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Impact of Strategic Foresight on Product Quality in Manufacturing Organizations: Evidence from Osun State, Nigeria

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Abstract

This study investigates the impact of strategic foresight on product quality in manufacturing organizations in Osun State, Nigeria. Using a descriptive survey design, data were collected from 120 owner-managers of manufacturing organizations through structured questionnaires. The findings reveal that strategic foresight significantly enhances product quality, with a strong positive relationship ($R^2 = 0.949$) between the two variables. The study also highlights the role of strategic agility dimensions strategic sensitivity, resource fluidity, and clarity of vision in improving competitive capabilities such as innovation, delivery reliability, and cost leadership. The results underscore the importance of strategic foresight and agility in driving organizational competitiveness and product quality in the manufacturing sector.

Keywords: *Strategic Foresight, Manufacturing organizations and Product quality*

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Background to the Study

In today's competitive and rapidly evolving business landscape, manufacturing organizations must adopt innovative strategies to maintain their market position and ensure high product quality. This involves a multifaceted approach that integrates competitive strategy, quality management, and technological advancements (Genç, 2024). Strategic foresight is essential for organizations aiming to enhance their strategic agility by anticipating future trends, identifying opportunities, and mitigating risks (Qader Ismail Alnajem et al., 2024). This capability allows organizations to navigate uncertainties effectively and adapt their strategies accordingly. This proactive approach is essential for navigating the complexities of modern markets and sustaining long-term success.

This study explores the impact of strategic foresight on product quality within manufacturing organizations in Osun State, Nigeria. It also examines how other dimensions of strategic agility, strategic sensitivity, resource fluidity, and clarity of vision contributes to enhancing competitive capabilities. By focusing on these elements, the research aims to provide insights into how manufacturing firms can leverage strategic foresight and agility to improve product quality, adapt to market dynamics, and achieve sustainable growth in a challenging economic landscape. The findings of this study would contribute to the growing body of knowledge on strategic management practices, particularly in the context of emerging economies like Nigeria, where manufacturing organizations face unique challenges and opportunities. By highlighting the role of strategic foresight in driving product quality and organizational performance, this research offers practical recommendations for managers and policymakers seeking to strengthen the competitiveness of Nigeria's manufacturing sector.

Literature Review

Strategic foresight is essential for organizations aiming to enhance their strategic agility by anticipating future trends, identifying opportunities, and mitigating risks. This proactive approach enables firms to navigate uncertainties and adapt to changing environments effectively. The following sections outline the key aspects of strategic foresight and its impact on organizational success (Qader Ismail Alnajem et al., 2024). Strategic foresight is integral to enhancing competitive capabilities such as product quality, innovation, and cost leadership (Chehorka & Hordiichuk, 2024). Organizations that implement robust foresight mechanisms are better equipped to adapt to market changes, thereby sustaining their competitive advantage. This adaptability is facilitated through various strategic capabilities that organizations develop.

Strategic Foresight

Strategic foresight, supported by quality management systems and organizational excellence frameworks, is crucial for manufacturing organizations facing uncertainties and rapid changes (Shafizadeh, 2024). It enables companies to improve productivity, quality, and efficiency by integrating various functional areas and aligning business, manufacturing, and quality improvement strategies (Obiako, 2025). Quality foresight has been shown to drive organizational, management, and social changes, leading to increased innovation, production dynamics, and sales (Crews, 2022). The Foresight Maturity Model (FMM) is a tool that

allows companies to assess their foresight capabilities in areas such as leadership, framing, planning, scanning, forecasting, and visioning (Grove et al., 2023a).

Strategic Sensitivity

Strategic sensitivity plays a crucial role in organizational success for manufacturing firms, encompassing dimensions like strategic proactivity and adaptability (Uko et al., 2024). A common strategic shift in manufacturing organizations is the emphasis on product quality, often implemented through statistical process control. (Archana K. & Dr. Sudesh Kumar, 2024). Statistical Process Control establishes quality variance levels, formulates improvement objectives, and monitors progress, providing a comprehensive approach to strategy implementation. To enhance productivity and quality, manufacturing organizations are adopting a strategic framework that integrates various functional groups and incorporates new manufacturing concepts like Just-in-Time (JIT), Total Quality Management (TQM), and Flexible Manufacturing Systems (FMS) (Sayeda Sufia Sumi, 2024). These approaches facilitate better alignment between business, manufacturing, and quality improvement strategies, with knowledge workers and support services playing a vital role in advanced manufacturing systems.

Resource Fluidity

Manufacturing organizations are increasingly focusing on resource flexibility and production system flexibility to improve product quality and productivity. Resource flexibility, defined as the ability to reallocate resources dynamically in response to shifting bottlenecks, is crucial for adapting to changing production needs (Cui et al., 2023). Key measures of resource flexibility include machines' ability to perform diverse operations and workers' ability to operate different machines (Cui et al., 2023). Studies have shown a relationship between manufacturing flexibility and product quality, with flexibility partially supporting quality improvements in manufacturing firms (Larso et al., 2023). However, the relationship between specific measures of flexibility and quality indicators requires further investigation (Larso et al., 2023). Integrating various functional groups and implementing manufacturing concepts such as Just-In-Time (JIT), Total Quality Management (TQM), and Flexible Manufacturing Systems (FMS) significantly enhance productivity and quality in manufacturing (Pratiwi et al., 2023). These approaches, along with the role of knowledge workers and support services, are crucial for improving overall manufacturing performance (Pratiwi et al., 2023).

Clarity of Vision

Clarity of vision, as noted by Samuel Achira & Justice Mutua J.N. (2024), drives cost leadership by aligning operational strategies with long-term goals. (Nawaz Wassan et al., 2023) highlight the critical role of product quality in manufacturing organizations' success. Total Quality Management (TQM) has emerged as a key strategy for continuous improvement across all aspects of production). Decision-making processes for quality management are complex and multi-faceted, involving various organizational levels and functions. To enhance productivity and quality, manufacturers are adopting integrated approaches that align business, manufacturing, and quality improvement strategies. Just-in-

Time (JIT), TQM, and Flexible Manufacturing Systems (FMS) play crucial roles in improving functional integration within organizations (Pratiwi et al., 2023). The importance of quality assurance policies, effective communication methods, and the authority of quality control staff in organizational structures is emphasized (Voleti, 2024). Additionally, the role of knowledge workers and support services is highlighted as essential in advancing manufacturing systems and overall quality improvement efforts (Nawaz Wassan et al., 2023).

Empirical Review

In Nigeria, manufacturing organizations face challenges such as infrastructural deficits and market volatility. Despite this, studies like (Fesobi et al., 2024) highlight the growing adoption of strategic agility practices to improve product quality and competitiveness. This study builds on these findings by examining the specific impact of strategic foresight on product quality in Osun State's manufacturing sector. Empirical studies have shown that improved process quality positively affects operational and strategic outcomes in manufacturing (Olayinka et al., 2024). According to Pratiwi et al. (2023) quality management systems and organizational excellence frameworks can enable and build future foresight capabilities in organizations. Research has also demonstrated a strong relationship between strategic foresight and cost-saving leadership practices in manufacturing companies (Grove et al., 2023b). Furthermore, quality foresight, a concept combining quality improvement and foresight methodology, has been shown to enhance organizational efficiency, innovativeness, and productivity (STEPANOV, 2024). However, existing research often take a generalized approach, without exploring how strategic foresight impacts product quality in specific manufacturing sector especially in a developing nation like Nigeria.

Methodology

The study adopted a descriptive survey design to examine the relationship between strategic agility and competitive capabilities in manufacturing organizations.

Population

The target population comprised 125 owner-managers of registered manufacturing organizations in Osun State, Nigeria.

Sample and Sampling Technique

Total enumeration technique was employed to cover all the one hundred and twenty-five (125) owner managers of all the manufacturing organizations in Osun State because the target population was sizeable. Total enumeration sampling was adopted for easy access to the target audiences and having adequate information that is relevant to the study from the manufacturing organizations. The use of the total enumeration sampling also gave the researcher a more in-depth insight into the target population and reduced the risk of missing cogent insights from organizations not included. Purposive sampling technique was adopted in the selection of the Owner-managers. The justification for this is that the owners/managers are the ones who formulate strategies and drive the vision of the organization and as such are a close fit with the research context. Also, purposive sampling was used for convenience and ease of accessibility.

Data Collection
Data were collected using a structured questionnaire adapted from previous studies (Jeneby, 2016). The instrument was divided into three sections: demographic information, strategic agility dimensions, and competitive capabilities. A 5-point Likert scale was used to measure responses. The questionnaire was validated through expert review, and its reliability was confirmed using Cronbach's Alpha ($\alpha = 0.763$).

Data Analysis
Data analysis involved descriptive and inferential statistics. Descriptive statistics included frequency counts, percentages, mean, and standard deviation, while inferential statistics employed simple and multiple regression analyses to test the hypotheses at a 0.05 significance level.

Results
The study's findings are presented below using descriptive and inferential statistics. Table 1 represents the demographics of the correspondents across manufacturing Organizations in Osun State, Nigeria.

Table 1: Demographic Profile of Respondents

Demographic	Category	Frequency	Percentage (%)
Gender	Male	88	73.3%
	Female	32	26.7%
Educational Qualification	HND/B.Sc.	62	51.7%
	M.Sc./PhD	17	14.2%
Work Experience	6–15 years	68	56.7%

From table 1, it can be seen that there were more male owner-managers in manufacturing organizations in Osun State than female. Similarly, 20 (16.7%) of the respondents were single, 80 (66.7%) were married, 12 (10.0%) were divorced and 8 (6.7%) were separated, indicating that majority of the respondents were married. Furthermore, in the highest educational qualification column, 20 (16.7%) were ND holders, 15 (12.5%) were NCE holders, 35 (29.2%) were HND holders, 27 (22.5%) were BSc. Holders, 12 (10.0%) were MSc. holders, 5 (4.2%) were PhD holders and 6 (5.0%) have other educational qualifications, indicating that most of the respondents were well educated.

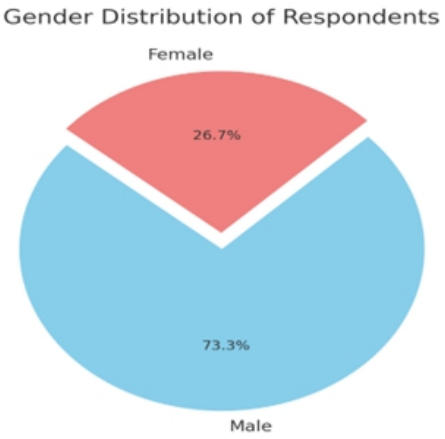

Figure 1: Pie Chart showing 73.3% male and 26.7% female respondents.

Hypothesis 1: Strategic foresight has no significant effect on product quality of selected manufacturing organizations in Osun State.

Figure 2 illustrates a Scatter plot showing a strong positive correlation ($R^2 = 0.949$) between strategic foresight and product quality. From Table 2, the study found a significant positive relationship between strategic foresight and product quality ($R^2 = 0.949$, $p < 0.05$). Respondents agreed that strategic foresight enhances innovation capabilities and improves product quality by enabling organizations to anticipate market changes and diversify processes. This finding aligns with (Rohrbeck & Kum, 2018), who emphasized the role of strategic foresight in improving organizational learning and responsiveness.

Table 2: Strategic Foresight and Product Quality (Hypothesis 1)

Variable	R^2	Beta (β)	p-value	Conclusion
Strategic Foresight	0.949	0.713	0.000	Significant positive effect

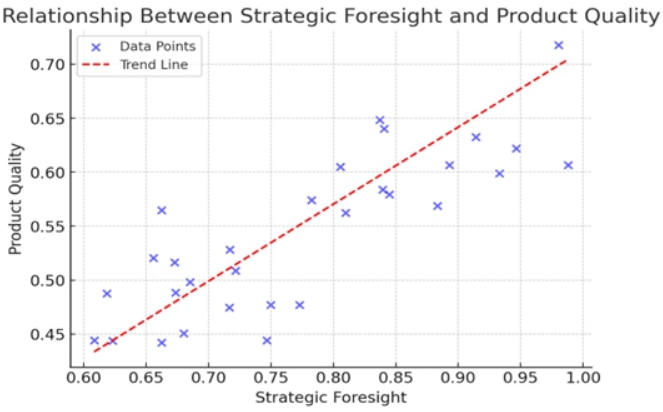

Figure 2: Relationship between Strategic Foresight and Product Quality

Hypothesis 2: Strategic sensitivity does not have significantly effect on innovation of manufacturing organizations in Osun State.

From table 3, Strategic sensitivity was found to significantly affect innovation ($R^2 = 0.962$, $p < 0.05$). Figure 3 depicts a bar chart illustrating that Organizations with high strategic sensitivity demonstrated a systematic approach to gathering information and adapting to environmental changes, leading to improved innovation capabilities. This supports the findings of (Chishamba, 2024), who highlighted the importance of strategic sensitivity in fostering innovation.

Table 3: Strategic Sensitivity and Innovation (Hypothesis 2)

Variable	R^2	Beta (β)	p-value	Conclusion
Strategic Sensitivity	0.962	0.899	0.000	Significant positive effect

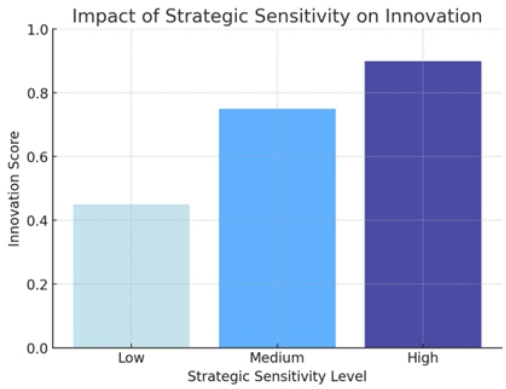

Figure 3: Bar chart illustrating the impact of strategic sensitivity on innovation (β = 0.899).

Hypothesis 3: Resource fluidity has no significant effect on the delivery reliability of manufacturing organizations in Osun State.
The result of the regression analysis to test the hypothesis Resource fluidity has no significant effect on the delivery reliability of manufacturing organizations in Osun State. From table 4. resource fluidity had a strong positive impact on delivery reliability ($R^2 = 0.923$, $p < 0.05$). From the figure 4, it has shown that organizations with flexible resource allocation and redeployment capabilities were better positioned to meet customer demands and ensure timely delivery. This finding is consistent with (Chishamba, 2024), who noted that resource flexibility enhances supply reliability and competitiveness.

Table 4: Resource Fluidity and Delivery Reliability (Hypothesis 3)

Variable	R^2	Beta (β)	p-value	Conclusion
Resource Fluidity	0.923	0.832	0.000	Significant positive effect

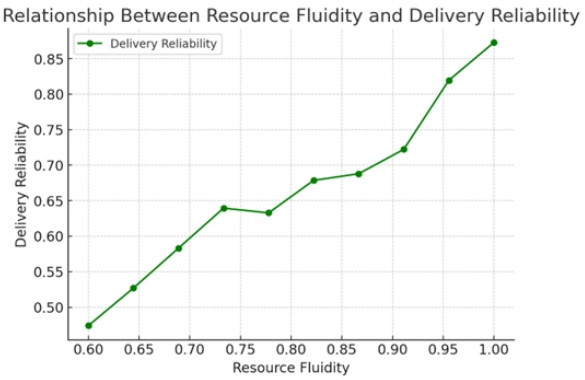

Figure 4: Line graph showing a strong positive relationship ($R^2 = 0.923$) between resource fluidity and delivery reliability.

Hypothesis 4: Clarity of vision has no significant effect on cost leadership capability of manufacturing organizations in Osun State.

From table 5, clarity of vision significantly influenced cost leadership capabilities with ($R^2 = 0.869$, $p < 0.05$). Figure 5, using a scatter plot chart depicts that organizations with a clear vision and well-defined goals were able to implement cost-effective strategies, reduce operational costs, and achieve competitive advantage. This aligns with Atikiya et al. (2015), who found that cost leadership strategies positively impact organizational performance.

Table 5: Clarity of Vision and Cost Leadership (Hypothesis 4)

Variable	**R^2**	**Beta (β)**	**p-value**	**Conclusion**
Clarity of Vision	0.869	0.727	0.000	Significant positive effect

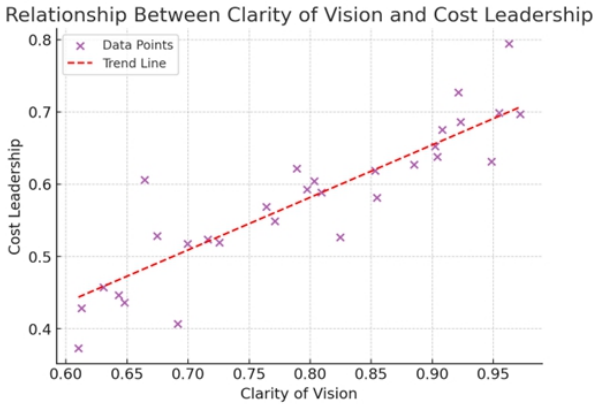

Figure 5: Scatter plot showing a positive correlation ($R^2 = 0.869$) between clarity of vision and cost leadership.

Hypothesis 5: Strategic agility (strategic foresight, strategic sensitivity, resource fluidity and clarity of vision) has no significant effect on the competitive capabilities (product quality, innovation, delivery reliability and cost leadership capability) of manufacturing organizations in Osun State.

Multiple regression method was used to analyze hypotheses 5, all at 0.05 level of significance. Table 6, shows that the combined effect of strategic agility dimensions (strategic foresight, strategic sensitivity, resource fluidity, and clarity of vision) on competitive capabilities was significant ($R^2 = 0.977$, $p < 0.05$). This indicates that strategic agility is a critical driver of product quality, innovation, delivery reliability, and cost leadership in manufacturing organizations.

Table 6: Combined Effect of Strategic Agility on Competitive Capabilities (Hypothesis 5)

Predictors	**Beta (β)**	**p-value**
Strategic Foresight	1.816	0.000
Strategic Sensitivity	1.161	0.004
Resource Fluidity	1.321	0.000
Clarity of Vision	1.027	0.000
R^2	0.977	

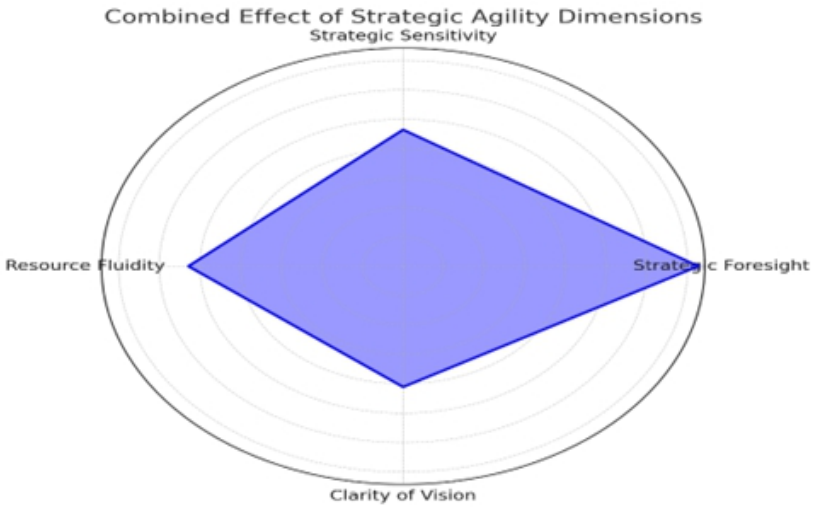

Figure 6: Radar chart illustrating the relative impact of each strategic agility dimension on competitive capabilities.

Conclusion and Recommendations

The study concludes that strategic foresight and agility are essential for improving product quality and competitive capabilities in manufacturing organizations. Organizations should invest in strategic foresight to anticipate market changes, enhance innovation, and improve product quality. Additionally, fostering strategic sensitivity, resource fluidity, and clarity of vision can strengthen competitive capabilities such as delivery reliability and cost leadership.

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