

EXTERNAL BUSINESS ENVIRONMENT AND PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN KADUNA STATE: THE MEDIATING ROLE OF INNOVATION

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Abstract

The aim of this study is to investigate how innovation function as a mediator in the relationship between the technology and socio-cultural environments, as well as how well Small and Medium Enterprises (SMEs) function in Kaduna State. Based on the knowledge-based theory of the company, the research aims to understand how technological and socio-cultural contexts affect the performance of SMEs. There are 495 SMEs in the state that make up the research sample. Owners and managers of particular SMEs were given questionnaires to complete in order to collect data. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to examine the data. The findings showed a strong and positive relationship between the technical environment and the performance of SMEs, as well as between the socio-cultural environment and performance of SMEs. However, innovation was found to be important in the relationship between the socio-cultural environment and the success of SMEs, but not in the relationship between the technology environment and SME performance. Therefore, in order to foster innovation and improve the performance of SMEs in Kaduna State, policies and interventions must place a high priority on the development of a favorable socio-cultural environment and the expansion of the technological landscape.

Keywords: External Business Environment, Technology Environment, Socio-Cultural Environment, Innovation, Firm Performance, Small and Medium Enterprises

Introduction

It is commonly acknowledged that Small and Medium Enterprises (SMEs) play a critical role in promoting economic development According to the National Bureau of Statistics (NBS) in 2021, this sector bears major relevance in contributing to the economic growth and

development of a nation. Promoting economic growth through the creation of SMEs has been a recurring problem that has dominated policy discussions worldwide, especially in Africa. It is impossible to exaggerate the importance of SMEs' contribution to Nigeria's economy since they are essential to

attaining more general development goals like reducing poverty, creating jobs, and strengthening indigenous ownership of resources within the economy. As to the NBS data from 2021, small and medium-sized enterprises (SMEs) account for over 25% of employment in Nigeria and contribute roughly 50% of the country's GDP. Nominally speaking, SMEs account for about 48% of Nigeria's GDP, according to figures from the NBS in 2021. The majority of innovations in new products and processes are attributed to this industry, which also provides a large number of job opportunities and is a key indicator of the overall health of an economy, according to the 2019 Enterprise Baseline Survey.

SMEs are categorized according to diverse criteria, with commonly utilized criteria including employee count, gross assets, turnover, and investment level. The predominant method of division utilized is based on employment, which may incorporate diverse thresholds of upper and lower size limits. The classification of SMEs in Nigeria was based on the mandate of the Small and Medium Development Agency of Nigeria (SMEDAN), which was established to facilitate the advancement and expansion of SMEs in the country. The categorization of SMEs is based on their employment and assets. Specifically, an enterprise is considered a SME if its total assets, excluding land and building, fall within the range of Five Million Naira to Five hundred million Naira, and it employs a total workforce of 10 to 199 individuals.

According to Kazeem (2020), the performance of SMEs has become a matter of concern, as not all SMEs in the country are experiencing growth despite their existence. Research indicates that a significant proportion of business start-ups, approximately 90%, fail to continue operations beyond their third year of existence, primarily due to inadequate

environmental conditions (Douglas et al. 2014). Additionally, there exist other SMEs that have remained at the survivalist phase, which could be attributed to inadequate performance. Performance can be defined as the capacity of an organization to attain predetermined objectives, such as generating high profits, producing quality products, obtaining a significant market share, achieving favorable financial outcomes, and ensuring survival, by implementing appropriate action strategies. Performance can be utilized as a metric to evaluate an organization's market share, product volume, customer demand, loyalty, and investment. Obiwuru et al. (2019) conducted a study. Performance can also be viewed as the attainment of objectives, outcomes, and accomplishments within an organizational context. The achievement of organizational performance is contingent upon the presence of a conducive business environment. Hughes et al. (2021) assert that innovation is crucial for the survival and sustainability of organizations in the business environment. The ability to innovate is a crucial factor in achieving sustainable competitive advantage and improving performance in a highly dynamic environment. It serves as a significant milestone towards reaching organizational goals. Calantone et al. (2019) assert that organizations with superior innovation capabilities are more adept at adapting to external environmental changes, thereby enhancing their ability to achieve a sustainable competitive advantage.

The contemporary business environment is characterized by a range of dynamic features, including global competition, information technology, cultural factors, and corporate social responsibility. These factors necessitate that managers reconsider and reformulate their approach to various operational responsibilities. The external

environment refers to a set of factors that exert an influence on business enterprises from the outside, including but not limited to socio-cultural and technological factors (Alkali & Abu, 2021). The utilization of these external business factors is attributed to their significant impact on the operational efficacy of SMEs within Kaduna State. Hence, this study assessed the effect of external business environment of SME performance in Kaduna state.

1.1 Statement of the Problem/Justification: The European Union (EU) has recognized technology as a significant contributor to the innovation and competitiveness of small and medium-sized enterprises (SMEs). However, the EU has also noted that the full potential of information technology (IT) can only be realized the labor force is adequately equipped with the necessary skills and has access to high-tech infrastructure. Notwithstanding, it has been observed that certain SMEs in Nigeria are deficient in terms of possessing adequate physical telecommunication infrastructure and high-speed internet connectivity, which hinders their ability to compete on a global scale. Technology can be beneficial for small businesses by facilitating inventory management and bookkeeping, which have been identified as crucial elements for success (Ogbari et. al, 2022).

The socio-cultural business environment plays a crucial role in the overall industrial and economic prosperity of entrepreneurship as a whole, as well as for individual entrepreneurs. The aforementioned statement suggests that the emergence of novel advancements is a result of the interaction between environmental factors and entrepreneurial inclinations of individuals, which is inherently influenced by the socio-cultural business milieu (Shivani et al. 2021). According to Hofstede (1998), culture can be defined as the shared mental

programming of a group of individuals, often referred to as "the software of the mind." According to Hofstede (1998), the concept of wealth is a result of the social and historical development of mankind, encompassing both material and spiritual aspects. According to Rys (2020), innovation plays a crucial role in providing organizations with the necessary resources to adapt to a volatile environment. Albury (2015) posits that the essential components for a prosperous innovation include the development of novel processes, modernization of products and services, and the implementation of effective delivery techniques. The implementation of this innovation process, contingent upon organizational adoption and a conducive business climate, has the potential to enhance the performance of commercial entities.

The MSME banking sector report of 2021 suggests that a lack of conducive environment for SMEs to thrive may be a significant challenge facing these enterprises in Nigeria. According to a report by SMEDAN in 2020, the majority of SMEs in Nigeria, specifically 95%, function as micro businesses. Additionally, the report states that only a mere five percent of start-up companies are able to endure and progress to maturity, as per SMEDAN's findings in 2018. According to Omolomo et al. (2014), the failure rate of SMEs is high across different countries, with over 50% of them collapsing within the first five years. In Nigeria, approximately 25% of SMEs go bankrupt or cease operations. The significance of innovation in the nexus between the external business environment and the viability and longevity of SMEs in Nigeria is paramount. Consequently, it is imperative to investigate the degree to which innovation amplifies the correlation between the external business milieu and the performance of SMEs. Numerous empirical studies have

surfaced regarding the impact of the external business environment on performance. However, the results have been inconsistent and contradictory, rendering them inconclusive. Furthermore, these studies have neglected to examine innovation as a possible mediator in the relationship between the external business environment and the performance of Small and Medium Enterprises. Consequently, this study aims to examine the mediating effect of innovation on the association between the external business environment and the performance of SMEs in Kaduna State. Technology and socio-cultural environment were utilized as a metric for assessing the external business environment.

1.2 Objectives of the Study:

Specifically, this study seeks to:

Assess the effect of technology environment on the performance of SMEs in Kaduna state.

Examine the effect of socio-cultural environment on the performance of SMEs in Kaduna State.

Evaluate whether innovation significantly mediate the relationship between technology environment and the performance of SMEs in Kaduna State.

Assess whether innovation significantly mediate the relationship between socio cultural environment and the performance of SMEs in Kaduna State.

Concept of Performance

According to Iskandar et al. (2014), productivity is a measurable factor that can be used to evaluate an individual's performance. This pertains to the level of excellence, amount, expertise, or innovation of an individual in relation to the completed tasks that align with the assigned duties within a designated timeframe. According to James (2019), performance can be characterized as the evaluation of an organization based on

various factors such as output, product quality, productivity, cost management, safety and health, as well as the development and relationships of employees. The investigation of determinant factors that influence the performance of small and medium-sized enterprises (SMEs) is regarded as a crucial area of emphasis within the business community (Rosli, 2011). Storey and Wright (2019) posited that the construct of organizational performance measurement encompasses the dimensions of effectiveness, efficiency, satisfaction, and innovation of the product. Apolot (2012) conducted a study to measure organizational performance in terms of sales growth, customer satisfaction, and profitability within a business. Thus, the present study employs the definition put forth by Apolot (2012).

External Business Environment: The external environment of an enterprise is comprised of various factors that exert an impact on its business from an external standpoint. The factors encompassing economic dynamics, government policy, political atmosphere, social and cultural values, and technological dynamics are noteworthy. Alkali and Abu (2019), Yuan et. al.(2019), and Bard et. al. (2019) are cited sources. Ehlers and Lazenby (2011) have noted that the external environment comprises of the factors in the surroundings that exert both direct and indirect impact on the organizational performance. According to Ojeda et al. (2019) research, the external environment comprises two components, namely the macro environment and micro environment, both of which exert an impact on the operational efficiency of small and medium-sized enterprises (SMEs). The macro environment encompasses various external factors that impact a company, such as socio-cultural, political, technological, demographic, and economic factors. On the other hand,

the microenvironment refers to the factors that directly affect the company, including suppliers, customers, government institutions, and competitors. In this study, the external business environment is measured using socio-cultural and technological factors as they are considered to be the primary environmental elements that could potentially impact business performance in Kaduna state.

2.2 Technology Environment:

According to Kayanula and Quartey (2019), the limited access to technology poses a challenge for small-scale entrepreneurs, thereby hindering their innovation and competitiveness in the SME sector. McNamara and Watson (2015) provide a definition of technology as encompassing a comprehensive set of means, including knowledge, methods, materials, and tools, that are utilized to achieve practical outcomes. The purpose of technology is to enable enterprises to establish work methods, work patterns, and information structures. The tools and means are considered ancillary to the primary objective or outcome to be pursued. Technological advancements possess the capability to enhance velocity, caliber, and efficacy.

2.3 Socio-Cultural Environment:

The socio-cultural business environment is formed by the amalgamation of the social system and culture of individuals, which in turn shapes entrepreneurs, as stated by Azim (2018). The term "socio-cultural business environment" encompasses all intangible factors created by humans that have a direct or indirect impact on individuals' behavior and overall lifestyle (Akpór-Robaro, 2012). The acquisition of shared characteristics and patterns of behavior among individuals is facilitated through socialization processes, which are influenced by various factors such as education, religion, and family background. According to Yeboah (2014), the aforementioned dimensions

are the most salient factors when characterizing the socio-cultural business environment.

2.4 Concept of Innovation: Various scholars have presented varying definitions of innovation, which are contingent upon the underlying concept and significance of the term. According to Rogers (2015), innovation can be defined as a concept, a commodity, a procedure, a mechanism, or a tool that is perceived as novel by an individual, a group of individuals, a collection of businesses, an industrial sector, or an entire society. According to Liao et al. (2018), innovation can manifest in various forms such as the introduction of new products or services, the adoption of cutting-edge production technologies, the implementation of novel operational procedures, or the utilization of innovative managerial strategies to facilitate business operations. Moreover, the act of innovation involves the creation of novel entities that possess added value. Schumpeter (1928) formulated the concept of innovation as a destabilizing force within capitalism and asserted that it serves as a catalyst for the advancement of the capitalist system.

2.5 Empirical Review of Related Literature:

The study conducted by Bojan and Zoran (2021) investigated the moderating effect of external environmental analysis on the association between entrepreneurial orientation and business performance in small Italian enterprises. The objective of the research was to investigate the associations between the constructs of entrepreneurial orientation and business performance in small enterprises, along with the moderating impacts of external environmental factors. The investigation examined the notion of entrepreneurial orientation through the assessment of associated factors, namely innovativeness, pro-activeness, risk taking, autonomy, and competitive aggressiveness. The empirical

investigation has validated the existence of a positive correlation between entrepreneurial orientation and the financial as well as non-financial performance of firms. It is evident that small and medium-sized enterprises (SMEs) ought to cultivate a corporate culture and management approaches that foster innovative, proactive, and risk-taking behaviors. The study has additionally validated the existence of a positive correlation between the external environment and entrepreneurial orientation. The research conducted did not yield any indications of the external environment having a moderating effect on the correlation between entrepreneurial orientation and the performance of small businesses.

The impact of socio-cultural factors on entrepreneurial development in Nigeria was assessed by Vincent and Ifeanyi in 2015. This study focuses exclusively on the socio-cultural factor that has a significant impact on entrepreneurial development in Nigeria. The research findings indicate that certain cultural values, such as marriage, age grade, and religion, have a favorable influence on entrepreneurial advancement. Conversely, other cultural values, such as the practice of acquiring traditional titles, have an unfavorable impact on entrepreneurial development. The research suggests that in order to enhance the credibility of entrepreneurship, there is a need to modify conventional beliefs that have been conventionally perceived as being in conflict with entrepreneurial advancement.

The study conducted by Mai and Phuong (2021) aimed to investigate the influence of external environmental factors, technological advancements and innovation capabilities, and leadership development on the overall performance of food industry organizations. The research was conducted in the form of a qualitative study, focusing on food enterprises located in Ho Chi Minh City,

Vietnam. This research examines the present challenges associated with executing technology transfer and innovation procedures within food processing establishments located in Ho Chi Minh City, Vietnam. This research undertakes a comprehensive qualitative investigation consisting of eight in-depth interviews with executive and research and development managers. The study reveals seven primary themes that surfaced from the data regarding the particular contents for food processing enterprises. The study's correspondents expounded on how the pertinent factors of external circumstances, organizational capabilities, and leadership play a role in facilitating technology transfer and innovation efficacy, ultimately resulting in sustainable performance. Furthermore, the participants of the research study also reported difficulties linked to the execution of technology transfer initiatives. Drawing upon previous research and acknowledging the obstacles faced, this study presents a theoretical framework for the innovation process and technology transfer within food processing companies, which is shaped by three primary factors: the external environment, technology transfer and innovation capabilities, and leadership. Modifications in any of the aforementioned three variables have the potential to impact technology transfer, innovation effectiveness, and the overall performance of an organization.

The study conducted by Olatunji (2020) examined the influence of information communication technology on the productivity of small and medium scale enterprises in Nigeria. This study investigates the impact of Information Communication Technology (ICT) on the productivity of Small and Medium Enterprises (SMEs) in Nigeria. The data collection methodology employed in this study involved a survey research approach, which was administered to a sample of 80 participants. Thus, the

study provides an overview of the consensus among stakeholders in the Small and Medium Scale Enterprise industry regarding the positive impact of incorporating Information Communication Technology into their operations. This integration is found to alter their processes and enhance productivity, ultimately leading to increased profitability. The research revealed that the utilization of Information Communication Technology (ICT) among Small and Medium Scale Enterprises (SMEs) presents novel prospects, diminishes inventories, and enhances the tradability of their services. The research suggests that prioritizing contemporary technology, pragmatic technological education, and entrepreneurial studies can lead to the creation of successful entrepreneurs.

2.6 Theoretical Framework

2.6.1 Knowledge Based Theory of the Firm (KBT): Grant (1996) posits that the Knowledge-Based Theory (KBT) places emphasis on knowledge as the foremost strategically significant resource of a firm. According to Kirsimarja and Aino (2015), variations in an organization's stock of knowledge and its ability to utilize and enhance knowledge can lead to differences in its performance. According to the authors, the purpose of organizations is to generate, disseminate, and convert knowledge into a strategic edge. Human beings are associated with the acquisition and possession of knowledge. Individuals are considered to be agents that possess intentionality and intelligence. Kirsimarja and Aino (2015) contend that in intricate scenarios that surpass the comprehension of any individual, there exists a necessity for the amalgamation and synchronization of knowledge. Certain types of knowledge have the potential to be utilized and disseminated.

Organizations employ independent variables in research to acquire

knowledge for organizational purposes. The technology environment is utilized to acquire insights into emerging technologies within the environment and to determine how organizations can foster innovation. The socio-cultural environment is utilized by organizations to acquire information pertaining to the culture, behavior, attitude, and lifestyle of the surrounding environment. Grant (1996) argues that the KBT espouses the notion that possessing such knowledge can enhance organizational performance. According to Pöyhönen's (2005) argument, the possession of knowledge resources by organizations can facilitate innovation, which in turn can enhance organizational performance. As per Pöyhönen's (2005) assertion, the acquisition of knowledge is a precursor to innovation, which ultimately culminates in improved performance. This statement elucidates that innovation can serve as an intermediary between the technological and sociocultural environments, as well as the performance of small and medium-sized enterprises (SMEs). Technology and sociocultural factors can be considered as valuable knowledge resources, as they are utilized for the purpose of acquiring information. Based on the review of literature and the theoretical framework of the study, the study hypothesized that:

- H1: Technology environment has significant effect on the performance of SMEs in Kaduna state.
- H2: Socio-cultural environment has significant effect on the performance of SMEs in Kaduna State.
- H3: Innovation significantly mediate the relationship between technology environment and the performance of SMEs in Kaduna State.
- H4: Innovation significantly mediate the relationship between socio

cultural environment and the performance of SMEs in Kaduna State.

3.0 Methodology:

The research methodology selected for this investigation is a cross-sectional survey design. The adoption of this approach is likely due to its practicality in obtaining relevant information regarding the present situation, as noted by Kothari (2014). The study's population comprises 5,987 small and medium-sized enterprises (SMEs) that conduct their operations within Kaduna State and are duly registered with SMEDAN and NBS as of 2021. The study participants comprised individuals who hold ownership or managerial positions in small and medium-sized enterprises located in Kaduna. The individuals were chosen based on their expertise and experience in managing their respective establishments.

The determination of the study's sample size was based on the formula recommended by Yamane, as referenced in Israel's work in 2013. The research determined a sample size of 381 participants. To mitigate the effects of response bias and incomplete questionnaire submissions by certain participants, the minimum sample size was increased by 30%, as recommended by Israel (2013). The sample size of the questionnaire administered across the state increased to 495 as a result of the inclusion of 114 respondents, which represents a 30% increase. The data collection process involved the distribution of self-administered questionnaires to the participants. The present study intends to employ the stratified sampling method to disseminate questionnaires across the

three senatorial districts in the state, namely Kaduna North, Kaduna Central, and Kaduna South senatorial districts.

This study utilized copies of questionnaires that have been sourced from various authors and subsequently adapted for the purposes of this research. The questionnaire pertaining to the technology environment was derived from Akrofi's (2016) work, consisting of a total of five items. The socio-cultural environment questionnaire was adapted from Felicia et al.'s (2013) study, comprising six items. Lastly, the innovation questionnaire was adapted from Hughes and Mogan's (2007) research, consisting of three items. The performance questionnaire was adapted from Apolot's (2012) work, consisting of eight items. The investigation employed Partial Least Square (SmartPLS3) as a statistical tool to scrutinise the data. The study adhered to the two-stage methodology in evaluating the measurement model and the structural model, respectively. As per the recommendations put forth by Urbach and Ahlemann (2010). The assessment of the outer model typically involves four commonly utilized criteria, namely unidimensionality, reliability, convergent validity, and discriminant validity. The subsequent phase served the purpose of evaluating the adequacy of fit and testing the research hypotheses within the proposed research framework. The outer model evaluation was based on the following criteria: coefficient of determination (R-Square, R²), path coefficient, and effect size (f²).

4.0 Results/Findings

Table 1: Construct Reliability and Validity

Construct	Items	Loadings	AVE	CR
Technology Environment	TE11	0.757	0.668	0.887
	TE2	0.877		
	TE3	0.796		
	TE4	0.866		
	TE5	0.783		

Socio-Cultural Environment	SCE1	0.739	0.646	0.900
	SCE2	0.784		
	SCE3	0.819		
	SCE4	0.844		
	SCE5	0.815		
	SCE6	0.819		
Innovation	INV1	0.819	0.682	0.775
	INV2	0.820		
	INV3	0.839		
Firm Performance	FP1	0.782	0.691	0.914
	FP2	0.808		
	FP3	0.852		
	FP4	0.853		
	FP5	0.865		
	FP6	0.824		

NOTE: No items were deleted from the data set, as they all met the minimum requirements. AVE stands for Average Variance Extracted while CR represents Composite Reliability. FP7-8 were deleted to poor item loading.

Hair et al. (2019) highlight the importance of loadings that surpass the threshold of 0.7. The loadings of all items in Table 1 exceed the criteria of 0.7, suggesting a strong and persistent connection with their respective constructs. According to Tabachnick and Fidell (2013), Table 1 provides additional evidence that each construct has a composite reliability coefficient

beyond 0.7, thereby meeting the specified minimal threshold for composite reliability. In addition, it should be noted that all constructs satisfy the prescribed minimum threshold for average variance extracted (AVE) of 0.5, as specified by Tabachnick and Fidell (2013). Therefore, it may be deduced that the available evidence provides robust support for the concept of convergent validity. Discriminant validity was assessed using the data shown in Table 2.

Discriminant Validity using Heterotrait-monotrait Ratio

	1	2	3	4
1. Firm Performance				
2. Innovation	0.698			
3. Social-Cultural Environment	0.650	0.726		
4. Technology Environment	0.669	0.616	0.639	

The results of the HTMT (Heterotrait-Monotrait) study demonstrate a significant trend: the degrees of correlation across distinct constructs (off-diagonal components) are considerably weaker in comparison to

the degrees of correlation within the same constructs (diagonal elements). According to Hair et al. (2019), the HTMT values for each pair of traits consistently demonstrate a significant deviation from the recommended

threshold of 0.85. The aforementioned observation indicates that each construct exhibits more robust relationships with its own indicators compared to indicators of other constructs, hence confirming the existence of diagnostic validity. Moreover, the application of various assessment methodologies to examine these structures underscores Test of Hypotheses

Table 3

Path Coefficient

Hypotheses	Beta Value	Std. Error	T Stat	P Value	Decision
H1: TE->FP	0.351	0.107	3.276	0.00	Supported
H2: SCE->FP	0.231	0.087	2.657	0.01	Supported
H3: TE->INV->FP	0.067	0.041	1.642	0.10	Not Supported
H4: SCE->INV->FP	0.124	0.053	2.341	0.02	Supported

It is seen on Table 3 that there exists a positive and significant relationship between Technology Environment (TE) and the performance of SMEs in Kaduna state. The data presented demonstrates a statistically significant relationship between the variables at less than 1% significant level ($\beta = 0.351$, T Stat = 3.276, $P < 0.01$). As a result, hypothesis 1 that states that technology environment has significant effect on the performance of SMEs in Kaduna state is supported. Similarly, on Table 3, it is seen that Socio-Cultural Environment (SCE) does exert positive and significant influence on the performance of SMEs in the study area ($\beta = 0.231$, T Stat = 2.657, $P < 0.05$). This means that the study does supports the second hypothesis of the study that states that Socio-cultural environment has significant effect on the performance of SMEs in Kaduna State. On the contrary, based on the empirical analysis of the study, Innovation (INV) does not significantly mediate the relationship

Table 4

R Square

Construct	R Square
Innovation	0.428
Firm Performance	0.508

their ability to capture inherent notions inside the research. The inclusion of this supplementary data enhances the case for the validity of the constructs, as it emphasizes the idea that they assess distinct facets of the event being studied.

between Technology Environment (TE) and the performance of SMEs in Kaduna state as P value > 0.05 ($\beta = 0.067$, T Stat = 1.642, $p > 0.05$). Therefore, the hypothesis three of the study which states that innovation significantly mediate the relationship between technology environment and the performance of SMEs in Kaduna State is not supported. Finally, based on empirical analysis, the study found out that Innovation (INV) does significantly mediate the relationship between Socio-Cultural Environment (SCE) and the performance of SMEs in the study area ($\beta = 0.124$, T Stat = 2.341, $P < 0.05$). This means that the study supports hypothesis four of the study that states that innovation significantly mediate the relationship between socio cultural environment and the performance of SMEs in Kaduna State.

The findings suggest that innovation, technology environment and socio-cultural environment accounts for a substantial proportion of the variance in SME performance, as indicated by the relatively high R-squared value of 0.508 for SME performance. This implies that nearly 51% of the variability in SME performance can be attributed to innovation, technology environment and socio-cultural environment, highlighting the significant role it plays in shaping the performance outcomes of small and medium enterprises. However, it's noteworthy that while innovation contributes significantly to explaining SME performance, there are other factors beyond these variables in this study that also influence performance, as evidenced by the R-squared value of 0.508 for firm performance. More so, the R square for innovation is 0.428, this means that 42.8% of the variance in the innovativeness of SMEs in Kaduna state is accounted for by technology environment and socio-cultural environment.

4.1 Discussion of Findings

The findings of the empirical analysis demonstrate a statistically significant and positive correlation between the Technology Environment (TE) and the performance of Small and Medium Enterprises (SMEs) in Kaduna state. The confirmation of Hypothesis 1 is based on statistical evidence at a significance level of less than 1%, with a beta coefficient of 0.351 and a corresponding T statistic of 3.276. The findings indicate that the performance results of SMEs are highly influenced by the technology landscape in which they operate. The present study aligns with other scholarly investigations that have underscored the significance of technology adoption and adaption in facilitating the performance of small and medium firms (Chege, Wang &Suntu, 2020; Nhon, Thong, &Trung, 2020; Nayal, Raut, Yadav, Priyadarshinee, &Narkhede, 2021). An

explanation for this favorable correlation may be that a favorable technological setting grants SMEs the opportunity to utilize sophisticated tools, procedures, and data, so augmenting their productivity, effectiveness, and competitiveness. In an ever-changing business environment, characterized by the significant impact of technical progress on industry dynamics, SMEs that actively adopt and utilize technology are more effectively positioned to respond to market fluctuations, satisfy consumer needs, and maintain a competitive edge. Moreover, a conducive technological setting can foster innovation within SMEs, empowering them to create novel products, services, or procedures that cater to the demands of developing markets (Zhang, Sun, Yang, & Wang, 2020). This finding is consistent with other research that has highlighted the importance of technology adoption in relation to the performance of SMEs (Heredia et al., 2022; Tsou & Chen, 2021). Studies have demonstrated that SMEs who allocate resources towards technology, such as implementing new software, automating operations, or incorporating digital tools, generally observe enhancements in productivity, profitability, and expansion (Siriram, 2022). Furthermore, scholarly research that examines the impact of technology in emerging economies, such as Kaduna state, has emphasized its capacity to bring about significant changes for small enterprises. This is particularly evident in its ability to address limitations in resources, facilitate entry into untapped markets, and promote overall economic growth.

The findings of the research suggest that there is no significant mediating effect of Innovation (INV) on the link between Technology Environment (TE) and the performance of SMEs in Kaduna state. This is supported by a non-significant p-value (>0.05), a beta coefficient of 0.067, and a corresponding T statistic of

1.642. Therefore, Hypothesis 3, which suggests that innovation plays a substantial role in mediating the connection between the technical environment and the performance of SMEs, is not substantiated. The findings indicate that the technology environment has a direct impact on the performance of SMEs (Zhang et al. 2020), but the role of innovation as a mediator in this relationship is not substantial in the specific context of Kaduna state. Potential causes for this phenomenon may encompass issues such as restricted availability of resources for fostering innovation, difficulties in converting technological progress into inventive products or procedures, or other uninvestigated contextual variables that could impact the relationship between innovation and performance. Additional investigation may be required to delve into these intricacies and gain a more comprehensive comprehension of the mechanisms by which the technology environment and innovation interact to impact the performance of SMEs in Kaduna state.

The results of the study also demonstrate a noteworthy and favorable impact of the Socio-Cultural Environment (SCE) on the performance of SMEs in Kaduna State, thereby providing support for Hypothesis 2. The performance outcomes of SMEs are significantly influenced by the socio-cultural setting in which they operate, as indicated by a beta coefficient of 0.231 and a matching T statistic of 2.657. Potential factors contributing to this favorable correlation may encompass the influence of societal norms, values, and cultural practices on the functioning of businesses, customer inclinations, and market dynamics. For example, a conducive socio-cultural atmosphere can cultivate trust and collaboration among individuals involved, stimulate entrepreneurial activities, and stimulate innovation and creativity inside SMEs. This observation is consistent with previous studies that

highlight the importance of socio-cultural elements in shaping business outcomes, especially in varied and developing market environments (Adiza, Alamina, & Aliyu, 2020; Parte & Alberca, 2021; Al-Jalahma, Al-Fadhel, Al-Muhanadi, & Al-Zaimoor, 2020). Research has emphasized the significance of comprehending and adjusting to the socio-cultural environment for SMEs to successfully traverse the intricacies of the market, establish connections with customers and stakeholders, and maintain a competitive edge (Ahmad et al., 2021; Ribeiro et al., 2021). Hence, recognizing and utilizing the socio-cultural context is crucial for improving the efficiency and adaptability of SMEs in Kaduna State.

The empirical research demonstrates that Innovation (INV) has a major mediating role in the association between the Socio-Cultural Environment (SCE) and the performance of SMEs in Kaduna State. This finding provides support for Hypothesis 4. Innovation serves as a mechanism by which the socio-cultural milieu exerts effect on the performance of SMEs, as evidenced by a beta coefficient of 0.124 and a matching T statistic of 2.341. This conclusion indicates that the socio-cultural context influences the ability and actions of SMEs to innovate, which subsequently affects their performance results (Adiza et al. 2020). Potential factors contributing to this mediation encompass the influence of cultural values, social networks, and institutional elements in cultivating an entrepreneurial mindset, promoting creativity, and facilitating information exchange inside SMEs. This research emphasizes the significance of taking into account socio-cultural aspects and innovative methods in order to improve the performance and competitiveness of SMEs in Kaduna State. It highlights the interdependence between contextual effects and business outcomes.

5.0 Conclusion

In summary, this research has yielded significant findings about the factors influencing the performance of SMEs in Kaduna State. The results underscore the notable beneficial impacts of both the technology environment and the socio-cultural environment on the performance of SMEs. The study revealed that innovation has a direct influence on the performance of SMEs, and it also serves as a mediator in the association between the socio-cultural environment and SME performance. The results highlight the complex and diverse elements that affect the performance of SMEs. The study emphasized the significance of taking into account both technological and socio-cultural aspects in order to promote innovation and improve the competitiveness of SMEs. These findings can be used by policymakers and stakeholders to create specific interventions that aim to enhance the technological ecosystem, create a supportive socio-cultural climate, and encourage innovation inside SMEs. This would help facilitate the growth and long-term viability of SMEs in Kaduna State.

5.1 Recommendations

Based on the findings of this study, several recommendations can be made to enhance the performance and sustainability of SMEs in Kaduna State. Firstly, policymakers should prioritize initiatives aimed at improving the technology environment for SMEs by providing access to modern technology infrastructure, training programs, and financial support for technology adoption and innovation. This could involve creating technology hubs, offering subsidies for technology investment, and facilitating partnerships between SMEs and technology providers. Additionally, efforts should be made to strengthen the socio-cultural environment by promoting entrepreneurship education, fostering a culture of collaboration and knowledge-

sharing among SMEs, and addressing societal barriers to entrepreneurship, such as gender and social inequalities. Moreover, stakeholders should focus on fostering a supportive ecosystem for innovation within SMEs by providing incentives for research and development, facilitating networking opportunities, and promoting a culture of experimentation and risk-taking. Collaboration between government, academia, industry associations, and civil society organizations is essential to implement these recommendations effectively and create an enabling environment for SME growth and success in Kaduna State. By addressing the technological, socio-cultural, and innovative needs of SMEs, these recommendations can contribute to their competitiveness, resilience, and contribution to economic development in the region.

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