

EFFECT OF STRATEGIC INTELLIGENCE ON PERFORMANCE OF SELECTED MANUFACTURING FIRMS IN NORTH EAST NIGERIA

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Abstract

This study examined the effect of strategic intelligence on performance of selected manufacturing firms in North east Nigeria. this study used cross-sectional survey design. The census sampling for the study and four hundred and twenty-two (422) sample size was use for this study. Primary data was collected using a 5-point likert scale questionnaire. Data were analyzed using Partial Least Squares Structural Equation Model (PLS-SEM). The study revealed that Foresight has positive and significant effect performance of selected manufacturing firms while system thinking has positive and significant effect on performance of selected manufacturing firms in north-east Nigeria. The study recommended that organization should provide training for employees on foresight methodologies and tools. This empowerment will help build a culture of proactive thinking throughout the organization. Also, they should establish a structured framework for foresight that includes regular scenario planning and trend analysis. This will help firms systematically anticipate future changes.

Keywords: Strategic Intelligence, Foresight, System Thinking and Performance

INTRODUCTION

Globally, manufacturing firms are operating in a dynamic and competitive business environment that presents a variety of challenges, including those related to meeting rising market expectations and demands, globalization, advances in technology and heightened competition (Jumiran et al. 2020). For these firms to cope effectively in this turbulent environment there is need for advanced strategies and techniques that will support strategic decision-making by providing at least accurate and timely information on opportunities and threats that are embedded in this tumultuous environment. In the said situation, the search for how to respond and handle these ever-increasing environmental challenges among others, strategic intelligence (SI) is considered as a new business approach for gaining an edge over and above rivals in an industry (Hanmaikyur, 2023).

Lee and Karpova (2018) assert that strategic intelligence is crucial for performance in the global business environment. Similarly, Salguero et al. (2019) emphasize that firms require strong strategic intelligence to gather relevant information about their operating environment, particularly in competitive markets. Strategic intelligence represents an evolution in management thinking, enabling organizations to achieve their goals by acquiring the necessary information to foresee future trends, foster innovation, and adapt creatively to changes in their surroundings.

Institutions strive to maintain their competitive positions through various procedures and changes aimed at achieving competitive advantage and profitability. This process requires continuous improvement across all production and service operations, from product design to implementation (Al-Jubouri, 2018). Strategic intelligence enables organizations to effectively prepare for the future and establish a secure market position in a volatile environment. By adopting this approach, firms remain agile and can differentiate themselves competitively across all areas of the organization (Raynor, 2015).

Foresight means understanding the forces that shape the future and anticipating new opportunities and threats that may redefine work (BaBiker & AlTaj, 2017). Strategic foresight is an essential tool for any organization that wants to thrive in the face of uncertainty and change. By understanding the future and developing strategies to capitalize on it, organizations can improve their decision-making, increase their agility, and enhance their performance. Moreover, systematic thinking embodies the ability to group

various elements and formulate an accurate picture of them. Systems thinking states that it is the ability to objectively think, synthesize and combine various elements for the purpose of evaluating and knowing how they work to create a proper image of what is being dealt with (Alkharabsheh, & Al-Sarayreh, 2022). Systems thinking provide a powerful framework for enhancing firm performance by fostering holistic understanding, informed decision-making, and sustainable practices. By embracing systems thinking, firms can navigate complexity, adapt to change, and achieve long-term success.

Statement of the Problem

Manufacturing firms operate in dynamic environments where changes in technology, market trends, and global competition necessitate a strategic approach to decision-making. Despite the importance of strategic intelligence in navigating these complexities, Manufacturing firms in Northeast Nigeria still face challenges in establishing and maintaining robust strategic intelligence systems, hindering their ability to gather, analyze, and utilize critical information for informed decision-making. The region's geopolitical challenges contribute to security concerns, including potential disruptions to the supply chain, which affect the timely acquisition of strategic intelligence.

The manufacturing firms have been experiencing consistence fluctuations in its contribution to the GDP over the years (NBS, 2022). These fluctuations, these fluctuations suggest there are underlying factors that may be affecting the firms' performance. Similarly, according to the Manufacturers Association of Nigeria (MAN) (2022), there has been a decline in capacity utilization of the firms in the country leading to decrease in the output of these manufacturing firms. It is pertinent to investigate on the effect of strategic intelligence on the performance of manufacturing firms in North-East Nigeria.

Several studies have explored the impact of strategic intelligence on firm performance in different industries; Blandina et al. (2021) conducted empirical research on the impact of strategic intelligence on firm's performance of commercial banks in Kenya, and found a positive and significant effect between these variables. Additionally, Umoh et al. (2023) using multiple regression analysis the effect of strategic intelligence on performance of Hotels in Akwa Ibom State, Nigeria and found an insignificant effect between these variables. Furthermore, a study by Chukuigwe (2022) explored strategic intelligence and organizational performance in telecommunication firms in Rivers State, this study showed a negative significant effect of strategic intelligence on organizational performance. It is in view of these inconsistent results that this study seeks examined the effect of strategic intelligence on performance using a different industry, location and methodology.

Objective of the study

The broad objective of the study is to ascertain the effect of strategic intelligence on performance of selected manufacturing firms in North east Nigeria. The specific objectives include to:

- i. determine the effect of foresight on performance of selected manufacturing firms in North east Nigeria;
- ii. assess the effect of system thinking on performance of selected manufacturing firms in North east Nigeria;

LITERATURE REVIEW

Concept of Foresight

Kadduri and Al-Alousi (2018) opined that strategic foresight is an organized scientific endeavor, through which it aims to formulate a set of conditional predictions that contain the main features and pillars of the conditions of a particular society or organizations during a certain period of time. Similarly, Peter and Denise, (2013), stated that foresight is the ability to predict how you might interpret the future, which means that it is an important and crucial strategic ability for effective planning at the long level. Moreover, Järvenpää et al., (2020) defined foresight as a set of practices, methods, tools, and techniques that assist organizations in actively exploring, shaping, and managing the future, which makes strategic intelligence easy.

Crews (2020) opined that foresight is the ability to see or predict what will happen in the future and then take appropriate action. Understanding key drivers of change, possible future projections, and the implications of change on specific businesses, projects, or contexts are all part of this (Colli et al., 2019). As a result, Lawrence et al. (2020) viewed foresight as a means of gaining a competitive advantage. Foresight activities are not intended to accurately predict the future. Rather, they enable practitioners to explore plausible futures informed by current trends and trajectories as well as emergent signals of change - assisting career counselors and students in making informed career decisions. Foresight is a set of practices that enables organizations and individuals to achieve superior market positions in the future (Rohrbeck & Kum, 2018).

Kuosa, (2016) posited that strategic foresight is regarded as a process that enhances an organisation's ability to understand the emerging risks and opportunities, drivers, motivations, resources, evolution, and causalities that are linked to alternative decisions, that form the space of possible, plausible, probable or preferred futures paths, so that the organisation can make better informed and prepared decisions on issues concerned with its overall strategic plans and means of achieving its long-term objectives. Moreover, it is the analysis of the likely evolution of the business environment in order to promptly detect the opportunities and the threats brought about by the emerging trends and to deal with them properly. It is a set of practices that enable firms to attain superior performance and increase in future markets position (Rohrbeck & Kum, 2018).

Systems Thinking

The basic idea behind systems thinking which is also referred to as strategic thinking is to divide the whole into sub-elements and study the interactions of the elements from understanding and evaluating situations (Yener, 2022). It is a school of thought that focuses on the interrelationship between parts and then assembles them into a unified vision to identify patterns and interrelationships between them and how to structure those relationships in more effective and efficient ways, which is an ideal approach to understanding complex phenomena and problems through a vision of reality. As a system and taking into account the complex pattern of the interrelationships between its parts as well as their interaction with the environment (Tripto et al., 2016).

Systems thinking which is also seen as strategic thinking is based mainly on the capabilities of administrative leaders to evoke a holistic view of the organizational reality as well as the environmental reality, and then identify the various elements that will affect the reality of the organization and determine the necessary mechanisms through which to deal with this reality based on understanding the overall picture and appropriately arranging its parts (Majeed & Ali, 2023). Systems thinking is the ability to synthesize and integrate diverse elements and to understand how they interact and how they can be made to align to achieve an organization's purpose. Many managers and leaders try to succeed in a way that is the antithesis of systems thinking. We often hear people in our client organizations talk about "working in their silos" and the challenges of creating cooperation and synergy across the organization. This should not surprise anyone. When you look at the structure of their organizations, divided into financial planning processes, resource allocation, performance management, product divisions, and customer segmentation, etc., their thinking and managerial approach is an expression of the nonintegrated structure they work within (Maccoby et al., 2008).

Empirical Review

Foresight and Performance

Vigory et al. (2023) employed a quantitative research method by using a survey to study the effect of foresight on performance of SMEs from the West Java Province of Indonesia in three industrial sectors: food, fashion, and handicrafts. Data were collected through a structured questionnaire. A total of 200 questionnaires were distributed, 190 were returned, and 187 were used for data processing. Furthermore, the data were analyzed using exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). The results show that strategic foresight exerted significant positive

relationship on innovation performance. The use of structural equation modeling (SEM) with a small sample size of 187 participants may not be appropriate. SEM requires larger sample sizes to produce reliable and generalizable results.

Usman (2023) investigated the relationship between strategic foresight and Performance of SMEs in Bauchi state, Nigeria. The study adopted the cross-sectional survey in its investigation of the variables. Primary source of data was generated through self-administered questionnaire. The population of this study was the entire SMEs registered under SMEDAN in Bauchi metropolis, totaling 364. The sample size of 183 was determined using the Krejcie and Morgan (1970) table. The simple random sampling technique will be applied in this study as the sample procedure. The hypotheses were tested using the Spearman's Rank Order Correlation Statistics. The findings revealed a positive and significant relationship exist between strategic foresight and Performance. The use of Spearman's Rank Order Correlation Statistics, which is a non-parametric test, may not be appropriate for assessing the relationship.

Arokodare and Olubiya (2023) studied the influence of strategic foresight on performance, the research study used a cross-sectional survey methodology, using upstream oil and gas firms in Lagos State, Nigeria as its target. The target population was 120. Due to the study's limited sample size of 120 respondents, a total enumeration was used. The questionnaire for this study was adopted from various sources. The validity and reliability of the instrument were examined, and the findings indicated that the questionnaire was valid and reliable. Smart Partial Least Square (PLS) 3.0 was used for data analysis, coupled with Structural Equation Modelling. The research indicated that strategic foresight has positive and significant effect on performance. The study employed a cross-sectional research design and the data from the population were collected at a specific point in time. Therefore, the cause-and-effect relationship between the study variables could not be established and the timing of the snapshot could not guarantee full representativeness.

System Thinking and Performance

Research conducted by Batool et al. (2023) established a linkage between systems thinking and organizational performance. A survey method based on a questionnaire was used to gather data from 407 middle managers in the hotel industry in Malaysia. The partial least squares technique was used to examine the hypotheses. The study found negative and significant effects of systems thinking and on organizational performance. This research was conducted in Malaysia, a country with distinct legal, cultural, and economic characteristics compared to Nigeria. Consequently, the results of such a significant study in Malaysia may not be applicable to Nigeria due to concerns regarding external validity. In the same vein, Nwani and Odiri (2023) examined the effect of strategy thinking on organizational performance of deposit money banks in Nigeria. The study concentrated on top and middle level management level staff at the Headquarters of Zenith Bank Plc. Access Bank, Guaranty Trust Bank, First Bank Plc. and United Bank of Africa Plc. The study adopted descriptive research design with a population of 252 and 205. Questionnaire was used as instrument for data collection and simple regression was used to analyze the collected data. The findings of the study revealed that, there is a significant statistical relationship between strategy thinking and organizational performance. The study focuses exclusively on top and middle-level management staff at the headquarters of five specific deposit money banks in Nigeria. Generalizing the findings to the entire banking sector or other industries may be limited. In Nigeria, Shamkhi and Saleh (2023) focused their study on investigating the influence of strategic thinking on organizational performance the research adopted the descriptive analytical approach as it is compatible with the data of the current research. In order to obtain the results, a sample of (95) employees of the National Security Advisory Council were selected at various administrative levels. The study shows an existence of a significant positive correlation between strategic thinking and organizational performance. The study does not specify how the sample of 95 employees of the National Security Advisory Council was selected. If the sample was not randomly selected, it is possible that the

sample was biased and not representative of the entire population of employees at the National Security Advisory Council.

Resource-Based View (RBV) Theory

The Resource-Based View (RBV) theory, developed by Barney in 1986, is a strategic management framework that highlights the significance of a firm's internal resources and capabilities in gaining a competitive advantage. According to RBV, firms can achieve this advantage by developing and leveraging VRIN resources—valuable, rare, inimitable, and non-substitutable (Barney, 1991). The theory advocates for an internal assessment of unique strengths rather than solely relying on external market conditions. Organizations are viewed as collections of physical, human, and organizational resources (Amit & Shoemaker, 1993). RBV posits that resources that are valuable, rare, imperfectly imitable, and imperfectly substitutable serve as the main sources of sustainable competitive advantage, contributing to superior performance. This model adopts an "inside-out" perspective, focusing on the firm-specific reasons behind market success or failure (Collis & Montgomery, 1995).

The RBV emphasizes the importance of difficult-to-imitate firm attributes as sources of superior performance. These attributes are typically unique to an organization, cannot be easily transferred, and may necessitate significant learning or cultural changes to replicate (Hamel & Prahalad, 1996). Performance variations among firms can be attributed to their possession of unique inputs and capabilities (Conner, 1991).

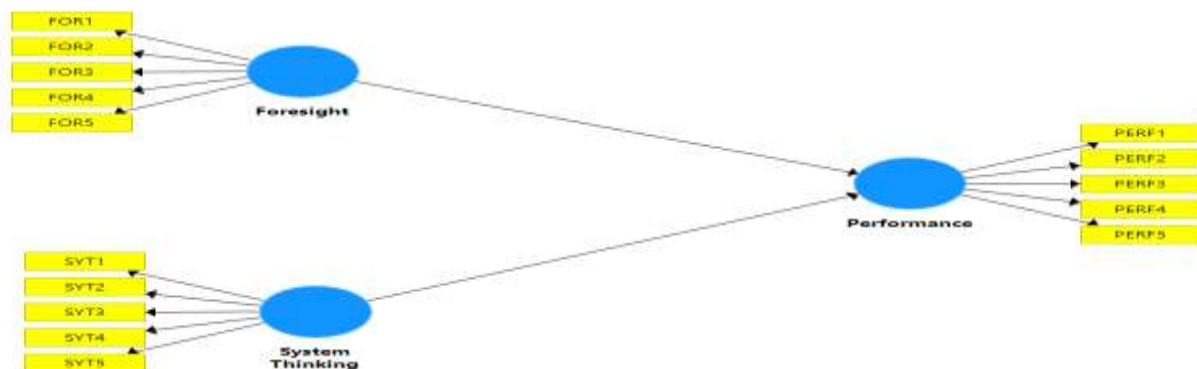
Barney (1991) notes that valuable resources allow firms to implement strategies that enhance efficiency and effectiveness, ultimately leading to improved sales, reduced costs, and increased margins. Thus, understanding and effectively deploying these resources is crucial for enhancing overall performance and sustaining competitive advantages.

The Resource-Based View (RBV) theory is relevant to this study as it aids managers and manufacturing firms in recognizing the significance of competencies as vital assets. It emphasizes the importance of leveraging these assets to enhance business performance. RBV acknowledges that factors such as past experiences, organizational culture, and competencies play a crucial role in a firm's success.

METHODOLOGY

The study adopted a descriptive survey design; the population of the study constitutes all senior level employees of the manufacturing firms in North East, Nigeria. Census sampling was employed for the study and the entire population served as the sample and hence the sample size of the study was 422. The study used primary data. Data were collected using 5-point Likert scale structured questionnaire. The data collected was analyzed using smart-PLS SEM.

Model Specification



Source: SMART-PLS Output, 2025

RESULTS AND DISCUSSION

Data Presentation and Analysis

The study analyzed both the measurement and the structural models of the PLS-SEM. It began by examining the measurement model and upon satisfaction of the assumptions of the measurement model, the structural model was then assessed.

Indicator Reliability

In assessing the measurement model, we begin by assessing the item outer loadings. As a rule, loadings above 0.7 are recommended, as they indicate that the construct explains more than 50 percent of the indicator's variance, thus providing acceptable item reliability (Hair, et al., 2019).

Table 1: Factor Loadings of the Constructs

	Foresight	System Thinking	Performance
FOR1	0.706		
FOR2	0.754		
FOR3	0.752		
FOR4	0.850		
FOR5	0.858		
SYT1		0.841	
SYT2		0.956	
SYT3		0.746	
SYT4		0.944	
SYT5		0.875	
PERF1			0.830
PERF2			0.820
PERF3			0.745
PERF4			0.798
PERF5			0.737

Source: SMART-PLS Output, 2025

Construct Reliability

To establish internal consistency of the study constructs, the Cronbach's alpha and composite reliability were examined. According to Hair, et al., (2019) the minimum threshold for measuring composite reliability (CR) and Cronbach's alpha is 0.7.

Convergent Validity

This explains the extent to which constructs converge to explain the variance of its items. It is assessed by evaluating the average variance extracted (AVE). The minimum value of the AVE should be higher than 0.50. All the constructs satisfied this requirement as shown in the table below and as such are valid for the study.

Table 2: Construct Reliability and Validity of the Indicators

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Foresight	.845	.857	.890	.618
System thinking	.922	.933	.942	.767
Performance	.848	.865	.890	.619

Source: SMART PLS Output, 2024

Discriminant Validity

Discriminant validity is the extent to which a construct is empirically distinct from other constructs in the structural model. Traditional methods such as Fornell-Larcker and cross loadings were used to assess discriminant validity however, Henseler et al. (2015) show that the Fornell-Larcker criterion does not perform well, particularly when the indicator loadings on a construct differ only slightly. As a replacement, Henseler, et al., (2015) proposed the Heterotrait-monotrait (HTMT) ratio of the correlations. The HTMT is defined as the mean value of the item correlations across constructs relative to the (geometric) mean of the average correlations for the items measuring the same construct. Discriminant validity problems are present when HTMT values are higher than 0.90 (Henseler, et al., 2015).

Table 3: Heterotrait-Monotrait Ratio (HTMT) Criterion

	Foresight	System Thinking	Performance
Foresight	1.00		
System Thinking	.753	1.00	
Performance	.428	.727	1.00

Source: SmartPLS Output, 2025

Table 4: Path Coefficient of the Model

Variable	Beta	T Statistics (O/STDEV)	P Values	Decision	F ² value
Foresight ->Performance	0.391	5.617	.000	Rejected	0.237
System thinking -> Performance	.507	9.154	.000	Rejected	0.399

Source: SmartPLS Output, 2025

Hypothesis One

H₀₁: Foresight has no significant effect on performance of selected manufacturing firms in North east Nigeria

The result of the test as shown in Table 4 revealed that foresight positive and significant effect on performance of selected manufacturing firms in North east Nigeria, with $\beta = 0.391$ and $P = 0.000$. Thus, hypothesis one was not supported and therefore rejected at 5% level of significance. Since there is enough statistical evidence to accept the alternative hypothesis, the study concludes that foresight positive and significant effect on performance of selected manufacturing firms in North east Nigeria

Hypothesis Two

H₀₂: System Thinking has no significant effect on performance of selected manufacturing firms in North east Nigeria

The result from Table 4 shows that system thinking has positive and significant effect on performance of selected manufacturing firms in North east Nigeria, with $\beta = 0.507$ and $P = 0.000$. Thus, null hypothesis two which states that System Thinking has no significant effect on performance of selected manufacturing firms in North east Nigeria was rejected at 5% level of significance. The alternative hypothesis which states that system thinking has significant effect on performance of selected manufacturing firms in North east Nigeria

Next, the study assessed explanatory power of the model using coefficient of determination (R^2). The R^2 value stood at 0.689, implying that 68.99% of variation in performance is explained by strategic intelligence. The remaining percentage of variation could be explained by other factors not included in the study. The f^2 examines the effect caused on the endogenous construct's R^2 value as a result of removal of a certain predictor construct. Cohen (1998) guideline was used to measure the effect size which revealed that all relationships were either small or medium effect.

Table 5: R² and Predictive Relevance of the Model

	R Square	R Square Adjusted	P Val.
Performance	.689	.688	0.000

Source: SmartPLS Output, 2025

Discussion of Findings

The study examined the effect of strategic intelligence on performance of selected manufacturing firms in North east Nigeria. The findings from the analysis above indicate that the model is adequately fit to measure the relationship between strategic intelligence and performance of selected manufacturing firms in North east Nigeria. Based on the foregoing, the study tested two hypotheses and evidenced were provided by the study results that strategic intelligence affects performance of selected manufacturing firms in North east Nigeria. moderately as indicated by the coefficient of determination (R²). The findings on the specific independent variables and how they affect performance are discussed below:

The first finding revealed that Foresight has a positive and significant effect on performance of selected manufacturing firms in North east Nigeria. This implies manufacturing firms, investing in foresight activities (such as trend analysis, scenario planning, and strategic foresight) could lead to better decision-making and enhanced operational efficiency, ultimately resulting in improved overall performance. This finding is consistent with that of Vigory et al. (2023) who found that that Foresight has positive but significant effect on performance of SMEs from the West Java Province of Indonesia While, the second finding revealed that System Thinking has a positive and significant effect on performance of selected manufacturing firms in North east Nigeria. This implies that firms employing systems thinking are likely to achieve sustainable performance improvements over time. This approach can lead to better resource management and long-term strategic success. This finding is consistent with that of Nwani and Odiri (2023) who found that that system thinking has positive but significant on organizational performance of deposit money banks in Nigeria.

CONCLUSION AND RECOMMENDATIONS

Based on the research findings, the first hypothesis concludes that This study has established that both foresight and systems thinking significantly enhance the performance of selected manufacturing firms in North-East Nigeria. The positive effects of these strategic intelligence components underscore their importance in navigating the complexities and challenges faced by the manufacturing sector in the region. Foresight enables firms to anticipate market trends and adapt proactively, while systems thinking fosters a holistic understanding of organizational dynamics and interdependencies. Together, these approaches empower manufacturing firms to make informed decisions, optimize operations, and enhance overall competitiveness.

Based on the findings and conclusions above, the study recommends thus:

- i. Organization should provide training for employees on foresight methodologies and tools. This empowerment will help build a culture of proactive thinking throughout the organization. Also, they should establish a structured framework for foresight that includes regular scenario planning and trend analysis. This will help firms systematically anticipate future changes.
- ii. Manufacturing firms should develop performance metrics that reflect the interconnectedness of various functions within the firm. This can help identify areas for improvement and leverage synergies. They should also use software tools and models that facilitate systems analysis and simulation. This can help visualize complex interactions and predict the impact of changes.

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Questionnaire

Foresight (FOR)

- FOR1 The organization regularly shares insights about future trends
- FOR2 The organization is well prepared to identify and prepare for future opportunities
- FOR3 The organization considers future scenarios when making key decisions
- FOR4 Foresight is embedded in our organization's strategic planning and decision-making processes
- FOR5 The management takes the initiative to continuously analyze the future and predict events

System Thinking (SYT)

- SYT 1 The firm uses system thinking tools and methodologies to identify and address root causes of problem
- SYT2 The leaders embrace system thinking as a core principle of decision-making
- SYT3 The organization regularly collects and analyzes data to understand the complex dynamics of its business environment
- SYT4 The organization fosters collaboration and information sharing across departments
- SYT5 Employees are encouraged to think critically about the
- SYT6 interconnectedness of different parts of the organization

Performance (PER)

- PERF 1 The firm introduces new products and services to the market before competitors
- PERF 2 The firm effectively adapts to changes in the business environment
- PERF 3 The firm's services consistently meet customer expectations
- PERF 4 The organization consistently meets its strategic goals and objectives
- PERF 5 The organization fosters a culture of continuous improvement and innovation.