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RESEARCH ARTICLE

Cost Leadership Strategy on the Performance of Manufacturing Industry: A Mediating Role of Environment

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ARTICLE INFO	ABSTRACT
	Nigeria's industrial sector has suffered from years of outdated infrastructure, unpredictable policies, low economies of scale, and inefficient operations; consequently, the study looked at how the manufacturing sector performed in North-West Nigeria in relation to the environment's mediating role and the cost leadership approach. The population and study sample size consisted of 81 manufacturing industries, and the primary data was used to collect responses from respondents in a cross-sectional survey research approach. In this study, the data gathered from the respondents was also regressed using the SmartPLS 3.3 using Structural The results demonstrate that the environment acted as a mediating factor between the cost leadership approach and the industrial sector's efficacy and efficiency in North-West Nigeria. In light of these conclusions, the study advises the industrial sector in North-West Nigeria to keep using economies of scale and cost leadership strategies to increase sales and change the attitudes and values of the local population.

INTRODUCTION

Nigeria's manufacturing segment is a key contributor to its economic expansion. It is one of the industries that is presently regarded as providing critical services in response to its environment. Likewise, the manufacturing sector in the North-West influences economic role in the inhabits of several people in the North-West. This has made a number of alterations and adjusting provision for the industry essential, such as overload repayments on latest ventures. As such, Porter's Generic Competitive Approaches are the methods most frequently employed in academic research to examine the strategic conduct of a business. Porter (1998) categorized these strategies into three groups: differentiation tactics, focus tactics, and cost leadership strategies. The study's cost leadership strategy was its exclusive emphasis.

Cost leadership is distinct from price leadership despite the terms being used synonymously at times. It is the goal of price leadership strategies to offer the lowest price in an industry, whereas cost leadership strategies stress having the lowest operational expenses. Therefore, even when a pricing leader offers comparably low prices, they could be less lucrative than a cost leader. In certain situations, cost leaders can potentially outperform their competitors by offering the lowest pricing and the lowest operating expenses, thereby becoming both industry price leaders and cost leaders. (Master Class, 2022). Therefore, finance is essential for any firm. Before the debut of a good or service, financial performance starts. Enhancing a service or product's affordability, price, and unique selling point all contribute to its increased marketability. Thus, it appears that when a product or service's competitive edge is recognized, a sound financial decision is made (Suvendu, 2019). In the current period of intense competition, the manufacturing sector must use the effectiveness of financial decisions to boost competitiveness in its operating environment.

The people who live in the environment are inextricably linked to it; hence, this article connects the people of Nigeria and the North-West, particularly to the environment and situations under discussion. In light of the other two variables, this study investigates the factors that have impacted

the manufacturing sector in North-West Nigeria. According to experts, a good manufacturing sector should balance the environment and lifestyles of its employees. However, the authors note that in recent years, there has been a collision between economies of scale, operational efficiency, performance, and surroundings due to the inharmonious plurality of ethnic groups, religious contexts, and eclectic production.

This is consistent with the years of deteriorating infrastructure, unpredictable policies, limited economies of scale and opportunity, ineffective functioning efficiency, and limited or nonexistent credit availability for the majority of entrepreneurs, especially those operating SMEs businesses, in Nigeria's manufacturing sector (Noko, 2016). Consequently, the sector has had slow growth and performance in terms of overall industrial output, efficacy, efficiency, and capacity utilization (Okwo, Ugwunta & Nweze, 2022). This sector of the economy is essential because it generates diversity and transforms the economy. Consequently, manufacturing's significance to the economy cannot be overstated, especially considering its role in economic growth and development. Any country that wants to see significant economic growth must have a strong and growing manufacturing sector. The improvement works claims that the manufacturing sector can produce goods and services, make money, and create jobs (Olorunfemi, et al., 2018). The manufacturing sector, particularly in Nigeria, is recognized as the industry's lifeblood and development engine (Kayode, 2019; Libanio, 2016). Global data from developed nations, nearly all of which have industrialized with the manufacturing sector at the forefront of the process, corroborate this claim (World Development Indicators, 2012). Researchers conclude that manufacturing has a unique need for a cost leadership strategy because it is a production- and technology-based industry. New technologies and products in the market have a fairly short lifespan before they are replaced by others. The cost leadership approach is the manufacturing sector's only choice for production- and technology-based products (Bukoye, et al., 2023).

Researchers have noticed that the manufacturing sector in North-West Nigeria is still performing poorly, with low profit margins, despite the region's possibilities and growth potential. Furthermore, North-West Nigeria's manufacturing sector performs poorly in terms of breadth, scale, and operational efficiency.

Research has shown that the implementation of the cost leadership strategy enhances performance in several domains including the management of excessive costs, a critical issue facing the manufacturing sector in North-West Nigeria (Hilman & Kaliappen, 2014; Gorondutse & Gawuna, 2017). Based on Hansen et al. (2015), this is the most widely employed of Porter's three generic competitive strategies. Unfortunately, little information is available about the cost leadership strategy used by North-West Nigeria's manufacturing sector. Research has been conducted, but how companies control costs as a means of improving performance has not been examined. To reduce this gap, a cross-sectional study of the manufacturing sector in North-West Nigeria was conducted. A combination of descriptive and inferential statistics was used to assess the primary data gathered from each of the selected industries.

Economies of scale, breadth, and operational efficiency are the most often utilized drivers of cost leadership strategies (Atikiya, Mukulu, Kihoro & Waiganjo, 2015). When efficiency rises due to better location, more time spent within the company, greater training, and superior technology, costs are decreased under economies of scale (Mosheim & Lovell, 2009). On the other hand, economies of scale are defined as decreasing average costs per unit produced as quantity grows (Barney and Hesterly, 2009). According to Gill and Goh (2009), there are two types of scale economies of production: interior and exterior. According to Anwar and Ali (2015), exterior economies are connected to advantages a firm receives from sources outside its industry, but interior economies of scale are obtained from a company's sheer size, independent of its industry or market.

When it comes to industrial activities, the economy of scope prioritizes combination over quantity. According to Zahavi and Lavie (2013), the amalgamation of production processes enables enterprises to effectively handle multiple tasks requiring corresponding talents or resources, maximize the utilization of existing resources, attain business operations synergies, and ease the reconfiguration of resources. Within and within time periods, Sakhartov (2017) identified two categories of economies of scope. Within-company resource sharing gives rise to intra-temporal economies, while

resource withdrawal from one firm and redistribution into another produces inter-temporal economies.

Ultimately, among other things, operational efficiency leads to cost containment. According to Gill Singh et al. (2014), businesses should run more profitably by using the same output to generate more, using less input to produce the same output, lowering operating risk, and cutting operating expenses. The efficacy with which organizational activities are carried out affects operational efficiency (Espirah & Murigi, 2019). It reduces the expense of regular operations while increasing a company's production (Dhillon & Vachhrajani, 2012).

The foremost ambition of this report was to explore how the cost leadership approach affected the performance of the industrial sector in North-West Nigeria and how the environment acted as a mediating factor. Other specific goals include figuring out how the cost leadership approach affects the environment and how the environment affects the performance of the manufacturing sector in North-West Nigeria.

This study's main focus is on how operational efficiency and economies of scale, two significant cost leadership strategies implemented in North-West Nigeria, have affected customer satisfaction in the manufacturing industry market through the environment. The study spans a 3-year period from 2021 to 2023; however, it will rely on primary data, particularly on manufacturing industries that have performed well over time.

There was a positive association between the two variables in earlier studies, such as Eric et al.'s (2022) study, which assumed the use of quantitative methods for data gathering. Using a survey approach, the study aimed to ascertain how the cost leadership strategy affected the performance of seed enterprises in Trans Nzoia County. The five seed crop companies in Tran Nzoia employed the 553 respondents, who served as the functional heads of the target population. An entire of 232 people participated in this study. Using a descriptive research approach, Mbugua et al. (2022) also looked at the relationship between registered food-processing companies' performance and their cost leadership strategy in Nairobi City County, Kenya and focused on 102 registered food-processing businesses. A quantitative research design was used by Kaya et al. (2020) to examine the mediating function of organizational learning in the relationship between cost leadership strategy and business performance. Middle and senior managers of travel agencies that are members of The International Air Transport Association and operate throughout Turkey participated in the study. However, none of these studies used customer satisfaction as a proxy for the manufacturing industry, environment as a mediating variable, Smart PLS 4 and Structural Equation Model (SEM) as methodology, and North-West as a case study. Therefore, by investigating how cost leadership strategy affects the functioning of the business industry in Nigeria, the mediating role of the environment fills the research gap.

Concept of cost leadership strategy

Companies can obtain a competitive edge by being the lowest-cost supplier of a good, service, or manufacturing process by implementing the business-level approach known as cost leadership (MasterClass, 2022). Carrying the fewest expenses in the sector is the main goal of Porter's 1980 cost leadership strategy. A low-cost manufacturing environment, process engineering expertise, a suitable product range, a workforce committed to and aware of the low-cost strategy, and an organization's ability to demonstrate a low-cost leadership strategy are all necessary for gaining a low-cost competitive advantage (Malburg, 2000). A great deal of managerial focus is required to achieve this goal; according to Porter (1980, p. 35), the strategy's central tenet is low cost relative to competitors. Organizations that aim to cater to multiple industry segments and large market sectors are typically linked to cost leadership. Businesses can generate above average returns by using this strategy, which allows them to lower prices to match those of their competitors while still making a profit (Miller & Friesen, 1986). The primary factor influencing customers' decision to buy products from cost leaders instead of rivals is the cheaper cost. Customers must therefore be price sensitive when acquiring goods (Murray, 1988), with the expectation that they will receive value equivalent to that of similar goods at a reduced cost (Porter, 1985). In the event that price-sensitive demand is inadequate to generate above-average profits, the cost leadership strategy may not succeed.

Concept of performance

The aptitude of a business to put into practice the best organizational structure necessary to deliver a good or service that meets the needs of clients regulates functioning. Commercial effectiveness and performance are tightly related (Riberolles, 2022). Effectiveness can be defined mathematically or scientifically as the performance level that produces the highest output with the fewest inputs. It is common to discuss how an evident tender of effort can generate a set of product with the smallest quantity of left-over, budget, or pointless work (Sickles & Zelenyuk, 2019). An enterprise's thriving is characterizeed by its performance. A corporation, division, or an individual's capacity to achieve precise purposes and objectives is referred to as marketable effectiveness. Therefore, all issues pertaining to expenses, schedules, quality, and profitability were included in the concept of commercial effectiveness. It is assessed through the use of quantitative or qualitative key performance indicators (KPIs) (Riberolles, 2022).

Concept of manufacturing industry

A considerable rearrangement of the economy for the purpose of manufacturing is referred to as manufacturing throughout the period of social and economic transition from an agrarian to an industrial civilization (Bilikisu, 2017). Too frequently, we link the growth of the industrial sector to manufacturing. When we discuss industrial production, we refer to factory production. Anyanwu (2010) described the process of increasing a country's ability to produce items from raw materials and other inputs for further production or end-user consumption. Manufacturing is the growth of industries in a certain location, area, or nation (Obioma & Ozughalu, 2015). The state and the rest of the country now have a variety of industries. Industrialization is the process of expanding a nation's ability to create a wide range of goods, including the raw material extraction and the creation of semi-finished and completed goods (Udo, 2014).

Nigerian environment

Nigeria comprises four unique geographical zones with different rainfall, wind, relative humidity, and temperature regimes. Nigeria is a complex linguistic, social, and cultural mosaic due to its multiethnic population, more than 250 languages and cultural groupings, several religious traditions, and diverse environmental circumstances (Iloeje, 1981). Nigeria is a unique place with many competing, and contradictory factors that influence its people and their varied lifestyles, just like any other place of its kind. As per the paper's opinion, the way these factors interact determines the best manufacturing type and technology that suits the lifestyle of the people living there, particularly those in the country's northwest. We have many models that imitate nature when we look at the Nigerian environment. Consequently, these fascinating natural examples can motivate the sector to develop genuine environmentally friendly manufacturing tailored to Nigeria's unique settings.

Empirical review

Eric and Nyakundi (2022) intended to determine how Trans Nzoia County seed companies performed in relation to the approach of cost leadership. Because this study assumed the use of quantitative methods for data gathering, it employed a survey design. The 553 responders who worked for the 5 seed crop businesses in Tran Nzoia were the functional heads of the target population. This study included 232 participants. Questions regarding primary data were gathered using questionnaires. Main figures were collected via surveys, whilst subordinate information was assembled through a literature study. The respondents were given time to answer and return the materials to their respective heads for additional collection after obtaining the data collection tools from their department heads. After coding, quantitative information obtained from closed-ended questions was examined descriptively using inferential statistics. The results were then displayed using tables with cross-tabulation and frequency distribution. The cost leadership strategy and organizational effectiveness at Trans-Nzoia County seed enterprises were found to be positively correlated by the study.

The performance of registered food processing businesses in Nairobi City County, Kenya, was compared to the cost leadership strategy by Mbugua and Kinyua (2022). Descriptive research design was chosen for this study. This study was conducted with 102 registered food processing businesses in Nairobi City County, Kenya. In addition to inferential statistics like regression analysis and

correlation, the data were assessed using descriptive statistics such as the mean, standard deviation, and percentages. To collect primary data, a survey of the management personnel of registered food processing enterprises from the five main departments; finance, HR, marketing, ICT, and procurement, was conducted. According to the study, food processing businesses registered in Nairobi County, Kenya, perform considerably and favorably when they employ the cost leadership strategy.

The effect of a cost leadership approach on Kenyan dairy processing firms' performance was examined by Kimiti et al. (2020). Built on top of the capability-based and resource-based perspectives, the balanced scorecard model served as its cornerstone. 168 important respondents Samples of data from 168 important respondents from Kenyan milk-processing companies were used in the empirical analysis of the link. According to the research, Kenyan milk processing companies performed better and more significantly when they used a cost leadership strategy.

Kaya et al. (2020) looked into in what way administrative knowledge mediated the association amid business success and cost leadership techniques. The research sample is made up of middle and senior managers from travel agencies that operate in Turkey and are members of The International Air Transport Association (IATA). As part of a quantitative research project, information was gathered by email and in-person surveys. The data from the 351 surveys that were looked at were analyzed using the AMOS tool for SEM, or structural equation modeling. Business performance and cost leadership strategies have a positive relationship, per the findings. Additionally, organizational learning functions as a mediator in the relationship between cost leadership tactic and business success.

THEORETICAL FRAMEWORK

Balance scorecard

The balance scorecard (BSC) was first proposed by Kaplan and Norton (1992) as a tool for measuring performance. Over time, it developed into a tool that management used to communicate, carry out, and explain the strategy (Kaplan, 2009). It also provided a theoretical framework that guided the selection of research themes and methods (Krylov, 2019; Sainaghi et al., 2019). The BSC allows for wide measurements of corporate strategy through the use of a range of financial and non-financial instruments. It achieves a balance between variables affecting future financial performance and the traditional precision and dependability of financial indicators, claims Neven (2011). Sundin et al. (2010) claim that this demonstrates businesses as more than merely means of generating profit for shareholders and encourages external accountability. The customer view is centered on the firm's clients, whereas the financial perspective gives precedence to the interests of shareholders (Martellonet al., 2016). (Niven, 2011). The internal commercial viewpoint, on the other hand, is concerned with business procedures that result in shareholder and customer pleasure (Booyse, 2018). perspectives on development and learning characterization techniques that foster innovation and growth. As such, the outcomes of companies using a cost leadership approach need to be connected to broad performance objectives that surpass financial advantages. Companies that do the best are those who are better positioned to meet the four BSC views, according to the model, which recognizes the significance of competitive advantage.

METHODOLOGY

An exploratory, cross-sectional survey design was used in this investigation. For this reason, the design was chosen even though the target audience was dispersed over a significant geographic area of six states in the North-West region. The desired audience data were gathered both quantitatively and qualitatively, based on the design. The target respondents in the manufacturing sector included 81 managers or CEOs, at Olam flour mills, Northern Noodles Ltd., Flour Mill, and 7up Bottling PLC (Bukoye, et al., 2023).. The researcher used a stratified sampling design to select 81 participants who represented the overall target group. A cross-sectional analysis was conducted using copies of the questionnaires. Version 24.0 of the Statistical Package for Social Sciences was used to assist with the statistical analysis. Table 1 shows the North-West Nigerian industrial sector.

Table 1: Bukoye and Udoh (2023) selected manufacturing industry in North West, Nigeria

Names of Manufacturing Companies	STATE	Managers/CEOs
Northern Noodles Ltd	Kaduna/Kano	41
Flour Mill	Kano	16
7UP Bottling PLC	Kano	13
Olam Flour mills	Kaduna	11
TOTAL	-	81

Source: Researchers computation, 2023

Informed statement

The respondents were duly consented through a written form and attached in the study below is the written consent.

In order to assess the hypotheses and examine the data, the study also used the partial least squares structural equation model (PLS-SEM). Because PLS-SEM is not dependent on distributional assumptions, it was chosen over ordinary least squares (OLS) regression. In the PLS-SEM analysis, the measurement model assessment came first, followed by the structural model evaluation. Numerous tests were used to assess the measurement model, including Cronbach's alpha, average variance extracted (AVE), variance inflation factor (VIF), goodness-of-fit metrics. Heterotrait and Monotrait (HTMT) ratio, and Composite Reliability Test. After the measurement model's requirements were fully met, the structural model was tested using the most recent benchmarks (Q^2). The models' predictive usefulness, p-values, path coefficient, and t-statistics were investigated.

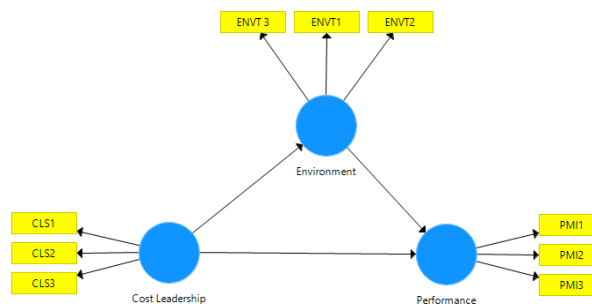Bukoye and Udoh (2023) PLS-SEM

Figure 1: Indicating the three variables used

where PMI = Performance of the manufacturing industry (effectiveness and efficiency), CLS = (ECS; economies of scale and OPE; operational efficiency), and Environment (ENV) = culture and values.

DATA ANALYSIS AND RESULTS

The information was scrutinized by means of version 24 of Statistical Software for Social Sciences (SPSS). Lost standards were substituted using mean replacement as informed by Hair, Hult, Ringle, and Sarstedt (2017) because they were less than 10% for the case and 20% for the variable. As the value is less than 50%, There is no bias related to common approach, according to the 38% variance of Harman's one-factor test results (Hair et al., 2017). A multicollinearity test was also performed on the two predictor variables, and the results revealed that the variance inflation factor (VIF) value was 3.3% below Kock's (2015) recommended 10% cut-off for collinearity issues. This information is deemed to be accurate and appropriate for future studies. SmartPLS 4 was used to analyze and calculate two fundamental PLS route modeling two different models: the structural model and the measuring model.

Evaluating the measurement model

To assess the measurement model, we begin by assessing the item's outer loadings. As a rule, it is advised to employ loadings greater than 0.708 as these suggest that the construct accounts for over 50% of the variance in the indicator, resulting in satisfactory item dependability (Hair, et al., 2019).

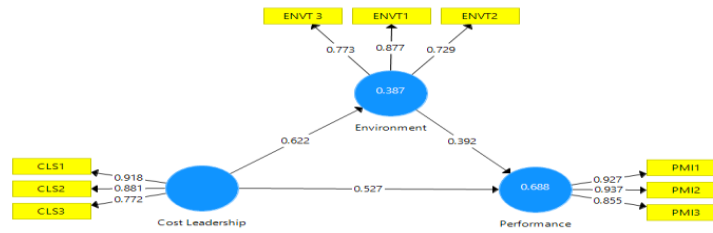Bukoye and Udoh (2023) PLS-SEM indicator outer loading

Figure 2: Indicator outer loadings

Table 2: Bukoye and Udoh (2023) reliability of study scale

S/N	Variables		Factor Loadings	Cronbach Alpha	Composite Reliability	Average Variance Extracted (AVE)	No of Items
1	Cost Leadership (CLS)	CLS1 CLS2 CLS3	0.918 0.881 0.772	0.824	0.894	0.739	3
2	Environment (ENVT)	ENVT1 ENVT2 ENVT3	0.877 0.729 0.773	0.706	0.837	0.633	3
3	Performance (PMI)	PMI1 PMI2 PMI3	0.927 0.937 0.855	0.891	0.933	0.823	3

Source: SmartPLS output, 2023

To evaluate the internal consistency of the investigation, Jöreskog's (1971) composite reliability was employed. Every figure fell between the benchmark rating of good consistency, which is 0.70 minimum. Moreover, Cronbach's alpha values are higher than the minimum threshold of 0.70, as per Hair et al. (2019). To look at convergent validity, the average variance extracted (AVE) was employed. The constructs explained at least half of the variance in the items, as indicated by values for each of the latent variables being larger than 0.50. We used the VIF to measure formative indicator collinearity. All VIF values < 5 imply that there are no significant collinearity issues among the constructs' indicators. In Hair, et al. (2019).

The Fornell-Larcker criterion, for example, is said to perform poorly in explaining discriminant validity when indicator loadings on a construct change relatively little (Henseler et al., 2015). Instead, Voorhees et al. (2016) proposed using the relationships' heterotrait-monotrait (HTMT) ratio. With respect to the (geometric) mean of the average correlations for items measuring the same construct, this ratio represents the mean value of the item correlations across constructs. Heseler et al. (2015) state that discriminant validity problems arise when HTMT values for structural models exceed 0.90.

Table 3: Heterotrait-Monotrait (HTMT) ratio of the correlations

	CLS	ENVT	PMI
CLS	1.000		
ENVT	0.812	1.000	
PMI	0.874	0.900	1.000

Source: SmartPLS output, 2023

Model goodness of fit (GoF)

It is essential to validate the PLS model before assessing its goodness of fit, as advised by Hair et al. (2017). In this work, SRMRs, or standardized root mean square residuals, were employed. The SRMR was utilized since it offers an absolute fit measure and a result of zero denotes a perfect match. The research employed the Hu and Bentler (1998) suggestion that a value of less than 0.08 denotes a

satisfactory fit when using SRMR to evaluate the model's goodness of fit. The PLS model's fitness is indicated by the findings, which show an SRMR score of 0.011.

Assessing the structural model

Once the measurement model assessment is completed, the structural model is evaluated in the analysis of PLS-SEM results. The standard valuation benchmarks that were considered were the coefficient of determination (R^2), t-values, p-values, and path coefficients. A bootstrapping resamples of 5,000 was used in this process.

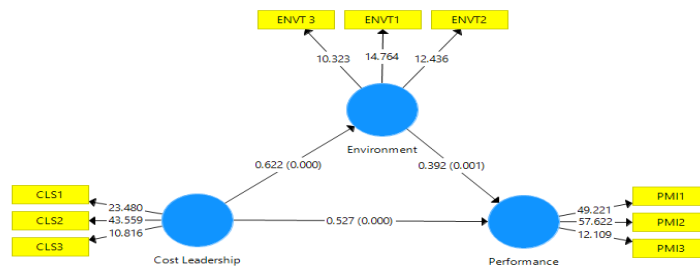## Bukoye and Udoh (2023) Path coefficient regression model result

Figure 3: Path coefficients of the regression model.

With an R-squared value of 0.688, the performance variation is explained by cost leadership to the tune of approximately 69%. Additional factors not covered in the study could account for the remaining 31% of the difference. The r-square value was classified as moderate (Hair, et al., 2019). The environment may have an effect on the relationship between cost leadership and performance by as much as 39%, according to the R-square for the mediating variable, which was 0.387. Further evidence of the model's modest predictive significance comes from its predictive relevance (Q^2), which was 0.564. The following table displays the path analysis results.

Table 4: Bukoye and Udoh (2023) path coefficients of direct effect

Hypotheses	Variables	Path Coefficient **(Beta)	T-value	P-value	Decision
Ho₁	Cost Leadership Strategy -> Performance	0.527	4.986	0.000	Rejected
Ho₂	Cost Leadership Strategy -> Environment	0.622	7.406	0.000	Rejected

Source: SmartPLS output, 2023

The hypotheses test

The analysis shows that Nigeria's manufacturing sector performs significantly better when the cost leadership strategy is used. The p-value of 0.000, which is less significant than the 0.05 level of significance, and the t-value of 4.986, which is larger than 1.964, were taken into consideration while making the decision. Thus, the null hypothesis is rejected in favor of the alternative hypothesis, which contends that the cost leadership strategy has a significant impact on the manufacturing sector's performance in Nigeria.

The analysis's findings indicate that the cost leadership strategy has a major impact on Nigeria's manufacturing sector's success. Utilizing a p-value of 0.000, which is less than 0.05, and a t-value of 7.406, which is greater than the benchmark of 1.964, the decision was made. Consequently, the alternative assumption, which claims that Nigeria's environment is significantly impacted by the cost leadership strategy, rejects the null hypothesis.

Table 5: Bukoye and Udoh (2023) path coefficients of indirect effect

Hypotheses	Variables	Path Coefficient **(Beta)	T-value	P-value	Decision
Ho₃	Cost Leadership Strategy -> Environment -> Performance	0.244	3.061	0.002	Rejected

Source: SmartPLS output, 2023

The results of the investigation demonstrate that the cost leadership approach is influenced by the environment in the way that Nigeria's manufacturing industry performs. A p-value of 0.002, which is less than the significance level of 0.05, and a t-value of 3.061, which is more than 1.964, were used to make the judgment. It follows that the alternative assumption, which contends that the environment influences how well the cost leadership strategy performs in the Nigerian manufacturing subdivision, is accepted and the insignificant hypothesis is spurned. As shown in Table 4, CLS significantly affects the PMI directly. This means that partial mediation is suggested by the considerable indirect effect.

DISCUSSION OF FINDINGS

The Smart PLS results suggest that the environment plays a mediating role between the success of the manufacturing business in North-West Nigeria and the cost leadership strategy (economies of scale and operational efficiency). Additional research has revealed a robust and affirmative association between the environment and the cost leadership approach. In summary, the success of the manufacturing sector in North-West Nigeria is significantly influenced by the environmental value and belief systems. This outcome is consistent, if not entirely, with the findings of Eric et al. (2022), who looked for a positive correlation between the performance of seed companies in Trans Nzoia County and the influence of a cost leadership approach. While researching the mediating role of organizational learning in the relationship between cost leadership strategy and corporate success, Kaya et al. (2020) came across an interesting statistical finding. An acceptable theoretical underpinning for this research was provided by the balance scorecard theory. Since this study examines the connection between manufacturing performance and cost leadership strategy activities, this concept is essential to the research. This creates a connection between environmental factors, production strategies, and effective planned cost leadership. This offers a solid foundation for researching how the manufacturing sector performs in relation to environmental factors when a cost leadership strategy is employed.

CONCLUSION AND RECOMMENDATIONS

As per the report's outcomes, the manufacturing industry's performance in North-West Nigeria is positively impacted by the cost leadership strategy, with the environment serving as a mediating factor. As a result, operational efficiency and economies of scale are not novel ideas in the manufacturing sector and can be effective instruments for the North-West industrial sector to accomplish its goals. The majority of MDs and business owners said that the environment (values and beliefs) had a positive effect on the majority of their products, which increased the efficiency and growth of their products. Additionally, from the manufacturing industry's standpoint, cost leadership strategies have helped industries sell their goods and increase sales. Based on this conclusion, the study recommends that the manufacturing industry in North-West Nigeria must continue to use economies of scale and operational efficiency strategies of cost leadership, as it improves sales and impacts the values and beliefs of the environment in which it operates.

AUTHORS CONTRIBUTION STATEMENT

The following are the authors' confirmed contributions to the paper: topic of the study, idea, and theoretical framework were completed by Bukoye, Josiah Ayoola. While data collection was done by both authors Bukoye J. A., & Udoh, F. S. Analysis and interpretation of results, was done by Udoh, Francis Sylvanus as well as the creation of draft manuscripts. The final draft of the manuscript was approved by all authors after they had evaluated the findings.

Competing interest

On behalf of all authors, the corresponding author Bukoye, J. A. certifies that there have been no involvements that could give rise to concerns about bias in the work reported, or in the results, implications, or opinions.

Declaration of funding

For this work, the writers did not receive any financing.

Data availability statement

Attached is an excel sheet that was used to code the data that was gotten through issuance of questionnaires

Institutional email

The corresponding author by name Bukoye, Josiah Ayoola is a doctoral student in the above-named institution while the second author, Udoh, Francis Sylvanus is a Lecturer 11 in the same institution.

Data availability within the article or its supplementary materials

The data supporting the study's conclusions, according to the authors, are available in the work or in its additional material, which is an excel file that has been attached

Paper overlap

As noted by the reviewer, the paper overlap was as a result of the first or corresponding author by name Bukoye, J. A, who owns the work. The title of the article is part of the corresponding author proxies or parameters for his PhD Thesis. With this, the paper has been cited

Details on how the data were collected

Face-to-face interviews by issuing questionnaire to the respondents with the help of research assistants.

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APPENDIX: 1

SN	ITEMS	SA	A	U	SD	D
	Cost Leadership Strategy					
1.	Manufacturing industry in North West Nigeria incurs low administrative cost					
2.	Manufacturing industry in North West cost of shipping is lower than that of competitors					

3.	The manufacturing industry in North West frequently utilize operational efficiency to obtain better output					