

Supply Chain Agility and Organizational Performance: A Study of Lafarge Africa Plc, Calabar, Nigeria

by

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ABSTRACT

The primary purpose of the study was to examine the relationship that exists between the supply chain agility and the performance of Lafarge Africa Plc, Calabar. The specific objectives were; to look into the relationship between responsiveness in the supply chain, market sensitivity and process alignment and organizational performance. The research entailed descriptive research design. The population was 442 of the management and non-management workers of the Calabar Lafarge Africa Plc. The sample size was extended to 210 in which the researcher relied on the table provided by Krejcie and Morgan (1970). In the present research, the method of simple random sampling was used. The data was measured by using a well-designed questionnaire. The Ordinary Least Square (OLS) regression analysis used to find out the impact of the independent variable on the dependent one. The authors found out that the supply chain responsiveness, market sensitivity and process alignment are strongly positively correlated with the organizational performance of Lafarge Africa Plc in Calabar. The suggestions in these findings are that firms such as the Lafarge Africa Plc the subject of this study requires optimizing the supply chain capability by responding and being sensitive to market needs and alignment of operations processes in a bid to realize performance and to be able to sustain it. By investing strategically in these domains, a company can achieve operational excellence in the long term, customer satisfaction, and higher profits. In view of these findings, it was proposed that inter alia, investing in real-time data analytics, flex production system and agile logistics would help Lafarge Africa plc to be more responsive to changes in demand and production breakdowns.

Keywords: Supply chain agility, Supply chain responsiveness, Market sensitivity, Process alignment, Organizational performance & supply chain management.

INTRODUCTION

Natural disasters like hurricanes and earthquakes, man-made disasters like terrorism and conflict, and pandemics like COVID-19 have caused supply chains around the world to face unprecedented challenges (Patel & Sambasivan, 2022). In the face of such challenges, industries are under more risk of facing total lag of their supply chains. The rate, at which companies can react to the emergence of new issues and comply with the needs of their customers, is an important determinant of their survival and success. To create competitiveness in the current turbulent and dynamic business environment, agility of supply chains plays a significant role (Patel & Sambasivan, 2022). This is the

reason why agility must be included in the supply chain as a way of guaranteeing the survival and growth of the organizations. Moreover, over the past few years, the conditions under which business organizations operate, have been progressively becoming unpredictable, highly turbulent, and volatile (Ansell & Trondal, 2018). The modern globalized market requires the manufacturing industry to come up with strategies that will allow it to adapt to any change that takes place within a day (Mali & Shrimali, 2019). The ability to meet changes in demand swiftly and adaptively is known as supply chain agility, and this issue needs to be investigated by the businesses in order to compete successfully in a constantly evolving environment of the supply chain. Agile supply chains should also be regarded as a means to achieve control in the organization, besides other actions required (Osman et al., 2017). Supply chain agility denotes the ability of an organisation to connect with some of its key partners so that it is able to quickly and effectively adjust to any variations in market conditions and real and potential disruptions (Chan et al., 2017).

Due to the above, organisations should construct mechanisms of ensuring that their competitive advantage, profitability, and corporate performance is maintained. Cho and Dansereau (2010) define organisational performance as a company's performance in reference to its aims and objectives. The total of actual results or organizational outcomes that are contrasted with anticipated outcomes is what Daniel and Kevin (2015) define as organisational performance. Organisation puts a high priority on continuous improvement as it believes that it can grow by improving performance (Gavrea et al., 2011). Tessarini and Saltorato (2021) assert that companies that prioritize agility may see an improvement in performance stability. The concepts of flexibility and agility have been effectively combined to create the perfect working environment (Fernandez-Giordano et al., 2022). Agile operations adoption is linked to improved organizational performance, which raises customer satisfaction and confidence, claim Tam et al. (2020).

Statement of the problem

Agile supply chains determine the future of every business. Development of agility in a company is essential to survive in stormy environments. However, a number of companies face the crises in the supply as they have to solve the issue of unforeseen market changes concerning supply and demand. In most cases, it is related to the fact that the concept of supply chain agility is not fully understood (Notteboom et al., 2021). In the current competitive manufacturing world, a company which is in a position to react fast to changes, know the market needs and be able to operate internally without difficulties has a great advantage of succeeding in this competition. This is especially required in the cement business where delay in delivery, disruption of a production process and slow response might result in loss of sales, dissatisfaction of customers and excessive cost of operation. The supply chain of Calabar, Lafarge Africa Plc, is that it is a manufacturing company based in Nigeria that has issues such as supply chain that have always been persistent.

A pilot study conducted by the researchers revealed that some of the problems that Lafarge Africa Plc has over the years been committing are late supply of raw materials, stock-out, poor inventory management, and poor response to customer demand changes. These problems result in the problem of agility of supply chain within the company. To illustrate, under any unexpected dramatic surges in demand of construction or a logistical shocker, failures of Lafarge to be responsive and fast will mean the company is doomed, at least in terms of patronage and market share. In addition, there is also the lack of empirical evidence on how the company performs in terms of responsiveness, market sensitivity and the process alignment despite the investments in the supply chain system and infrastructure. Unless these aspects are handled, Lafarge will still be faced with the problems of long lead time, inefficient operations, and loss of competitive edge in the marketplace that places premiums on speed and flexibility of operations and customization to customers. Further, little practical researches have been done in regard to assessing the role of these particular elements of supply chain agility in determining

organizational performance in the Nigerian cement industry, and especially at the Lafarge Africa Plc. This paper aims at closing that gap by analyzing the relationship between supply chain agility and organizational performance in Lafarge Africa Plc, Calabar.

Objectives of the study

The main objective of this study was to examine relationship between supply chain agility and organizational performance in Lafarge Africa Plc, Calabar. The specific objectives were:

1. To examine the relationship between supply chain responsiveness and its effects on organizational performance in Lafarge Africa Plc, Calabar
2. To determine the relationship between market sensitivity and the organizational performance in Lafarge Africa Plc, Calabar
3. To investigate the correlation between the process alignment and Lafarge Africa Plc, Calabar organizational performance

Hypotheses of the study

The following research hypotheses styled in null form guided the study:

H₀₁: There is no significant positive relationship between supply chain responsiveness and organizational performance in Lafarge Africa Plc, Calabar

H₀₂: There is no significant positive relationship between market sensitivity and organizational performance in Lafarge Africa Plc, Calabar

H₀₃: There is no significant positive relationship between process alignment and organizational performance in Lafarge Africa Plc, Calabar

LITERATURE REVIEW

Conceptual Review

Concept of supply chain agility

Wu (2019) and Inman and Green (2021) define supply chain agility as an organization's ability to quickly meet customer requests while keeping costs under control. Building agile supply chains is currently a top priority for many well-known businesses in an effort to improve their efficiency and responsiveness. Manufacturing companies may have to take part in the process of creating an agile supply chain that consists of manufacturers, merchants, and suppliers of raw materials. Aggrey, Kusi, Afum, Osei-Ahenkan, Norman, Boateng and Owusu (2022) research, describes agility practices as maximizing market knowledge to capitalize on profitable business opportunities amid evolving business landscapes. Thus, supply chain agility can be understood as a company's ability to collaborate with suppliers and stakeholders to tackle market challenges.

Furthermore, a supply chain's responsiveness is its ability to react quickly and efficiently to changes in customer demand or supply chain interruptions (Ayoub & Abdallah, 2019). This capability necessitates that the supply chain fulfills orders in a timely and precise manner while simultaneously adapting to unforeseen events (Kazancoglu, Ozbiltekin-Pala, Mangla, Kazancoglu & Jabeen, 2022). Process alignment can be stated as knowing that the right job has been done right by utilizing the right people and at the right time. Once the issue of right work is resolved, it will flow like a chain of demands with the mission/vision being dragged downwards as requested by the top management. The requirements are shared on the contemporary, change, and future stands of the organization (Nsanzipana & Mulyungi, 2020). There are three levels of organizational alignment; these are, external oriented, internal oriented and culture oriented. The external alignment deals with the production of the products and other services in order to please the consumer. External alignment involves matching products as well as services of the organization with the market and customer needs (Ongeri & Osoro, 2021).

Supply chain agility and organizational performance

Performance refers to the ability of the organization to convert the resources in the firm in an effective and efficient way in order to reach the organizational goals (Al Karim, 2019;

Akpan & Uford, 2023). The performance of an organization is connected with productivity and effectiveness of the firm (Charles & Uford, 2023). The study conducted by Macclever et al. (2017) showed the following: supply chain flexibility is moderately unrelated to the firm performance mediated by the supply chain agility effect. In the meantime, Bidhandi and Valmohammadi (2017) found out that the relationship between supply chain agility and profitability is strong and positive. Based on Chan et al. (2017), the relationship between strategic flexibility and the performance of fashion manufacturing companies in the Asian market have a significant and positive mediating role, which is called the supply chain agility. In a similar study, however, Fachrunnisa et al. (2020), concluded that agile leadership is positively moderating the connection between strategic flexibility and digital transformation. Other than this, despite possible inclusion of other moderators of flexibility-performance relationship by researchers, the agility of a supply chain as a moderating factor is an issue that ought to be addressed irrespective of its applicability to the survival of supply chain in Nigeria, which is chaotic in nature.

Theoretical framework

This study was anchored on resource-based theory

Resource-based theory

This theory is a Wernerfelt (1984) theory. The theory supposes that organizations acquire competitive advantage because of using a variety of resources that are rare and that these firms have the ability of maintaining competitive advantage when the same resources are inimitable or cannot be substituted by other firms. According to this theory, it is not enough to have resources, the organization must have the capacity to ride the economic environment through its internal strengths to be very nimble. This theory suggests that companies develop a competitive advantage given that they enjoy especially valuable and rare resources and competencies that are not easily copied and substituted by the rivals. Having such resources and capability, firms can roll them out and achieve a high performance in comparison with others.

The theory was pertinent to the research since it gives adequate details of how managers acquire these assets and coordinate them through utilization of their capacities to increase the organizational productiveness, agility, and competitiveness levels.

Empirical review

Osoro, et al., (2024) researched on supply chain agility and performance of Kenya exporting firms of horticulture. The employed research design involved both descriptive and casual comparative of research designs. The target population was all the 236 horticulture exporting firms in Kenya. The unit of study was horticulture exporting firms and the unit of observation was the Managers of supply chain. The study also used the census methodology and therefore, the target population was 236 supply chain managers in the horticulture exporting companies. One of the instruments or tools used to collect data was semi- structured questionnaires and data collection tools. Qualitative data were analyzed by content and the findings were provided in a prose form. On SPSS version 26, the analysis of qualitative data was done where the results were presented using descriptive statistics such as frequency distribution, average (dispersion measure), standard deviation as well as percentages. The study also computed inferential data analysis that consisted of regression analysis and Pearson correlation coefficient analysis. The results were provided in tables and figures. The studies have determined that the performance of horticultural export companies in Kenya was found to be positively significant and associated with supply chain agility. In addition, compliance to regulatory framework emerged

forthwith to curb the relationship between supply chain agility and the performance of the horticulture exporting firms in Kenya. It then can be recommended to suggest that the horticultural exporting industries in Kenya ought to invest in these sectors so as to enhance their performance. Specifically, they will have to be more-nimble in their supply chains and they have to adhere to the regulatory framework.

Kuria and Ndeto (2024) built a connection between the supply chain agility and the performance regarding the private hospitals in Nairobi County, Kenya. The cross-sectional survey research method was suitable in the study as it observes the prevalence of some condition among a particular group of people at a given point or period of time and does not intend to give any inferences or provide any reasons as to why the prevalence should be that way. The targeted population of this research was seventeen Nairobi, Kenya-based privately-owned hospitals. Once the research participants had been identified, the unit of analysis was the head and three deputies of department of each facility i.e.: - procurement, administration, finance, Public Health and Quality assurance. The respondents were targeted to be 340. Using a sample size formula of Yamane (1973), a sample size in this research was determined based on the target of 340 individuals as studied by using the Yamane (1973) sample size formula. The information used on primary data was elicited via drop and pick method with use of structured questionnaires. Data obtained in the questionnaire was coded, entered in the computer and was proofread. Data was analysed using Statistical Package for the Social Sciences (SPSS) and Microsoft Excel. The outcome of the article is that supply chain alertness influences positively and significantly the performance of the private hospital in the county of Nairobi in Kenya. Further, the researcher deduced that supply chain flexibility positively and significantly affects the performance of private hospitals at Nairobi City County, Kenya. On the basis of findings, the study proposes that the managements of the private hospitals in the Nairobi City County, Kenya ought to invest in high-end technologies to implement a supply chain that would boost their performance. Using the most innovative trends, including real-time tracking, predictive analytics, and automated inventories, hospitals will be able to be more efficient and responsive.

Shelbayeh and Darwazeh (2024) researched the role of supply chain adaptability on operation performance of dairy companies in Jordan. The study employed a descriptive-analytical research design, data was collected in relation to five companies; 285 copies of an electronic questionnaire were issued to managers, and 245 valid answers were retrieved and entered into SPSS program. The findings were also statistically significant with an F value of (241.06) and p-value of (0.000), which implied that (57.3) percent of variance in operational performance can be explained by the agility factors. D coefficient values were (0.757) and (0.573) respectively. One of the suggestions was to enhance the speed of reaction to changes in demands by Enterprise Resource Planning (ERP) structures and to augment the management of stocks by adopting some strategies such as Just-In-Time (JIT) which would give them more flexibility and efficiencies in their operations.

Ofoegbu and Oloda (2022) investigated on supply chain agility and the performance of manufacturing firms in rivers state. A survey obtained the numerical data to be used in a study carried out by the researchers to test all the proposed ideas using statistical analysis. All the officially registered manufacturing firms in Rivers State were included in the study since most of the businesses sat there. Rivers State has 29 existing manufacturing business as registered by laws. It sent six individuals to each company representing the six of the departments that made up the organisation, purchasing, manufacturing, marketing, research and development and customer service. The quantitative study included 144 persons as a sample size. The study authors measured the internal reliability with the help of the Cronbachs Alpha technique. This approach had to be applied, as each of the items had to be within the mark of 0.7 on the Likert scale. The hypothesis was validated since the table of data contained strong positive correlations (0.921, 0.874, 0.872, and 0.886) among the variables. As the data showed, there was a positive correlation between all the components of supply chain agility and the performance

of manufacturing firms in Rivers State. The findings of the researchers in Rivers State confirmed, that the work of industrial enterprises would improve when the managers were able to sustain a professional relationship with colleagues.

METHODOLOGY

This study adopted a descriptive research design and population of 442 management and non-management workers of Lafarge Africa Plc, Calabar. A sample size of 210 was arrived at using Krejcie and Morgan (1970) table. In this research, we adopted simple random sampling procedure and the instrument of data collection was a well-structured questionnaire. The questionnaire was administered by drop and pick later procedure. The questionnaire was designed along five point Likert scale basis. Face and content validity technique was applied in this paper to test the research tool. The test-retest method was used to test the reliability of the study instrument. The Cronbach's alpha of 0.94 that gives 94 percent showed that the research instrument was adequate for study. Analysis of the collected data was done through descriptive and inferential statistics. It also summarized and described (in frequencies and percentages) the personal and the job related profile of the respondents including the responses given with regard to the dependent and independent variables which were presented in tables. The Ordinary Least Square (OLS) regression analysis was used to analyze the hypotheses at 5 percent level of significance. The research under consideration was constructed on the following linear model

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where

Y = Organizational performance

X₁ = Supply chain responsiveness

X₂ = Market sensitivity

X₃ = Process alignment

$\beta_1 - \beta_3$ are the regression co-efficient or change introduced in Y by each independent variable

ε is the random error term accounting for all other variables that influence job satisfaction but not captured in the model.

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

Data presentation

Table 1 Questionnaire Response Rate

S/ N	Category	Number of questionnaires given	Percentage of questionnaires given	Number of questionnaires returned	Percentage of questionnaires returned
1	Management staff	63	30	59	28
2	Non-management staff	147	70	141	67
Total		210	100	200	95

Source: Researcher's computation, 2025

Based on table 1, it was noted that 210 copies of the questionnaire were duplicated to the different categories of the staff working at the firm under study that related to this study. But of the 200 copies of questionnaire that was administered, the different categories of staff at the organization that was conducting the study completed and submitted them thus, 95 per cent of

the 200 questionnaires that were administered in the study was used in the analysis. This hence produced a good response rate in this study.

Test of hypotheses

Table 2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	.932 ^a	.870	.867	.405	1.661
a. Predictors: (Constant), Supply chain responsiveness, Market sensitivity, Process alignment					
b. Dependent variable: Organizational performance					

Source: Researcher's Computation, 2025

The modified coefficient of multiple determination, or R^2 , indicates that differences in supply chain agility account for 0.867 (86.7 percent) of the variances in organizational performance. Other factors not included in the study account for the remaining 13.3 percent of the variability in the performance of the organization. As there was no autocorrelation, the Durbin Watson statistic of 1.661 was less than 2.

Table 3 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	215.108	3	53.777	330.110	.000 ^b
	Residual	31.767	196	.163		
	Total	246.875	199			

a. Dependent Variable: Organizational performance

b. Predictors: (Constant), Supply chain responsiveness, Market sensitivity, Process alignment

Source: Researcher's Computation, 2025

We conclude that, at the 5 percent level of significance, supply chain agility has a significant effect on organizational performance based on the P-value of 0.000, which is less than 0.05.

Table 4 Regression Coefficients

<i>Coefficients^a</i>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.436	.112		3.882	.000
	Supply chain responsiveness	.346	.084	.358	4.138	.000
	Market sensitivity	.569	.105	.586	5.412	.000
	Process alignment	.472	.062	.191	2.801	.001

a. Dependent Variable: Organizational performance

Source: Researcher's Computation, 2025

Test of hypothesis one

H₀: There is no significant positive relationship between supply chain and organizational performance in Lafarge Africa Plc, Calabar.

H₁: There is a significant positive relationship between supply chain and organizational performance in Lafarge Africa Plc, Calabar.

We reject the null hypothesis based on the results, and we accept the alternative hypothesis that supply chain responsiveness and organizational performance at Lafarge Africa Plc, Calabar, are significantly positively correlated.

Test of hypothesis two

H₀: There is no significant positive relationship between market sensitivity and organizational performance in Lafarge Africa Plc, Calabar.

H₁: There is a significant positive relationship between market sensitivity and organizational performance in Lafarge Africa Plc, Calabar.

The alternative hypothesis, according to the results, that market sensitivity and organizational performance at Lafarge Africa Plc, Calabar, have a substantial positive association, is accepted, and the null hypothesis is rejected.

Test of hypothesis three

H₀: There is no significant positive relationship between process alignment and organizational performance in Lafarge Africa Plc, Calabar.

H₁: There is a significant positive relationship between process alignment and organizational performance in Lafarge Africa Plc, Calabar.

Based on the findings, we accept the alternative hypothesis—that process alignment and organizational performance at Lafarge Africa Plc, Calabar, have a strong positive relationship—and reject the null hypothesis.

Discussions of findings

The study was able to determine that, there are indeed positive correlations between the supply chain responsiveness and the performance of Lafarge Africa Plc, Calabar. This implies that the ability of an organization to respond swiftly to changes in demand, supply fluctuations, and market uncertainties has a direct impact on its overall performance. The implication for managers is that they must continually invest in strategies, technologies, and processes that enhance responsiveness across the supply chain. This finding is consistent with the finding of Kuria and Ndeto (2024) that have established the relationship between supply chain agile and the performance of the private hospital in Nairobi County Kenya.

It was disclosed that the strength relationship between market sensitivity and organizational performance was so strong in Lafarge Africa Plc, Calabar. This indicates that the firm's ability to sense and understand consumer needs, monitor competitor activities, and respond effectively to market shifts plays a critical role in driving organizational success. The implication of this finding is that Lafarge Africa Plc, as well as other manufacturing firms, must strengthen their market intelligence and research capabilities to remain competitive. The result is similar with the study by Ofoegbu and Oloda (2022) who analysed supply chain agility and the organizational performance of the manufacturing companies in the rivers state.

It was also found out that process alignment positively relates significantly with the performance of an organization in Lafarge Africa Plc, Calabar. This finding implies that aligning internal processes with suppliers, distributors, and customers enhances efficiency, reduces costs, and improves service delivery. For Lafarge Africa Plc, the implication is that greater emphasis should be placed on fostering collaboration and synchronization across the supply chain. This result supports the results of Osoro, Noor and Nyanga u (2024) who studied the supply chain agility and performance of firms exporting horticulture given the situation in Kenya.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study proves that agility in supply chain highly affects organizational performance in Lafarge Africa Plc, Calabar. In this respect, the findings indicated that there existed a strong positive correlation between the responsiveness of the supply chain and performance of the organization and this means that the capacity to rapidly respond to the changes in demand and other dynamics of the supply chain leads to an improved performance. Moreover, there was found to be a high correlation between market sensitivity and performance in the organization implying the organizations responsiveness to the market drifts and consumer needs is the only way to a competitive lead. Moreover, the analysis revealed that process alignment and organizational performance had significant positive correlation indicating that harmonized and synchronized supply chain operations are important in enhancing efficiency in the operations. Yeah, the study came up with the conclusion that agility in the supply chain plays a major role in determining performance in an organization in Lafarge Africa Plc, Calabar.

Recommendations

Based on the findings, it was recommended that:

1. Lafarge Africa Plc should invest in real-time data analytics, flexible production systems, and agile logistics to improve its responsiveness to demand fluctuations and supply disruptions.
2. The company should regularly gather and analyze market intelligence and customer feedback to proactively adjust its supply chain strategies in line with evolving market dynamics.
3. Management should foster better internal and external collaboration among departments, suppliers, and distributors to ensure seamless communication and alignment of goals across the supply chain.

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