

SUPPLIER SELECTION AND SUPPLY CHAIN PERFORMANCE OF CONSTRUCTION COMPANIES IN RIVERS STATE, NIGERIA

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Abstract

The relationship between supplier selection and supply chain performance of construction companies in Rivers State was investigated in this study. The study adopted an explanatory research design. The population of the study comprised 173 construction companies in Rivers State. The Taro Yamene formula was used to derive a sample size of 121 construction companies. 121 respondents who are procurement managers in the construction companies were drawn to provide data for the study. Structured questionnaire designed in the Likert five-point scale of strongly agree to strongly disagree was used to collect primary data. The reliability of the instrument was ascertained through Cronbach's Alpha test of reliability with a threshold of 0.70. The Pearson Product Moment correlation was used to test the hypotheses formulated for the study. The study found that supplier selection has a very strong positive and significant relationship with cost reduction, service quality and on time delivery respectively. In view of these findings, the study concluded that supplier selection is an important driver of supply chain performance improvement; and recommends that managers of construction companies should focus on factors such as the experience, capacities, network reach and other related factors which demonstrate the competence and capital accruable from their relationship and partnerships with suppliers.

Keywords: Supplier selection, supply chain performance, cost reduction, service quality, on time delivery.

Introduction

Supplier selection is a critical executive decision that influence the realization of corporate goals. The selection of supplier involve extensive evaluation strategies aimed at arriving at the best choice in the list of hundreds or even thousands of options. According to Bhutta and Huq (2012), selecting the right supplier is a difficult decision for many organizations, and is one that has significant impact on organizations' performance. Hence, the process selecting suppliers gulp substantial resources.

Suppliers are essential component of the supply chain system, imbibing effective supplier selection and evaluation are considered important responsibilities of purchasing managers since the supplier evaluation process is purely meant to minimize purchase risk and maximize the overall value to the purchaser. Performance of firms can be improved through better supply chain practices such as having a proper supplier evaluation (Lysons et al., 2016). For firms to perform well, it is important to select suppliers who are reliable and are able to meet the company's material and service requirement.

Scholars are of the view that supplier selection predicts supply chain performance; and this view instigated previous studies that sought to explain the connection between supplier selection and supply chain performance. Ismail et al. (2022) examined the role of supplier selection and supplier monitoring in public procurement efficiency in terms of cost reduction; while Westhuizen and Ntshingila (2020) examined influence of supplier selection, supplier development and information sharing on SMEs performance. Nonetheless, this study sought to join the discourse by examining the correlation between supplier selection and supply chain performance of construction

companies in Rivers State. The study employed cost reduction, service quality and on time delivery as measures of supply chain performance.

Theoretical Foundation

The theoretical basis for supplier selection can be derived from transaction cost theory (TCT), whose underlying premise is that firms are driven by profit maximization objectives. TCT inspects how business partners who collaborate with each other shield one another from risks. From a global sourcing perspective companies obtain intermediate products from outside suppliers if the transaction costs of external purchases are lower than those from domestic purchases. In other words, transaction costs determine the governance structure of a supply chain. So, in the light of globalization, a firm has to decide if it will follow a domestic or global source to obtain its needs.

TCT holds that a firm might choose buying from external sources if the aggregate costs, which incorporate everything used on the venture, are lower than the costs of making the material in-house. Core activities of TCT are centered within five processes, namely category strategy, supplier strategy, quotation supplier selection and negotiation, operative procurement and supplier evaluation.

Within category strategy, the buyer puts equal products into one pool (Schiele et al., 2011) and can then determine a strategy for this pooled group. A strategy could vary from single vs. multiple sourcing, or international vs. national sourcing (Schiele, Veldman, & Hüttinger, 2011). For a supplier strategy, one might identify the purchasing volume, and level of dependency on the supplier to create a supplier strategy. For supplier selection and negotiation, one can choose between competitive bidding and negotiation (Monczka et al., 2010).

Concept of Supplier Selection

Supplier selection is the process by which firms identify, evaluate, and contract with suppliers. Supplier selection is a vital activity in procurement and supply chain management (Bhutta & Huq, 2012). Successful supplier selection effect organization performance positively (Taherdoost & Brard, 2019). Pikousova and Prusa (2013) states that supplier selection contributes to profitability of companies.

To avoid supplier nonperformance, buyers typically take proactive steps to verify a supplier's qualifications prior to awarding them a contract. The primary goal of supplier screening is to reduce the likelihood of supplier non-performance, such as late delivery, non-delivery, or delivery of nonconforming faulty goods (Kiplagat, 2010). Thus, supplier selection consume substantial financial, time and human resources (Astbrink & Tibben, 2013).

Typically, supplier selection is procedural, and involves identifying suppliers, soliciting information from suppliers, setting contract terms, negotiating with suppliers, and evaluating suppliers (Kiama, 2014; Lysons & Farrington, 2016). Company enlist potential suppliers through available channels, including exhibitions and fairs, referrals and from competitors' experiences.

Concept of Supply chain performance

Supply chain performance represent success of the supply chain on key performance indicators, including meeting end-customer needs, product availability, on-time delivery. It is the ability of a supply chain to provide services in a responsive manner (Najmi et al., 2012). In order to ensure successful business development and strategic market penetration, there is need for companies to embrace continuous improvement in supply chain performance. To achieve this, there is need to

implement performance measures that support core goals of performance improvement (Hausman, 2017), especially, with reference to reductions in costs and delays; and innovation and adaptability (Madzimore et al., 2020).

Supply chain performance system represents a formal approach to monitoring and evaluating performance. Many companies spend significant financial resources to improve their supply chain performance through process reengineering, new systems and employee training. Supply chain performance measurement is the process of assessing the efficiency and effectiveness of the supply chain (Wong & Wong, 2008).

Madzimore et al. (2020) proposed a supply chain performance model, divided into: quantitative and qualitative metrics. The Supply chain council developed the Supply Chain Operations Reference (SCOR) model, which bases all supply chain activities on planning, sourcing, manufacturing, delivery, and return procedures. Overall, supply chain performance is critical to gaining competitive advantage (Hsin Chang et al., 2013; Madzimore et al., 2020). In this study, supply chain performance was represented in terms of cost reduction, service quality, and on time delivery.

Cost reduction

According to Adiele and Ihunwo (2020), cost reduction is the constant process of critical analysis of all cost items and all aspects of the business with the goal of increasing business efficiency; cost reduction is a corrective function. Cost reduction as a deliberate action plan adopted by firms in order to reduce the costs associated with doing business. It is the process of lowering organization's costs in order to increase profits. This entails attempting to minimize the cost per unit of goods or services without jeopardizing the intended use of such products.

Cost reduction is also the process of attaining and maintaining long-term savings without compromising quantity or quality of products (Adiele & Ihunwo, 2022). Cost reduction strategies are strategies that reduce resource wastage to increase organizational efficiency and effectiveness (Ngumi, 2014). Cost reduction strategies can decrease functional costs while growing productivity, permitting for planned rearrangement of resources (Ngumi, 2014).

Cost is a fundamental considerations for buyers and businesses Ainapur et al. (2011) opined that optimizing supply chain activities saves money, increases throughput, decreases inventory levels and increases revenues, thereby improving the organizations financial status. Cost reduction therefore, touches on all aspects of business including cost of ownership and disposal of hazardous or defective materials (Gachora et al., 2014).

Service quality

The term Service quality is an association of two different words; service and quality (Ramya et al., 2019). It is a concept that has aroused considerable interest and debate because of the difficulty in defining and measuring it. Service means any activity or benefit that one party can offer to another that is essentially intangible and does not result in the ownership of anything; while quality is a strategic tool for attaining operational efficiency and better performance of business. Service quality is therefore, the ability of a service provider to satisfy customer in an efficient manner through which he can better the performance of business. Service quality is generally finding of services given to consumers, and it depends on the customer judgment (Ganguli & Roy, 2010).

Perceived quality is a general decision or sentiment regarding service, which include individuals' emotional and relativistic reactions. It is a type of behavior linked to satisfaction, resulting in comparisons between expectations and insights of outcomes (Wang et al., 2023). Quality of service can be regarded as the degree to which the company fulfils consumer requirements or desires, or as the general belief that the programs are comparatively inferior or superior to the customer.

The concept of service quality includes service delivery process and also the results offered services (Nejadjavad, & Gilaninia, 2016). Many experts have commented about constituent elements of service quality that their common factors include: Process quality or operational quality which is the quality of processes and production procedures and deliver quality service to customers given the nature and coincide of production and consumption of services (Gilaninia, 2013).

On-time delivery

According to Rao et al. (2011), on time delivery can be described as the level to which products supplied by meet customers' expectation. On-time delivery means delivery precision, which according to Forslund et al. (2008) is a process that consists four sub-processes: i) the customer ordering, ii) the supplier delivery, iii) logistics by the service provider (LSP) transportation, and iv) and the customer goods receipt sub-process, and that implies that the OTD process includes at least three different actors: a customer, a supplier and LSP transportation.

On-time delivery implies that a company could fulfill delivery commitment based on agreed time. Wegelius-Lehtonen, (2001), described on-time delivery as perfect order delivery, through meeting certain criteria such as performing any transportation task based on right quantity, right price and right item number, and perfect receipt.

On-time delivery enable companies sustain their business and win customers' trust, which ultimately plays the important role to gain profits. It is a major component of supply chain management. The process determines the capability of business when a company is able to produce a certain amount of goods at a certain time, and the best indicator of such capability when the faster OTD process is implemented to respond to customer needs.

Supplier Selection and Supply Chain Performance

Ismail et al. (2022) examined the role of supplier selection and supplier monitoring in public procurement efficiency in terms of cost reduction in Tanzania. The findings revealed that supplier selection and supplier monitoring are positive and significant predictors of public procurement efficiency in terms of cost reduction, Relatedly, Cherono and Keitany (2021) evaluated effect of supplier selection on the supply chain efficiencies in the county government of Nandi. The findings of the study indicated that supplier selection practices had positive and significant influence on supply chain efficiency.

Also, Westhuizen and Ntshingila (2020) examined the influence of practices such as supplier selection, supplier development and information sharing on the SMEs business performances in the Sedibeng district. The results of the study show significant relationships among the posited variables, this means that SMEs can use the supply chain management practices: supplier selection, supplier development and information sharing to improve business performance within SMEs in the targeted FMCG industry.

Yashinta and Tina (2020) examined the impact of supplier selection criteria and supplier involvement on supplier performance in CV Teguh Jaya. The study found that both supplier selection criteria and supplier involvement have impact on supplier performance. On this background, the study hypothesized that:

Ho₁: There is no significant relationship between supplier selection and cost reduction.

Ho₂: There is no significant relationship between supplier selection and service quality.

Ho₃: There is no significant relationship between supplier selection and on time delivery.

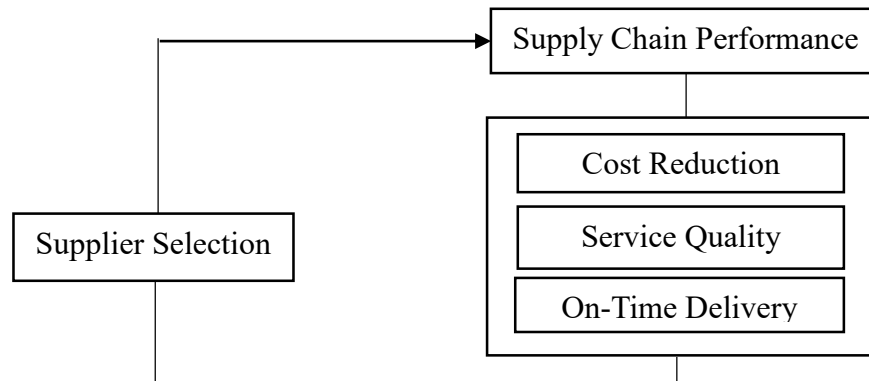


Fig 1: Conceptual framework of relationship between supplier selection and supply chain performance

Methodology

This study adopted an explanatory research design to investigate the relationship between supplier selection and supply chain performance of construction companies in Rivers State. The population of the study consist one hundred and seventy- three (173) construction companies as obtained from the Rivers State ministry of works. Taro Yamane's formula was used to derive a sample size of one hundred and twenty- one (121) companies for the study. One procurement manager from each of the construction companies was selected as respondents for the study. Primary data was collected using structured questionnaire. Cronbach (1951) Alpha reliability test was conducted to ascertain the reliability of the instrument using a threshold of 0.70 established by Nunally (1978). The Pearson Product Moment Correlation analysis was used to test the three hypotheses formulated for the study, with a critical value of 0.01. All analysis were done with the aid of the Statistical package for Social Sciences (SPSS) version 25.0.

Results and Interpretations

Table 1: Descriptive statistics of Supplier Selection

	N	Mean	Std. Dev.
Supplier credit worthiness is evaluated before considering for prequalification	117	2.8974	1.17726
The supplier cashflow is evaluated before considering for prequalification.	117	3.3846	1.23069
The company conduct an evaluation of supplier's staff competence.	117	3.0342	1.33217
The company conducts an evaluation of supplier's transport capacity	117	3.0256	1.41093
The firm evaluates the supplier commitment culture	117	2.8974	1.48779
Valid N (listwise)	117		

Source: Field Survey (2024)

Table 1 depicts high mean scores of the questionnaire items ranging over 2.50, this means that greater number of the respondents agreed and strongly agreed to the research questions with respect to supplier selection. However, it can be seen that participants agree to the evaluation of supplier credit worthiness before consideration for prequalification, the evaluation of supplier cashflow before consideration for prequalification, evaluation of staff competence, the company conducts an evaluation of supplier's transport capacity, the company evaluates the supplier's commitment culture. All of which are observed to characterize the construction firms of interest.

Table 2: Descriptive statistics for Cost Reduction

	N	Mean	Std. Dev.
We establish measures to reduce overhead cost.	117	3.0256	1.00397
We have significant financial reserve to cover all potential needs due to cost reduction.	117	3.1538	1.46579
We are able to offer prices as low or lower than our competitors.	117	3.4017	1.49170
Procurement costs have reduced	117	3.1538	1.17161
Our firm has achieved a reduction in cost to service of business.	117	3.4020	1.40847
Valid N (listwise)	117		

Source: Field Survey (2024)

Table 2 depicts high mean scores of the questionnaire items ranging over 3.00, this means that greater number of the respondents agreed and strongly agreed to the research questions with respect to cost reduction. However, it can be seen that participants for the study generally affirmed to their establishment of measures to reduce overhead cost, the organization has significant financial reserve to cover all potential needs due to cost reduction, the company is able to offer prices as low or lower than the company's competitors, procurement costs have reduced, the company has achieved a reduction in cost to its service business. These factors demonstrate the substantially of these indicators in the construction firms.

Table 3: Descriptive statistics for Service Quality

	N	Mean	Std. Dev.
We are able to perform the promised service dependably and accurately.	117	3.1538	1.44804
We help customers to provide prompt services	117	3.3932	1.40784
Our employees provide trustworthy consistent and efficient service	117	3.1624	1.68644
We give special attention to customers	117	3.2000	1.18145
We offer products with best features.	117	3.2004	1.47366
Valid N (listwise)	117		

Source: Field Survey (2024)

Table 3 depicts high mean scores of the questionnaire items ranging over 3.00, this means that greater number of the respondents agreed and strongly agreed to the research questions with respect to service quality. However, it can be seen that participants affirm to the prevalence of outcomes in the area of their construction firms being able to perform promised service dependably and accurately, helping customers in the provision of prompt services, their employees providing

trustworthy, consistent and efficient services, the provision of special attention to customers and the offering of products with the best features.

Table 4: Descriptive statistics for On-Time-Delivery

	N	Mean	Std. Dev.
Our company has the ability to respond to change in delivery request.	117	3.1709	1.46388
Our company deliver right products and services on time.	117	2.9060	.94671
Our order entry is always accurate	117	3.2010	1.50190
Our warehouse picking and packing are often on time.	117	3.1624	1.18145
Our company has flexibility of delivery system to meet particular customer needs.	117	3.3010	1.56503
Valid N (listwise)	117		

Source: Field Survey (2024)

Table 4 depicts high mean scores of the questionnaire items ranging over 3.00, this means that greater number of the respondents agreed and strongly agreed to the research questions with respect to on time delivery. However, it can be seen that all five items addressing the construction companies' ability to respond to change in delivery request, deliver right products and services on time, ensure order entry is always accurate, that warehouse picking and packing are often on time, and that there is flexibility of delivery system to meet particular customer needs, are all manifested substantially within the context of the construction firms investigated in this research.

Table 5: Correlation between Supplier Selection and Measures of Supply Chain Performance

		Supplier Selection	Cost Reduction	Service Quality	On Time Delivery
Supplier Selection	Pearson Correlation	1	.983**	.981**	.939**
	Sig. (2-tailed)		.000	.000	.000
	N	117	117	117	117
Cost Reduction	Pearson Correlation	.983**	1	.992**	.972**
	Sig. (2-tailed)	.000		.000	.000
	N	117	117	117	117
Service Quality	Pearson Correlation	.981**	.992**	1	.959**
	Sig. (2-tailed)	.000	.000		.000
	N	117	117	117	117
On Time Delivery	Pearson Correlation	.939**	.972**	.959**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	117	117	117	117

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Research survey, 2024

Table 5 shows the result of test linking supplier selection to cost reduction. The analysis show that a very strong positive and statistically significant relationship exist between the variables. This relationship is visible in the correlation coefficient and probability value. The study revealed that the link between the variables is statistically significant at ($r = 0.983$, $N = 117$, $p = 0.000 < 0.05$). Hence, the alternate hypothesis is accepted. This means that supplier selection and cost reduction of construction companies in Rivers State are substantially related.

Table 5 shows the result of test linking supplier selection to service quality. The analysis show that a very strong, positive and statistically significant relationship exist between the variables. This relationship is visible in the correlation coefficient and probability value. The study revealed that the link between the variables is statistically significant at ($r= 0.981$, $N= 117$, $p= 0.000 < 0.05$). Hence, the alternate hypothesis is accepted. This means that supplier selection and service quality of construction companies in Rivers State are substantially related.

Table 5 shows the result of test linking supplier selection to on time delivery. The analysis show that a very strong, positive and statistically significant relationship exist between the variables. This relationship is visible in the correlation coefficient and probability value. The study revealed that the link between the variables is statistically significant at ($r= 0.939$, $N= 117$, $p= 0.000 < 0.05$). Hence, the alternate hypothesis is accepted. This means that supplier selection and on time delivery of construction companies in Rivers State are substantially related

Discussion of Findings

This study examined the correlation between supplier selection and supply chain performance of construction companies in Rivers State. The statistical analyses conducted showed that supplier selection relates to supply chain performance in terms of cost reduction, service quality and on time delivery. The results also show that supplier selection and all the measures of supply chain performance has very strong positive and significant relationship. These findings support the study of Ismail et al. (2022) who revealed that supplier selection and supplier monitoring are positive and significant predictors of public procurement efficiency in terms of cost reduction.

These findings also align with that of Yashinta and Tina, (2020) that supplier selection positively and significantly enhance supplier performance in terms of quality. Similarly, our findings corroborate the findings of Cherono and Keitany (2021) that supplier selection practices had positive and significant influence on supply chain efficiency. This implies that to avoid the dire outcomes of supplier nonperformance, buyers in the construction companies should typically take proactive steps to verify a supplier's qualifications prior to awarding them a contract.

Conclusion and Recommendations

Based on the results of the empirical analyses and the discussion of findings, the study concludes that, supplier selection relates to supply chain performance of construction companies in Rivers State. The study recommends that managers of construction companies should focus on factors such as the experience, capacities, network reach and other related factors which demonstrate the competence and capital accruable from their relationship and partnerships with suppliers. This is important in determining credible and competent suppliers who are integrated and well embedded within the industry and with the required capacity and network to drive the objectives and goals of the construction companies.

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