EFFECT OF EXTERNAL BUSINESS ENVIRONMENT ON THE PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN NORTH WEST NIGERIA

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Abstract
This study examined the effect of external business environment on the performance of small and medium enterprises in North West Nigeria; it specifically investigated the effect of economic environment and technological environment on the performance of small and medium enterprise. The study was anchored on contingency theory. Survey research design was adopted, the population of the study consists of two hundred and fifty-four thousand, six hundred and eight (254,608) SMEs registered with Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) as at (2021) operating in North West Nigeria. Primary data was used and it was collected through the use of five-point likert scale questionnaire on a sample size of four hundred and forty (440) owners/ managers of the SMEs. The hypothesis of the study was tested using Partial Least Squares Structural Equation Modelling (PLS-SEM). The structural results reveal that both the economic environment ($\beta = 0.396$, $T = 5.198$, $p < 0.001$, $f^2 = 0.122$) and the technological environment ($\beta = 0.412$, $T = 5.589$, $p < 0.001$, $f^2 = 0.131$) exert significant positive effects on SME performance, jointly explaining 59.7 % of its variance ($R^2 = 0.597$) and demonstrating strong predictive relevance ($Q^2 = 0.435$). Accordingly, the study recommends that policymakers widen concessionary credit and micro-grant schemes while accelerating broadband roll-out and offering tax incentives for technology upgrades; business-support organisations should embed financial-literacy and digital-skills modules in capacity-building programmes, and SME owners should earmark a portion of cash flow for cloud tools, mobile payments and basic cybersecurity to convert these environmental enablers into tangible performance gains.
Keywords: Economic environment, External business environment, Technological environment, SMEs performance, North-west Nigeria

INTRODUCTION

Small and Medium Enterprises (SMEs) play a crucial role in promoting economic development, job creation, and poverty alleviation globally. In both advanced and emerging economies, SMEs account for the majority of businesses and contribute significantly to employment and Gross Domestic Product (GDP). According to the World Bank (2023), SMEs represent about 90% of businesses and more than 50% of employment worldwide. In Nigeria, SMEs are equally central to economic development, representing over 96% of the total number of businesses and contributing nearly 48% to the national GDP (SMEDAN, 2021). The Nigerian SME sector spans various industries, including agriculture, manufacturing, trade, and services, playing a pivotal role in job creation, especially for the youth and women. However, despite their potential, the performance of SMEs in Nigeria has been inconsistent due to several internal and external challenges. These challenges are more pronounced in the northern region, particularly the North-West zone, which faces structural, security, and infrastructural issues that directly impact business activities (Yahaya & Idris, 2023).

In the North-West geopolitical zone, which includes states such as Kaduna, Kano, Katsina, Kebbi, Sokoto, Zamfara, and Jigawa, SMEs operate in a highly dynamic and often unstable external environment. The region faces unique challenges such as insecurity, infrastructural deficits, fluctuating economic policies, and limited technological penetration, all of which interact with and influence the operational effectiveness and growth of SMEs (Bello, 2024). A supportive external business environment can significantly enhance SME performance, when SMEs proactively scan and respond to external factors such as taxation, security, and technology they achieve better outcomes in sales, service quality, and market expansion (Edet, 2023). The external business environment entails the factors outside the control of an enterprise that influence its operations and performance, Two critical dimensions such as economic environment and technological environment are especially relevant to the performance of SMEs in North-West Nigeria (Usman, 2022).

The economic environment includes macroeconomic variables such as inflation rate, exchange rate, interest rate, tax policies, access to finance, and overall economic stability. These variables influence SMEs' cost of operations, pricing, profitability, and investment decisions. For instance, persistent inflation and high interest rates in Nigeria have increased operational costs for SMEs, while limited access to credit from financial institutions has constrained their capacity to scale (Adebayo & Sunday, 2024) . In the North-West, where poverty levels are high and infrastructure is weak, economic instability further exacerbates the struggles of SMEs, making them highly sensitive to shifts in economic policy and fiscal conditions (Bature et al., 2023).

The technological environment, on the other hand, deals with the availability, accessibility, and adoption of modern technologies that support business processes, innovation, and market expansion. SMEs that embrace technology tend to benefit from enhanced productivity, better market reach through e-commerce, improved customer relations, and more efficient supply chains. In North-West Nigeria, however, many SMEs are yet to fully leverage modern technologies due to low digital literacy, poor internet infrastructure, and limited government support (Muhammad & Yusuf, 2023). Nevertheless, where adopted, even basic technological tools such as mobile banking, social media marketing, and point-of-sale systems can significantly improve SMEs' performance.

The external business environment can either serve as a catalyst or a barrier to SME growth, depending on its stability and how well SMEs can adapt to it. Moreover, the study is motivated by the urgent need to promote inclusive economic development in a region affected by socio-economic disparities, insecurity, and underinvestment. Based on the foregoing this study examined the effect of external business environment on the performance of SMEs in North-West Nigeria.

Statement of the Problem

Despite the known importance of the SME sector towards the improvement of nation's economy as well as the supports received by these SMEs from government and private sector interventions such as provision of financial credit schemes, tax holidays, and creation of a regulatory agency to promote and stimulate their activities, the sector has continued to witness dwindling performance, specifically in North West Nigeria. This is seen in the drop of their contribution to the nation's economy from 48% percent contribution to GDP in 2023 to 46.3% in 2024 and 45.1% in the first quarter of 2025. In addition, a good number of these SMEs have remained stagnant in terms of growth in North West Nigeria; others fail within their first five years of operation, despite the availability of accessible credit which could be used for expansion activities. Therefore, it is imperative to investigate how specific dimensions of the external business environment, particularly the economic and technological environment, affect the performance of SMEs in North-West Nigeria,

Although numerous empirical studies (e.g., Johnson, 2023; Ahmed & Yusuf, 2023; Bello et al., 2024; Adamu & Ibrahim, 2024; Okon et al., 2024; Uche & Chukwu, 2024; Musa et al., 2024) have examined the topic across various countries, sectors, and methodological approaches, the majority of this literature remains largely generalized, Specifically, there is a noticeable paucity of research focusing on the North-West Nigeria, a region characterized by heightened insecurity and limited technological advancement, factors which distinctly shape the operation of SMEs. Therefore, this study addresses this gap by investigating the effect of the external business environment on the performance of SMEs in North-West Nigeria.

Objectives the Study

The main objective of the study is to investigate the effect of external business environment on the performance of small and medium enterprises in North West. The specific objectives are to:

7. determine the effect of economic environment on the performance of small and medium enterprises in North West, Nigeria; and
8. analyze the effect of technological environment on the performance of small and medium enterprises in North West, Nigeria.

Research Hypotheses

HO1: Economic environment has no significant effect on the performance of small and medium enterprises in North West, Nigeria.

HO2: Technological Environment has no significant effect on the performance of small and medium enterprises in North West, Nigeria.

LITERATURE REVIEW

External Business Environment

The external business environment refers to all external factors and forces outside an organization that influence its operations, decisions, performance, and strategies, but which the organization cannot directly control. These factors can either create opportunities or pose threats to the business (Regnér, 2024). Environment is the set of factors and conditions outside the firm's boundaries that significantly influence its operations and performance. It includes general environmental factors such as demographic, economic, political/legal, sociocultural, technological, and global forces, as well as industry environment factors like threat of new entrants, power of suppliers, power of buyers, threat of substitute products, and intensity of rivalry among competitors (Hitt et al., 2020).

Business Environment is defined as the sum total of all external and internal factors that influence a business organization. It encompasses the dynamic and interrelated set of conditions, events, and influences that shape the opportunities, challenges, and constraints within which a business operates and makes decisions. This environment includes economic, social, political, technological, legal, and competitive forces that can impact the organization's performance, strategy, and sustainability (Johnson et al., 2020). According to Wheelen et al. (2021) the external business environment is the complex set of political-legal, economic, sociocultural, technological, environmental and demographic factors that present opportunities, threats, and constraints for the organization. These factors operate at global, national, regional, and local levels, creating a dynamic context within which the firm must navigate to achieve its objectives.

Economic Environment

Economic environment refers to all external economic factors that influence the behavior, performance, and decision-making of businesses and consumers within a market or country. These factors include the general economic conditions and policies that affect demand and supply, cost structures, investment decisions, and profitability (Mutinda & Ngugi, 2024). According to Jones (2023) economic environment encompasses all economic variables that exist outside the company and can influence its strategy and performance, including market demand, macroeconomic trends, and fiscal and monetary policies. The economic business environment refers to the set of macroeconomic factors—such as inflation, interest rates, exchange rates, fiscal policies, and overall economic growth—that influence the decision-making and performance of businesses (Daft, 2022). According to Eze (2022) the economic business environment encompasses external economic conditions that shape a firm's operational strategy, including access to capital, consumer purchasing power, unemployment rates, and income distribution within a country or region. Kamau (2023) defined the economic environment as the external economic forces and structures that affect businesses' ability to produce, sell, and grow. These include monetary policies, taxation regimes, financial market conditions, and public spending levels.

Technological Environment

The technological business environment refers to the external conditions and developments in technology that influence how businesses operate, compete, and grow. It encompasses the tools, innovations, systems, and infrastructure that affect production processes, communication, marketing, service delivery, and decision-making (Eze et al., 2023). Yakubu et al. (2024) defined the technological business environment as the sum of external technological conditions that affect the operations and performance of businesses, including the rate of technological change, availability of ICT resources, and government support for technology adoption. The technological environment consists of various technological factors and advancements that impact the operations, competitiveness, and growth prospects of businesses, particularly Small and Medium Enterprises (SMEs). This environment includes

the accessibility and adoption of new technologies, digital infrastructure, and innovation capabilities, all of which are critical for improving productivity and operational efficiency (Audu et al., 2022).

As the global business landscape evolves, the technological environment becomes increasingly influential in determining how SMEs engage with customers, manage resources, and compete within their industries. Incorporating technology into business processes can give SMEs a competitive advantage by simplifying operations and lowering costs (Abdullahi et al., 2025). According to Alagbe et al. (2024), the technological business environment refers to the external technological infrastructure, innovations, and digital systems that influence the way organizations produce, distribute, and deliver goods and services.

SMEs Performance

SMEs performance refers to the overall effectiveness and success of small and medium-sized enterprises (SMEs) in achieving their business goals. It encompasses various indicators that measure how well an SME is doing in terms of growth, profitability, sustainability, competitiveness, and operational efficiency. According to Adeniran (2023), SMEs performance refers to the ability of small and medium enterprises to achieve their financial and strategic objectives through efficient use of resources and adaptation to their external environment. SMEs performance refers to the extent to which small and medium-sized enterprises achieve their business objectives in areas such as profitability, productivity, and sustainability, especially in dynamic and competitive markets (Zimmerman & Chu, 2022). It is often evaluated using both financial indicators like revenue growth and return on assets, as well as non-financial indicators such as customer satisfaction, employee efficiency, and innovation capacity (Kraus et al., 2023). According to Becker and Miron-Shatz (2021), the performance of SMEs reflects how well they adapt to external environmental changes, leverage internal capabilities, and maintain long-term viability through effective strategy execution, market responsiveness, and stakeholder engagement.

Economic Environment and SMEs Performance

Mwangi (2025) conducted a study on the effect of economic empowerment on the performance of Small and Medium Enterprises (SMEs) in Nakuru County, Kenya. The study employed a descriptive survey design; the target population consisted of 620 registered SME owners participating in programs such as microcredit schemes, financial literacy training, and startup capital grants. A sample of 248 respondents was determined using the Krejcie and Morgan (1970) sample size table and selected through stratified random sampling, Data were collected using a structured, the data were analyzed using multiple regression analysis, and the findings revealed that economic environment had a significant positive effect on the performance of SMEs.

Burodo et al. (2024) examined the effect of the economic environment on the performance of small and medium enterprises (SMEs) in Katsina State, Nigeria. A survey research design was adopted, and data were collected using a structured questionnaire that was validated and piloted to ensure reliability. The target population consisted of 7,372 registered SMEs operating in Katsina State, as reported by the Bureau on Public Procurement (2023). Using the Taro Yamane formula, a sample size of 379 respondents was determined. The sample was selected using a combination of stratified and purposive sampling techniques to ensure adequate representation. The study's hypotheses were tested using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings revealed a positive and significant relationship between economic environment and SME performance.

Adeniran (2023) examined the effect of the economic environment on the performance of selected small and medium enterprises (SMEs) in Gusau. A simple random sampling technique was employed to select a sample of 50 employees from various organisations. Data was collected through a questionnaire and analysed using frequency analysis, the simple percentage method, and regression. The study revealed that economic environment has a significant positive effect on the performance of SMEs.

Technological Environment and SMEs Performance

Okonkwo (2025) examined the effect of the technological environment on the performance of small and medium enterprises (SMEs) in Anambra State, Nigeria. Both primary and secondary data were utilized

in the study. Primary data were collected using a structured questionnaire administered to SME owners and managers across the manufacturing and service sectors. Secondary data were obtained from industry reports, government publications, and academic literature. The hypothesis was tested using multiple regression analysis, and the data were analyzed using the Statistical Package for Social Sciences (SPSS) version 26. The study found that the technological environment has a significant positive effect on the performance of SMEs.

Sutanto (2025) examined the effect of the technological environment on the performance of small and medium-sized enterprises (SMEs) in Surabaya, Indonesia. The study adopted a descriptive survey design. The target population consisted of 240 registered SME owners. Using stratified random sampling, a total of 180 SME owners and managers were selected to participate in the study. A structured questionnaire was developed and employed as the primary data collection instrument. Data analysis was conducted using the Pearson Product Moment Correlation Coefficient. The findings of the study revealed that the technological environment had a significant positive effect on the performance of SMEs in Indonesia.
Abdullahi et al. (2025) assessed the effect of technological environment on SME performance in Abuja, Nigeria. Utilizing a descriptive research design, the study surveyed 200 SMEs selected through stratified random sampling to ensure representation across various sectors. Data was collected via structured questionnaire and analyzed using descriptive and inferential statistics, including regression analysis. Findings indicate that political environment has a significant positive on SME performance in Abuja.

Alagbe et al. (2024) conducted a study to determine the effect of technological environment on the performance of SMEs in Yobe State, Nigeria. A two-stage sampling technique was adopted in selecting two hundred and thirty-three (233) respondents. Structured questionnaire was used to collect primary data, the collected data was analysed with both descriptive and inferential statistics. The results showed there was a significant positive correlation between the independent variable (technological environment) and the dependent variable (SMEs Performance) in Yobe State.

Contingency Theory

Contingency Theory was propounded by Fiedler in (1960), and was later expanded by scholars such as Lawrence and Lorsch (1967) and Donaldson (2001). It states that there is no one best way to manage or lead an organization; rather, effective organizational performance depends on the alignment or "fit" between internal structures and the external environment in which the organization operates. The theory emphasizes adaptability, suggesting that organizational strategies, processes, and structures must be contingent upon environmental factors such as technological changes, economic conditions, regulations, and cultural norms.

Several scholars have strengthened and contributed to the development of Contingency Theory. Lawrence and Lorsch (1967) emphasized that different departments within an organization require different structures based on environmental complexity, adding depth to the idea of internal differentiation. Burns and Stalker (1961) introduced the concept of mechanistic and organic systems, arguing that the effectiveness of these systems varies based on environmental stability or dynamism. Donaldson (2001) further refined the theory by linking structural contingency to performance, emphasizing that organizations perform better when their internal arrangements align with external pressures. Despite its wide acceptance, Contingency Theory has faced some criticisms. Van de Ven and Drazin (1985) argued that the theory lacks predictive precision because it offers no universal rules and tends to be overly descriptive. Similarly, Schoonhoven (1981) criticized it for being difficult to empirically test due to its broad scope and the challenge of measuring fit in dynamic environments.

The theory aligns well with the study because it provides a solid framework to understand how SMEs must adapt their structures, strategies, and operations to fit the unique external conditions of their environment. Especially In North West Nigeria, where SMEs operate under distinct pressures, the Theory helps explain why some SMEs thrive while others struggle.

METHODOLOGY

This study adopts survey research design and a positivist research philosophy. The design involves studying a sample of the population once at a point in time for the purpose of drawing inference that was generalized to the entire population of the study. In positivism, the role of the researcher is limited to data collection and presentation in an objective way. A survey research design is a scientific method which involves observing and describing the behaviour of subjects without influencing it in any way. The population of the study consists of two hundred and fifty-four thousand, six hundred and eight (254,608) small and medium enterprises registered with Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) as at (2021) operating in North West Nigeria. Table 1 shows the distribution of the SMEs across the various states in North West Nigeria:

Table 3.1: Population of SMEs in North-West Nigeria

S/N	North West States	SMEs Population
1	Jigawa State	22,856
2	Kaduna State	38,908
3	Kano State	79,328
4	Katsina State	44,102
5	Kebbi State	17,306
6	Sokoto State	28,991
7	Zamfara State	23,117
	Total	**254, 608**

Source: SMEDAN, 2021

The minimum sample size for this study was ascertained using the following formula proposed by Taro Yamane for statistically attaining sample size from a given population (Yamane, 1967), which is 254, 608 for this study. Calculations were made at 5% significance level as follows:

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

Where:

n is sample size,

N is the population size,

e is the margin of error (commonly set at 5%, which is 0.05).

Given:

$n = \frac{254,608}{1 + 254,608\ (0.05)^2}$

n = 400

Thus; a minimum sample size of four hundred (400) was required for the study, For the purpose of anticipated non-response, bias and non-return of questionnaire, the sample size was increased by 10% which was added to the minimum sample size given by the formula making it four hundred and forty (440) as the sample size that was used for this study. This takes care of other unavoidable errors such as incorrect filling and failure of some respondents to return the questionnaire (Israel, 2013).

Table 2: Sample According to North West Nigeria

S/N	North West States	SMEs Population	Sample
1	Jigawa State	22,856	$\frac{22,856}{254,608} \times 440 = 40$
2	Kaduna State	38,908	$\frac{38,908}{254,608} \times 440 = 69$
3	Kano State	79,328	$\frac{79,328}{2254,608} \times 440 = 131$
4	Katsina State	44,102	$\frac{44,102}{254,608} \times 440 = 78$
5	Kebbi State	17,306	$\frac{17,306}{254,608} \times 440 = 30$
6	Sokoto State	28,991	$\frac{28,991}{254,608} \times 440 = 51$
7	Zamfara State	23,117	$\frac{23,117}{254,608} \times 440 = 41$
	Total	**254, 608**	**440**

Source: Researcher Computation, 2025

This study used stratified random sampling technique in selecting the respondents for the study, the respondents for the study were the owners/or managers of the SMEs. This technique was used by dividing the SME population into distinct, non-overlapping strata based on relevant characteristics such as business size, SME sector, and geographic location. From each stratum, respondents were randomly selected in proportion to their representation in the overall SME population. By dividing the population into strata and selecting respondents randomly within each category, stratified sampling minimizes bias, enhances comparability across groups, and improves the reliability of results and generalizability of findings to the broader SMEs population.

Primary data was collected for the study. The instrument for data collection was structured questionnaire. The questions were keyed using a 5 – point Likert scale ranging from: 5 =strongly agree 4=agree 3=undecided 2=disagree 1=strongly disagree. The data was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 3, ensuring robust and efficient analysis. A pictorial representation of the Partial Least Square Structural Equation Model (PLS-SEM) model for the study is provided as follows;

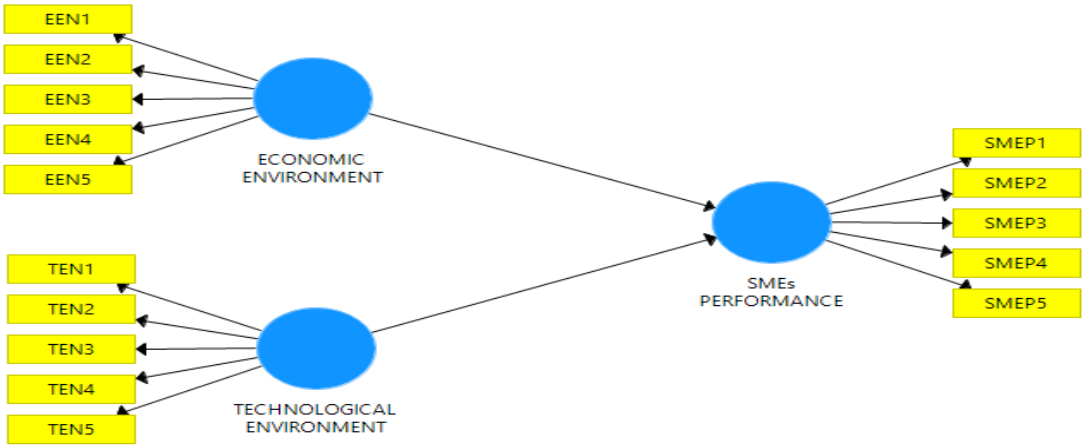

Figure 1: Structural Equation Model for the Study
Source: SMART PLS, 2025

RESULTS AND DISCUSSION

The Measurement Model

In assessing the measurement model, the outer loadings are assessed first, and as a rule loadings above 0.70 are accepted as they indicate the construct explains more than 50% of the indicators variance, thus providing acceptable item reliability (Hair et al 2017).

Figure 2: Indicator Outer Loadings

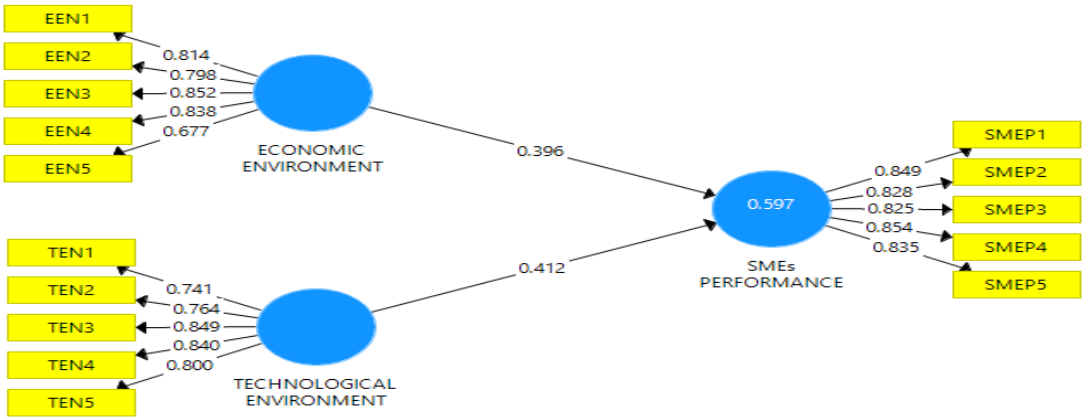

Table 1: Reliability of Study Scale

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
ECONOMIC ENVIRONMENT	0.856	0.863	0.897	0.637
SMEs PERFORMANCE	0.894	0.895	0.922	0.703
TECHNOLOGICAL ENVIRONMENT	0.859	0.867	0.899	0.640

Source : SmartPLS Output 2025

The study demonstrated strong internal consistency and reliability, with All three constructs comfortably exceed the widely accepted benchmarks for internal-consistency reliability (Cronbach's α and ρA ≥ 0.70) and composite reliability (≥ 0.70), with values clustering around the high-0.80s/low-0.90s—evidence that the items within each scale coherently measure the same underlying concept. Their Average Variance Extracted (0.637–0.703) is also well above the 0.50 threshold, indicating that, on average, each set of items explains more than half of the variance in its latent factor and therefore demonstrates solid convergent validity. Taken together, the metrics show that the Economic Environment, Technological Environment, and SMEs Performance scales are both reliable and valid for use in subsequent structural analyses.

Table 2: Heterotrait-Monotrait Ratio (HTMT)

	ECONOMIC ENVIRONMENT	SMEs PERFORMANCE	TECHNOLOGICAL ENVIRONMENT
ECONOMIC ENVIRONMENT			
SMEs PERFORMANCE	0.842		
TECHNOLOGICAL ENVIRONMENT	0.839	0.813	

Source : SmartPLS Output 2025

Table 2 presents the Heterotrait-Monotrait Ratio (HTMT) values used to assess discriminant validity among the study constructs: The Heterotrait-Monotrait (HTMT) ratios—0.842 between the Economic Environment and SMEs Performance, 0.839 between the Economic and Technological environments, and 0.813 between SMEs Performance and the Technological Environment are all below the conservative .85 threshold (and comfortably under the more lenient .90 rule-of-thumb). This shows that the correlations among indicators of different constructs are sufficiently lower than the correlations among indicators of the same construct, so discriminant validity is upheld: each latent variable captures a conceptually distinct aspect of the phenomenon under study rather than overlapping with its peers.

The Structural Model

In assessing the structural model, the standard assessment criteria was consider which include the path coefficient, t-values, p-values and coefficient of determination(R^2), the bootstrapping procedure was conducted using a resample of 5000.

Figure 3: Estimated Path Model

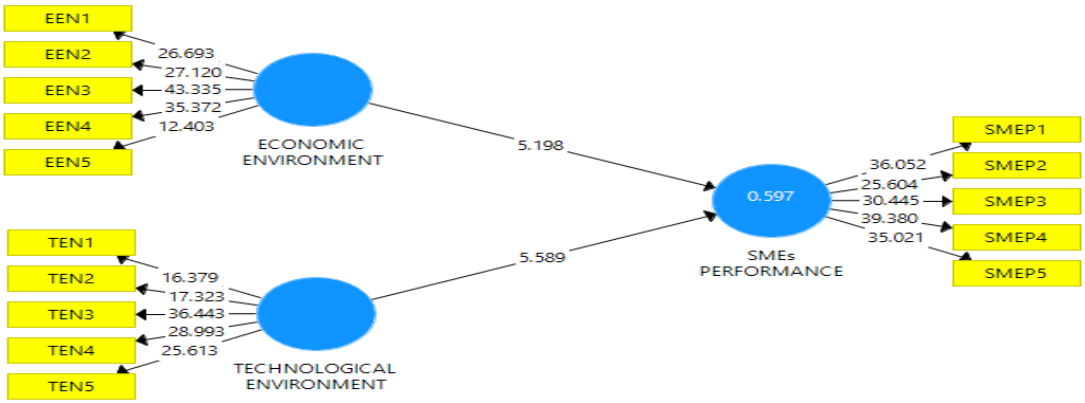

Table 3: Path Coefficient

	Path coefficient Beta**	T Statistics	P Values	Decision	F^2
ECONOMIC ENVIRONMENT -> SMEs PERFORMANCE	0.396	5.198	**0.000**	Rejected	0.122
TECHNOLOGICAL ENVIRONMENT -> SMEs PERFORMANCE	0.412	5.589	**0.000**	Rejected	0.131

Source: SmartPLS Output 2025

Test of Hypotheses

H_{01}: The economic environment has no significant effect on the performance of small and medium-sized enterprises (SMEs) in North-West Nigeria.

The structural model reveals a positive and statistically significant path from the economic environment to SME performance ($\beta = 0.396$; $T = 5.198$; $p < 0.001$). Because the t-value surpasses the 1.96 critical threshold and the p-value is far below 0.05, H_{01} is rejected. The associated effect size ($f^2 = 0.122$) falls between Cohen's "small" (0.02) and "medium" (0.15) guidelines, indicating that favourable economic conditions such as stable inflation, accessible finance, and healthy market demand make a meaningful, though not dominant, contribution to explaining variations in SME performance within the region.

H_{02}: The technological environment has no significant effect on the performance of small and medium-sized enterprises (SMEs) in North-West Nigeria.

The path coefficient from the technological environment to SME performance is likewise positive and significant ($\beta = 0.412$; $T = 5.589$; $p < 0.001$), leading to the rejection of H_{02}. Its effect size ($f^2 = 0.131$) is marginally higher than that of the economic environment and also lies in the small-to-medium range, suggesting that improvements in ICT infrastructure, digital skills, and technology adoption provide an equally salient boost to SME outcomes. Collectively, the findings shows that both macro-economic stability and a supportive technological ecosystem are complementary levers for enhancing SME success in North-West Nigeria.

Table 4: R^2 and Predictive Relevance

	R^2	Q^2 (=1-SSE/SSO)
SMEs PERFORMANCE	0.597	0.435

Source: Smart PLS Output 2025

Table 4 presents the coefficient of determination (R^2) and predictive relevance (Q^2) for the dependent variable, SMEs Performance. With an R^2 of 0.597, the structural model explains nearly 60 % of the variance in SMEs' performance—an effect size that falls within the "substantial" (≥ 0.50) range in PLS-SEM guidelines, indicating that the combined economic and technological environment predictors offer robust explanatory power. The Stone–Geisser Q^2 value of 0.435 (computed via the blindfolding

procedure as 1 – SSE/SSO) is well above zero and comfortably exceeds the 0.35 benchmark for "large" predictive relevance, showing that the model not only fits the observed data but also has strong out-of-sample predictive capability. Together, these indices confirm that the specified exogenous factors form a theoretically and practically meaningful framework for forecasting SME performance in the study context.

Discussion of Findings

The present study found a significant positive effect of the economic environment on SME performance in North-West Nigeria. This result is consistent with prior empirical evidence across several contexts. Mwangi (2025) reported that economic-empowerment initiatives (micro-credit, grants, financial-literacy training) significantly boosted SME outcomes in Nakuru County, Kenya. Similarly, Burodo et al. (2024) showed, via PLS-SEM, a positive and significant relationship between the economic environment and the performance of 7,372 SMEs in Katsina State, Nigeria, while Adeniran (2023) obtained the same directional effect for SMEs in Gusau using regression analysis. Together, these studies reinforce the present finding that favourable economic conditions such as accessible finance, macro-stability and market demand play an important role in explaining SME success.

Likewise, the study revealed a significant positive effect of the technological environment on SME performance. This finding is also consistent with the broader empirical literature. Okonkwo (2025) demonstrated that technological factors significantly enhanced SME performance in Anambra State, Nigeria, using multiple regression; Sutanto (2025) obtained a similar positive association in Surabaya, Indonesia, via correlation analysis; and Alagbe et al. (2024) confirmed a significant positive correlation in Yobe State. Although Abdullahi et al. (2025) inadvertently referred to the "political environment" in their results section, their study was designed around technological factors, and they too reported a significant positive effect on SME performance in Abuja. Collectively, these studies support the present conclusion that access to ICT infrastructure, digital skills and technology adoption are critical, complementary levers for improving SME outcomes.

CONCLUSION AND RECOMMENDATIONS

This study demonstrates that both the economic and technological environments exert statistically significant, positive influences on the performance of small and medium-sized enterprises in North-West Nigeria, jointly explaining almost 60 % of the variance in firm outcomes and showing strong predictive relevance. The findings underscore that accessible finance, stable macro-economic conditions and supportive market demand as well as robust ICT infrastructure, digital skills and technology adoption are complementary drivers of SME success. By rejecting both null hypotheses, the research confirms that a favourable external milieu is not merely desirable but essential for enhancing competitiveness and growth among the region's SMEs. Based on the study findings, the following recommendations were made:

xiii. Governments and development banks should keep inflation low, simplify taxes, and expand concessionary lending windows or guarantee schemes so SMEs can access affordable working capital. At the same time, telecom regulators should fast-track broadband roll-outs in secondary cities, slash spectrum fees to lower data prices, and introduce time-bound tax holidays for firms that invest in productivity-enhancing digital equipment.

xiv. Business-support organisations should bundle short, hands-on modules in financial literacy, basic bookkeeping software, and e-commerce onboarding into every capacity-building programme. SME owners, for their part, should ring-fence a small share of annual cash flow for cloud tools, mobile payment solutions, and elementary cyber-security measures—investments that quickly translate external macro and technological improvements into measurable performance gains.

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Appendix: **Research Questionnaire**

S/N	**INDICATOR**	**Agreement scale**				
	Economic Environment (EEN)	**5**	**4**	**3**	**2**	**1**
1	The current interest rate regime in the country supports the growth of my business					
2	Inflation has significantly affected the cost of running my business operations					
3	Access to affordable credit from financial institutions is adequate for SMEs in this region					
4	Government economic policies (taxation/subsidies) are favorable to the survival of my business					
5	Economic instability (currency fluctuations, unemployment) poses a major threat to the performance of my business					
S/N	**INDICATOR**	**Agreement scale**				
	Technological Environment (TEN)	**5**	**4**	**3**	**2**	**1**
1	My business has access to up-to-date digital tools and infrastructure					
2	Technological changes in my industry positively influence how I operate and deliver services					
3	I find it easy to adopt new technologies relevant to improving my business processes					
4	Government or private initiatives provide adequate support for SMEs to embrace digital innovation					
5	Limited access to technology hampers the growth and competitiveness of my business					
S/N	**INDICATOR**	**Agreement scale**				
	SMEs Performance (SMEP)	**5**	**4**	**3**	**2**	**1**
1	The business has recorded increase in the number of retained customers over the years					
2	We consistently exceed customer expectations in terms of product quality and services					
3	We recorded increase in market share in the last five years					
4	We achieve our sales target regularly					
5	The business regularly introduces new and improved products					