverty, using SMT Findings contd; (v) which could in-turn, generate local employment for youths and women.	Review paper; secondary data; oil & gas sector Findings contd(iii) importantly , adopting integrated approach (SMT/SE/WLD) could result in more positive social impact; (iv) It can lead to mutually beneficial, more satisfactory sustainable relationships amongst youths, community organisations, and multinational oil/gas companies, happiness, safety, knowledge sharing that could yield constructive social change. (iv) which Comparison of previous empirical studies relating to both	Review ;	More needed in terms of tackling global poverty; oil/gas sector; and sustainability The main findings indicate (i) CSR breaches would put people who are vulnerable even more at risk of poverty ; (ii) There is probability that CSR breaches would exacerbate impoverishment ; and not resolve the problem it seeks to address/tackle (iii)

		the Nigeria's oil/gas sector across and the 2010 USA's Deepwater Horizon oil and gas spillage incidents in the Gulf of Mexico, while it derives its theoretical underpinning drawn from a range of approaches: social marketing techniques, social entrepreneurship, youth and community,and benevolent leadership.		

Source: Co-authors construction, 2024; incorporating selected previous data 2012-2023

In Table 1, above, indicates a comparative analysis of 11 previous studies that have been engaged in research pertinent to this current study.

Table 2 Explores Theories and Approaches that have been experimented previously in tackling poverty across the globe with meaningful Outcomes!

PREVIOUS MODELS: **Classical approach, Smith (1776); (Ricardo (1817); Darwin (1859) The Beveridge Report (1942) Single-dimensional**	**Causes**(natural divisions of labour; socially constructed; natural selection; trade with each other, maximise profit; Chattel Atlantic slavery **Measurement types** (standards of living, levels of living (1st, 2nd & 3rd worlds Survival of the fittest; let the weak die/ the stronger survive; much brutality and violence. **Variables** (Trade and investments, wage levels, human capital, infrastructural facilities, fitness, strengths & weaknesses. **Impact-on-society** (Economic growth, poverty/wealth/prosperity; welfare/wellbeing, slavery, less-freedom, exploration, exploitation, comparative advantages.
SEN(1978; 1982,1999 Single-dimensional	Credit to the below/above- the-poverty-line ($1/per day) conceptualisation, which originated from Indian scholars, Sen (1978) seminar paper, influenced the UNDP adaptation of the definition of poverty. However, mono- variable or income-based approach is no longer viable, and unsustainable in a complex and multidimensionally challenged environment such as the contemporary world.
United Nations' Development Programme (UNDP) (1979);Single dimensional – income based $1/$2 per day;	UNDP appears to lack the compassion or connection with global poor, as it is driven by geological constraints. Another disadvantage of the UNDP is its focus on single-dimensional orientation – mainly an income-based model, which is limited. Lacks an implementation programme; and authority to act in the best interest of the world, due to its partisan role. UNDP may have outlived its usefulness.
University-of-Oxford's Poverty & Human-Development Index (UOHDI), 2010)	The University of Oxford's Human Development Index (UOHDI) tool is multidimensional, similar to that of the Sen and UNDP, but lacks an Implementable Joint Programme Action (IJPA), and deemed to be elitist-top-down approach, as opposed to needs of the grass roots level playing field.
MDGs,2005, (Millennium Development Goal); World Bank/IMF, 2008), $1.25	The MDGs is another UN effort; engaging a range of targets designed for the global community asa commitment to end poverty by 2025, including challenges relating to sustainability. Almost implausible to use a single-dimensional approach to successfully tackle/overcome a multidimensional problem. Additionally, it lacks implementable joint programme of action (IJPA) to ensure a consistent implementation of poverty reduction/sustainable programmes across the world.
SDGs,2015,	SDGs is another UN's effort: embedding a-17-variable approach towards ending

(Sustainable Development Goals (SDGs)	poverty in-all-its forms; which made it a relatively attractive model. It raised all expectations. Nevertheless, disappointingly, poverty still exists. It also lacked a consistent/unified implementation programme across the world.
MARSHALL PLAN (1945-51)	Marshall Plan a post WWII (1948–52) was a US-led rapid European recovery programme(ERP), initiated by the US, following the devastating WWII. By rapidly rebuilding or transforming Europe's social, economic, manufacturing infrastructure, it helped to eradicate extreme poverty in the post WII Europe. Valued about $173million, an equivalent of $13.3billion, was a form of Foreign Aid (to Europe), not grant/not free at 2023) (Encyclopaedia Britannica, 2023; Wikipedia, 2023). Knapp and Main *(1981*).
<u>CURRENT MODEL</u> MMPI, MMGPI; MMGPRI EMMPGRI SMT=MMGPRI +IJPA	There is significant relationship between cumulative-poverty, extreme-poverty, multidimensional poverty, trans-generational poverty, intergenerational poverty, and global leadership as well as environmental sustainability across world economies. **<u>Cumulative poverty</u>** is caused predominantly due to structural-disadvantages, social-inequalities, and social-exclusions, barriers established by policymakers/policy implementers over the years. Several of the above interventions, although robust and meaningful, still failed to capture the vulnerable: the grass roots, global-youths, global communities, and global citizens. Consequently, these segments are often excluded. Time has passed. Hence, there is need to review, strengthen, broaden and sustain current existing poverty interventions strategies. Hence, The current MMGPRI may be the way forward. Unlike the previous models, MMPI (MMGPRI) has a robust practical implementation joint programme of action (IJPA). It needed a new approach; a new way of thinking. The new MMGPI has an **<u>Implementation joint programme of Action (IJPA)</u>**. (The new MMGPI is multidimensional in nature; in that it has a **Multidimensional Poverty Index-(MPI).** The new **MMGPI-IJPA model** is user-and-eco-friendly and retains the multidimensional paradigm. This extension was achieved through literature research, the development of methodology (MMGPI) adopting a mixed methods approach and the strategy conference. Crucially, the new MMGPI-IJPA tool has **<u>a higher probability of ending-cumulative poverty (extreme-poverty)</u>** due to its multi-variable capabilities: multidimensional, intergenerational and trans-generational qualities or multiple-capacities.

Source: Co-authors construction, 2023; update 2025.

In Table 2 above, we showed comparative study theories and approaches relating to social marketing over the years that were equality linked to tackling poverty, locally, regionally, or globally, in one way or another. It highlights different levels of contribution, association or involvement made by these different organisations under different platforms, with diverse goals and objectives, with different meaningful outcomes.

Findings/Results

Table 3 Outline of Factors that Cause (root-causes), Experiences and Solutions to Poverty in Nigeria and India in Rank Order; based on 4 empirical research outcomes (Eguruze, 2016, 2017, 2019, 2022; Uddin & Amp; Uddin, 2013; Nwibo, 2013; Kumari, 2020; Kumari & Eguruze, 2021; Eguruze, Kumari and Ayoola, 2024; and Eguruze, Porter-Whitaker and Coulson-Bisiker ,2024).

Causes of Poverty in Rank Orde	**Experiences/Consequences of Poverty in Rank Order**	**Solutions to Poverty in Rank Order**
<u>Causes</u> 1. Corruption of politician and top government officials; 2. Absence of jobs/employment opportunities; 3. Low wages	**<u>Experiences/Consequences</u>** 1.Unemployment; 2. Lack of access to quality education; 3. Lack of access to finance for business start-up/expansion (micro-	**<u>Solutions</u>** 1. Marshall plan; 2. Free education access to quality education 3. Stop corruption of top government

/low income; 4. Poor education /Lack of access to quality education; 5. Oil/gas pollution; Climate change; 6. IMF/World bank terms & conditions; 7.War; 8. Tribalism/Racism; 9. Migration; youngsters escaping from their own to foreign countries; emigration, including rural/urban movements; brain drain; 10. Population; 11. Poor governance;/poor leadership; 12. Poor infrastructural facilities: water, electricity, roads, public transportation system, healthcare/medicare), 13 Recreational facilities/centre.	finance); 4. Lack of low cost housing; lack of access to decent affordable housing; homelessness; 5.Lack of access to quality healthcare (No money to treat illness); poor infrastructure facilities; 6. No-food to eat (hunger & starvation); 7. No clean drinkable water (portable water); 8. No regular electricity supply; 9. No money to buy new clothes; 10. Poor roads/absence of public transportation system ; 11. Luring people into prostitution, drugging & kidnapping	officials and politicians 4.Creating real jobs and employment opportunities 5. Develop employment skills & training 6. Improve agriculture 7. Attract oil/gas companies to invest 8. Creating conducive atmosphere; peaceful, supportive an enabling environment 9. Increase investment spending 10. Steady electricity 11. Access to free healthcare is also seen as a problem – poor health impacts earnings. 12. Actively involving global youths, global communities & global citizens in policy decision making & policy implementation processes 13. Setting new priorities; re-directing resources is likely to enhance the probability of ending cumulative poverty

Source: Eguruze, (2014, 2015, 2016, 2017, 2022, 2023,2024).

Table 3 comprises the main significant causes, experiences/consequences, and solutions, in a rank order, which are based on the summary of the expressions by the respondents themselves. Arranging in a rank order, may enhance our understanding, as well as aoffering a unique contribution.

Discussions and Interpretations

Research/Objectives

The paper set out to engage in the analysis of four fundamental research questions: (i) what more could global policymakers do to eliminate cumulative poverty sustainably? (ii) how do we adopt an inclusive approach driven by grass roots levels? (iii) how do we strengthen/broaden support for existing poverty intervention mechanisms worldwide? (iv) what is social marketing technique (SMT) and how would SMT help eradicate poverty/sustainability?

*Evidence from four main case study analysis: Eguruze 2016 (Tackling Poverty in Bayelsa State of Nigeria; Eguruze, (2017) Strategy for tackling poverty in Nigeria and Eguruze, Bennison and Lloyd (*2017). In Cumulative Support Need (Cumulative poverty), as well as Uddin & Uddin, 2013, these outcomes *suggest that there is possibility that global policymakers could do more to eliminate cumulative poverty sustainably, provided there is the will and desire to do so, which is something inspirational. It suggests there is hope.*

In responding to the second research question: how do we adopt an inclusive approach driven by grass roots levels?, we analysed further cases: (i) Pernia, (2003), to learn from how pro-poor policies played important role in helping the re-emergence of Vietnam from extreme poverty; (ii) Ratnesh(2019), which was a study relating to work life balance that attempted to highlight implications of social exclusive (discriminative practices) against rural female bank employees in Bihar, India; and (iii) Santiago and Roxas(2013), this study revealed how much of the resources for mitigating the impact of poverty found their ways into new technologies projects; suggesting mismanagement or diverted funds during project implementation processes in the in the Philippines. Through analysis of these cases we also learnt that *it can be possible to adapt inclusive approach in which diverse needs could be tackled practically and successfully* when the very needy; grass roots level such as the global youths, global communities and global citizens are involved, rather than only the elites doing it all alone.

When it comes to research question *how do we strengthen/broaden support for existing poverty intervention mechanisms worldwide?, evidence from these following studies appeared to have provided some solutions:* Eguruze (2015) Methodology model for global poverty intervention significantly reduces cumulative-poverty, using social marketing techniques; Eguruze (2022) Methodology model for poverty intervention (MMPI): seeking validation and evaluating efficacy, using social marketing techniques (SMT**)**

(Working Paper II), and Eguruze, et al, (2023) Methodology model for global poverty intervention (MMGPI) significantly reduces Cumulative-poverty, using social marketing techniques (Working Paper III) as well as the most recent case, Dominique-Porter Whitaker (2024**),** unpublished, but outline presented at the Regent Research Round Table (RRRT) - the "Battle Against Global Poverty and Sustainability". Collectively the outcome of these studies leads us to believe that global poverty reduction mechanisms and processes could be improved if additional or new methodologies or strategies were embedded or embraced, rather than continuing with out-dated models and strategies that seem no longer viable or applicable in contemporary 21st century landscape, which has new and more challenging needs. Suggesting a business as usual approach is no longer the solution in a more complex global context.

Originality

As regards **originality**, the findings of the present study are a result of analysis of both quantitative and qualitative data processing that were related and/or relevant to the current study, which means that the current study is an outcome of an empirical research undertaken by the co-authors at different times over lengthy periods (suggesting not only about the longitudinal nature of the study relating to talking cumulative poverty but more importantly, suggesting originality.

Social Implication

In term of its social **implications** the outcome could result in benefits for all stakeholders: global policymakers, global implementer, global citizens at the grass roots levels, global communities and global youths regardless of race/nationality, gender, sexual orientation, disability, religion, geographical location, geopolitical inclinations, and so on.

Practical Implications

In relation to practical implications the aims at improving, expanding, strengthening, broadening or widening exiting and/or current poverty reduction intervention initiatives and sustainability processes, which offers inclusivity, diversity, equitability across the world, whilst ensuring opportunities for future generations not compromised by the activities of the present generation?

Contribution to knowledge

With regard to contribution to knowledge, the paper has created further opportunity/access for networking and engaging global policymakers and global policy implementers with vulnerable global youths, global citizens, global communities not only at local, regional, national levels but more crucially, at the global level.

Conflict of Interest

With regard to conflict of interest, there is none, as the co-authors have undertaken this study without any kind of financial sponsorship, benefits or gains. This study is purely out of a voluntary effort.

Acknowledgement

Meanwhile, the co-authors extend their appreciation to any person who has helped in achieving the goal/objective of this study.

Conclusion

Based on the outcome of the review, the co-authors believe that changing attitudes and behaviours and perspectives of global policymakers as well as policy implementers could significantly enhance their comprehension/understanding of the fundamental root causes, experiences, challenges arising there from, and find credible and sustainable solutions to cumulative poverty; utilising a more diverse or inclusive perspective/methodologies, hitherto unknown, or not utilised or adopted by global policymakers before, in previous studies, and thereby creating a further opportunity to learn more by stakeholders. The paper argues this new approach could be win-win for all stakeholders: global policymakers, global policy implementers, global citizens, global communities, and future global generations.

Limitations and directions for further research

Limitations of the study

The current study was located in London, UK which is a leading developed country; and the 254 participants/respondents were from 24 different countries across the globe. Respondents were mainly international students who were currently studying at Regent College London, whereas a few of the respondants were staff of RCL.

Conversely, the current research data (sample size of 254) was backed/supported by a previous sample-size 1461(which was conducted in previous studies conducted in developing countries such as Nigeria, India, Bosnia-EU, Vietnam, Philippine, making a total sample size of 1715. Hence, this study could claim to enjoy a substantial representation of global perspectives.

Further, social marketing seeks to ensure constructive social change; mainly focusing on how attitudes/behavioural aspects of global policymakers as well as global youths, global communities and global citizens can be engaged through persuasive methodologies only.

Although social media is an important tool of social marketing, it has been used only as valuable-source for social marketing communication or a promotional tool in this study. It is important to note this inextricably close relationship between social media and social marketing, to avoid misunderstanding/confusing these two important marketing phenomena.

This research is based on the perceptions and opinions of the respondents. Therefore, limitations of opinion surveys need to be appreciated or respected, as the respondents' opinions might not be the same as their actual practice and actions.

Directions for further research

As the current study is at a global platform, it might be relevant to use a larger sample size (through adopting collaborations and networking) that reflects the geopolitical balance than the current sample-size, which might be too little to make generalisations.

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- Quality of education and Improvement method
- Global education and Its challenges and opportunities
- E-teaching/E-learning, educational software, and multimedia for education
- Teacher education
- Distance education and Education quality
- Methodology of educational research, Adult, and continuing education
- Special education, Gender, diversity and difference, Vocational education
- Assessment processes and mechanisms
- Language Education, Listening and acoustics in education environment
- Education History
- Innovative teaching and Learning methodologies; multi-virtual environment
- Application of educational technology
- Education reforms and Practical teaching reforms

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Preference will be given to papers which are conceptually and analytically strong and have empirical relevance. All papers will be reviewed according to the Journal's criterion. The Journal's website is www.ijhem.com .For further information, please write to Editor at info@cberuk.com

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Name of the Contributors

T. Ncanywa
Michael Nana Owusu-Akomeah
Erica Maria Oteng-Gyasi
Richard Nana Yaw Darkwa Ofori
Emmanuel Attah Kumah Amponsah
Michael Owusu-Kyei
Stephen Owusu Afriyie
Mostafa Salah Elmokadem
Hoda Ahmed Ibraheem Abdelnabi
George Oppong Appiagyei Ampong
Gbate Joshua
Diana Danso
Ameeta Fernando
A. Siluvai Raja
Samuel Akwasi Danso
Isaac Osei Nyantakyi
Justice Odoom
Emmanuel Attah Kumasi Amponsah
Diana Danso
Bosiljka Srebro
Vidhu Gaur
Thobekani Lose
Luthando Jack
Adesanmi Timothy Adegbayibi
Mohammed Kayode Ajape
Tiina Brandt
Muslima Zahan
Thamid Thasin
Samawati K. Zahan
Owusu- Bempah, Edna
Joseph L A. Mensah
Mercy Kwakye
Samuel Agyapong
Betelihem Welederufael Asfaw
Flomny Menon
Evangelia Fragouli
Mohammed Kayode Ajape
Michael O. Adelowotan
Adesanmi Timothy Adegbayibi
Miljan Adamović
Stefan Milojević
Snežana Knežević
Hemisha Makan
Joash Mageto
Ebikinei Stanley Eguruze
Dominique Porter-Whitaker
Michael O. Adelowotan
Diane Coulson-Bisiker

Centre for Business & Economic Research (CBER)
79 College Road, Harrow, Middlesex HA1 1BD, UK
Email: editor@cberuk.com; editor@cberuk.org
Web: www.cberuk.com www.cberuk.org