

# An Appraisal of Supply Chain Management Practices Adoption Level Among Small and Medium Scale Manufacturing Firms in Southwestern Nigeria

Muritala Oyetola OLADOYE<sup>1</sup> & Ilemobayo AKINLO<sup>2</sup>

<sup>1</sup>Department of Management and Accounting, Obafemi Awolowo University,  
Ile-Ife, Osun State.

<sup>2</sup> Department of Business Administration, Adekunle Ajasin University,  
Akungba Akoko, Ondo State.

Corresponding Email: [muritadoh2008@yahoo.com](mailto:muritadoh2008@yahoo.com)

## Abstract

*This study appraised the extent of adoption of supply chain management practices (SCMPs) among Small and Medium Scale Manufacturing Enterprises (SMMEs) in Southwestern Nigeria. The study adopted survey research design. Data were collected from primary sources through the administration of questionnaire to respondents. The population comprised the 1,983 registered SMMEs as contained in the directories of SMEs associations across the six states of Southwestern Nigeria as at the year 2022. The study sample of 333 SMMEs in Southwestern Nigeria was determined using Taro Yamane (1967) sampling formula. A multi-stage sampling technique was used for the distribution of the sample size among respondents. In the first stage, a stratified sampling technique was used in which each state in the Southwestern Nigeria represented a stratum. At the second stage, Probability Proportional to Size was used to distribute the sample size among the states. A random sampling was later used at the third stage to select the sample from each state in the region. Data collected were analysed using percentages, mean and standard deviation. The findings showed that SMMEs in Southwestern Nigeria have adopted strategic supplier partnership, customer relationship management, level of information sharing and quality of information sharing to a great extent while only postponement was moderately adopted. The study concluded that SMMEs in Southwestern Nigeria have adopted (SCMPs) to a great extent but creating more awareness among the adopters is still important for enhancing their performance.*

**Keywords: Strategic Supplier Partnership, Customer Relationship Management, Information Sharing, Postponement**

## 1. Introduction

Small and Medium Enterprises (SMEs) play a vital role in economic development, reduction in poverty, generation of employment, increased output, technological innovation, and uplifting social status and standard in many countries. As one of the key parts of their development plans, the growth of SMEs is increasingly being promoted and supported by governments in all nations. SMEs are the back-bones of successful economies like the United States of America (USA) and China where more than 43 million small businesses engage about 60 to 70 percent of the whole workforce and produce above 50 percent of the nations' overall GDP (Abubakar, 2018).

In Nigeria, SMEs form a very important segment of the economy. About 90% of the entire Nigerian firms operating in the manufacturing sector creating 70% of the sector's output were SMEs (Danjuma and Peter, 2020). Regardless of the important role play by

them in the economy of Nigeria, their potentials have not been fully exploited due to several challenges facing them. In particular, SMEs contributions to the Nigerian Industrial output have been limited by these challenges (Ikon and Chuckwu, 2018).

As competition is now along supply chains (SC) and no longer a matter of individual firms competing against one another, organisations are beginning to discover that it is inadequate to limit efficiency to internal tasks alone, but in the whole of SC (Wijetunge, 2017; Maina *et al.*, 2020; Chileshe and Phiri, 2022). A SC models a network of various parties, which includes manufacturer, supplier, retailer, customer and so forth that are involved indirectly or directly in creating and getting goods or services to the final users (Adebiyi *et al.*, 2021). Supply Chain Management (SCM) is the management of the movement of resources along SC in a strategic manner (Omar *et al.* 2020).

Studies have discovered that close relationships between key participants in SC and providers of logistics service has a positive impact on the downstream logistics and distribution services, which further lead to improved performance in SC. (Kim *et al.*, 2020). Although, SCM has been suggested as an essential prerequisite for SMEs to perform better and stay competitively capable in the world-wide market, many manufacturing SMEs in the country are yet to recognize the noticeable changes in business processes in terms of improved quality and economy in costs as driven by coordinated SC. A thorough understanding of all the key aspects of SCM and its impact on the whole organizational efficiency is unconditionally necessary for executives of SMMEs

The Southwestern Nigeria has been reported as the region with the highest number of SMEs in Nigeria (Small and Medium Enterprises Development Agency of Nigeria and National Bureau Statistics, 2017). Meanwhile, studies on adoption level of supply chain management practices (SCMPs) by SMEs are few in Nigeria. Most studies conducted on the topic such as Asare *et al.* (2016), Setyaningsih and Kelle (2021), Doulatabadi and Wong (2021), Kadiane et al (2023) are from foreign countries. Some related studies such as Ajole (2020), Kareem (2022), Ighasi *et al.* (2023) conducted on SMEs focused on other topics in SCM. For instance, Amaje (2020) examined the role of logistics and SCM on SMEs enhancement in Nigeria, Kareem (2022) examined the implementation of SCMPs on SMEs performance in Nigeria, Ighasi *et al.* (2023) examined effects of SCMPs on performance of SMEs in Kaduna State. Furthermore, the study of Ojubanire and Popoola (2022) which attempted to evaluate SCMPs of SMMEs was conducted in some selected locations in Nigeria and not in the Southwestern Nigeria. This study aimed to address this gap by appraising the level to which SMMEs in the Southwestern Nigeria adopt SCMPs in their operations.

## **2. Literature Review**

### **2.1 Supply Chain Management Practices (SCMPs)**

SCMPs are a collection of operations carried out by an enterprise for promoting the SCM in an efficient and effective manner (Karimi and Rafiee, 2014). These practices according to Quynh and Huy (2018) are considered to be multi-dimensional concepts. By going through SCMPs literature, Wijetunge (2017) considered five aspects of SCMPs which include strategic partnerships with suppliers, level of information sharing, quality of information sharing, customer relationship and the internal lean practices. Said (2021) considered three parameters of SCMPs to include management of supplier relationship, Intermediaries and distributors relationship management, and management of customer relationship. The practices were emphasized further by Nawaz (2020) who evaluated five SCMPs which include customer relationship, quality of information sharing, level of information sharing, postponement and strategic supplier partnership. The combination of

SCMPs according to Ojubanire and Popoola (2022) included supply chain integration, information sharing, outsourcing and postponement. The common SCMPs as conceptualized by most of the past studies were considered by this study as strategic supplier partnerships, customer relationship management, information Sharing and postponement.

### **2.1.1 Strategic Supplier Partnership (SSP)**

SSP refers to the relationship of long tenure between an enterprise and its input suppliers with goal of achieving long lasting benefits, and under which the strategic and functional abilities of individual participants are affected (Karimi and Rafiee, 2014). Mwale (2014) asserted that opportunity to work and achieve the desired results with a manageable population of important suppliers who are ready to collaborate with firm for successive products can be attained through SSP. Ertugrul and Mehtap (2016) opined that effectiveness of suppliers empowers a company to dodge costs that might arise from stock-out and holding costs and that, by assuring the delivery of suitable goods at the appropriate time, dependable suppliers constitute a major part of SC. Through SSP, the capability of every member of the partnership is strengthened and the alliance of the businesses towards the realization of the potential gains is made possible (Ngetich *et al*, 2022).

### **2.1.2 Customer Relationship Management (CRM)**

CRM mainly refers to activities like sharing information about product with customers, managing demand by interacting with customers, satisfying their needs and wants, accepting customers' orders, creating a system of placing orders, sharing status of orders with customers during the phase of product scheduling and delivering (Lee *et al.*, 2015). According to Chileshe and Phiri (2022), CRM can be viewed as a set of functions used by an enterprise in managing its interactions with customers and establish relationship of long term with them purposely to raise the satisfaction of their needs. Oluseye *et al.* (2014) considered CRM as a method adopted by a business to enhance the acquisition, retention, loyalty and customers' profitability by a way of creating and sustaining relationship of long term with them. Shafique *et al.*, (2015) argue that CRM is an inner part of an enterprise strategy for marketing to boost turnovers and profitability. Due to their reliance on customers, organization should hence know customers' immediate and future wants, fulfil customer demands and try to go beyond the expectations of customer (Siddig and Abdelsalam, 2014).

### **2.1.3 Information sharing (IS)**

Information sharing (IS) is seen as firm's ability in effectively and efficiently sharing knowledge with SC partners (Siddig & Abdelsalam, 2014). IS level referring to the extent of passing extremely important and exclusive information to other parties in a SC (Baba *et al.*, 2021). In nature, the type of shared information varies from strategic level to tactical level and ranges from information on logistic tasks to market information and end-users-related information. Among the regular types of information include information on inventory, information on sales, sales forecast, order, product ability exploitation of new product and others (Lofti *et al.*, 2013). It is believed that IS among SC participants is the main driver for creating trust between members (Baymout, 2015). IS among SC participants influences the behavior and decision making of the participants and the performance in SC. Conversely, smooth information flow in SC can be distorted poor information quality (Omar, *et al.*, 2020).

### 2.1.5 Postponement

Postponement is a kind of strategy adopted whereby SC functions are delayed as possible to a later point or time along the chain such as when demand is realized from the customer (Ndedi & Feussi, 2017). Postponement as defined by Khalil *et al.* (2019) is seen as a method of deferring as long as possible to a time in the future, one or more tasks in the SC. It simply means to wait for the receipts of orders from customers before certain functions are undertaken in the SC with the goal of customizing the products rather than carrying out those operations prior to the receipt of orders (Prajapati and Kant, 2017). The increasing level of uncertainty in business environment relating to the real needs of customers led to the introduction of postponement as a supply chain marketing tactic. The main aim is to base the SCs activities on actual market requirements (Szmelter, 2016). According to (Jum'a *et al.*, 2021) postponement as a SC strategy enables organizational flexibility in development of different categories of products that fulfil changing customer wants.

### 2.3 Empirical Review

Asare *et al.* (2016) examined the status of SCMPs in the Ghanaian SMEs using selected agrochemical firms in Kumasi as the case study. The study was a descriptive. Primary data were collected using convenience sampling from respondents comprising of the management staff and the consumers (farmers). The findings indicate a weak usage of SCMPs among agrochemical SMEs.

Amaje (2020) examined the role of logistics and SCM in the enhancement of SMEs in Nigeria. The specific objectives were to explain logistics level and SCM in SMEs and to examine the SMEs challenges in Nigeria. A combination narrative and descriptive research design was applied based on secondary source of data. The study recommended that SMEs should be encouraged to use their logistics and SCM capabilities to make them functional in business environment.

Setyaningsih and Kelle (2021) carried out a comparison of SCM adoption by SMEs with a review of SMEs in Hungary and Indonesia. A cross-sectional survey was conducted on 274 and 110 SMEs in Hungary and Indonesia respectively. The respondents were the top management members of the selected SMEs. The study concluded that SMEs in Indonesia have higher level of implementing SCMPs than those of Hungary. However, the study reported similar tendencies in both countries indicating adoption of SCMPs for alliance with other partners.

Ojubanire and Popoola (2022) carried out a study to evaluate SCMPs of SMMEs in some locations selected in Nigeria. The study also assessed SMMEs' performance and investigated the level of assistance offered by the governments to Nigerian SMMEs. The study used a descriptive survey design. The results revealed that SMMEs had a fairly good usage of supplier integration and information sharing while outsourcing and postponement were low.

Kadiane *et al.* (2023) investigated SCMPs adopted by firms in developing economies and pointed out the best practices mostly implemented. A survey carried out in Cote d'Ivoire Agrifood companies investigated eight SCMPs. Results revealed three best SCMPs that are mostly implemented by the selected companies which include CRM, Supplier collaboration and IS.

### 3. Methodology

The study used a cross-sectional survey research design. Data were collected from primary sources through the administration of questionnaire. The population comprised of the 1,983 registered SMMEs as obtained from the directories of SMEs associations across

the six states of Southwestern Nigeria as at the year 2022. The study sample of 333 SMMEs in Southwestern region of Nigeria was determined using Taro Yamane (1967) sampling formula. A multi-stage sampling technique was used for the distribution of samples among respondents. In the first stage, a stratified sampling technique was used in which each state in the Southwestern Nigeria represented a stratum. At the second stage, Probability Proportional to Size was used to distribute the sample size among the states. A random sampling was later adopted at the third stage to select the sample from each state. Data collected were analysed using percentages, mean and standard deviation.

#### **4. Data Analysis and Discussion of Findings**

This section presents the analysis and interpretation of the data gathered through questionnaire administration.

##### **4.1 Data Analysis**

##### **4.1.1 The Extent of Adoption of SSP among Manufacturing SMMEs in Southwestern Nigeria.**

Table 1 showed the adoption extent of SSP among SMMEs in Southwestern Nigeria, 7% of the total respondents revealed that they did not consider quality as the first criterion in suppliers' selection, 2% considered it to a little extent, 9.5% considered it to a moderately, 57.5% considered it to a great extent while 30.3% considered it to a very great extent. As regard the extent to which the firms jointly solved problems with suppliers, 1% did not use it, 5.4% has a little usage, 33% practice it to a moderately, 40.1% indicated great extent while 20.4 affirmed a very great extent. On whether the firms assist their suppliers in improving product quality, 3.4% had not practice of it. 24.1% adopted it to a little extent, 35% had a moderate practice, 34.7% indicated a great extent of practice while 2.7% disclosed a very great extent of usage.

Concerning whether the firms have continuous improvement programs that include their key suppliers, 1.7% indicated no extent, 19.4% revealed a little extent. 28.2% disclosed moderate practice, 40.5% said to a great extent while 10.5% revealed a very great usage. Regarding the firms involving their key suppliers actively in new product development processes, 7% did not involve them at all, 3.7% disclosed a little extent of involvement, 37.8% involved them to a moderate extent, 44.9% involved them to a great extent while 12.9% involved them to a very great extent.

Relating to the key supplier's involvement in the planning and firm's goal setting tasks, 4.1% disclosed they were not involved, 18.4% affirmed they were involved a little, 42.2% indicated moderate involvement of suppliers, 29.9% said they were involved to great extent while 5.4% indicated very great extent. It was evident from the analysis that the sampled SMMEs had a great extent of adoption of SSP to a great extent. This high adoption was validated by the overall mean of 3.5255 as shown on Table 1.

**Table 1**  
**The extent of Adoption SSP among SMMEs in Southwestern Nigeria.**

Statement	Frequency Distribution					Mean	Std.Dev.
	No Extent	Little Extent	Moderate Extent	Great Extent	Very Great Extent		
We consider quality as the first criterion in selecting suppliers.	2 (7%)	6 (2.0%)	28 (9.5%)	169 (57.5%)	89 (30.3%)	4.1463	.72194
We regularly solve problems jointly with our suppliers.	3 (1.0%)	16 (5.4%)	97 (33.0%)	118 (40.1%)	60 (20.4%)	3.7347	.88079
We help our suppliers in improving their product quality	10 (3.4%)	71 (24.1%)	103 (35.0%)	102 (34.7%)	8 (2.7%)	3.0918	.90979
We have regular improvement programs that include our key suppliers.	5 (1.7%)	57 (19.4%)	83 (28.2%)	119 (40.5%)	30 (10.2%)	3.3810	.96586
We involve our main suppliers actively in new product development processes	2 (7%)	11 (3.7%)	111 (37.1%)	132 (44.9%)	38 (12.9%)	3.6565	.77570
Our major suppliers are always included in our planning and goal-setting activities	12 (4.1%)	54 (18.4%)	124 (42.2%)	88 (29.9%)	16 (5.4%)	3.1429	.92001
<b>Average mean</b>						<b>3.5255</b>	

Source: Authors' Computation (2023).

#### 4.1.2 The Extent of Adoption of CRM among SMMEs in Southwestern Nigeria.

Table 2 showed the level of CRM among SMMEs in southwestern Nigeria. On the firm's interaction extent with customers for setting reliability, responsiveness and other standards for the business, 3% of respondents indicated they did not interact at all, 3.7% affirmed they interacted a little, 15.6% interacted moderately, 51.4% interacted to great extent while 28.5% had very great interaction.

As regard the extent of measuring and evaluating customers satisfaction, 3.4% measured and evaluated customers satisfaction moderately, 49.3% revealed a great extent while 47.3% indicated a very great extent. About the extent of frequently determining customers future expectations, 1% did not frequently determine such, 7% frequently determined it a little, 9.5% frequently determined moderately, 68% indicated to a great extent while 21.4% indicated a very great extent. Concerning the extent to which the firms facilitate customers' ability in seeking help from them, 1% of the respondents indicated no extent, 7.5% revealed they did it to a little extent, 21.8% facilitated it moderately, 40.8% greatly facilitated it while 28.9% facilitated it very greatly. As regard the extent of evaluating importance customer relationship, 7% affirmed they did no evaluation, 1.7% had little evaluation, 12.9% said they evaluated moderately, 58.5% evaluated it to great extent while 26.2% had a very great evaluation. On the basis of the analysis on table 2, it can be affirmed that there was a great extent of CRM among the respondents. This affirmation was evident by average of means of 4.1102 as indicated on table 2.

**Table 2**  
**The Extent of Adoption of CRM among SMMEs in Southwestern Nigeria.**

Statement	Frequency Distribution					Mean	Std. Dev.
	No Extent	Little Extent	Moderate Extent	Great Extent	Very Great Extent		
We interact frequently with customers to set reliability, responsiveness, and other standards for us.	1 (3%)	11 (3.7%)	46 (15.6%)	151 (51.4%)	85 (28.9%)	4.0476	.79102
We frequently measure and evaluate customer satisfaction.	0 (0%)	0 (0%)	10 (3.4%)	145 (49.3%)	139 (47.3%)	4.4388	.56156
Our firm frequently determines customers' future expectations.	1 (3%)	2 (7%)	28 (9.5%)	200 (68%)	63 (21.4%)	4.0952	.59958
We facilitate customers' ability to seek assistance from us.	3 (1%)	22 (7.5%)	64 (21.8%)	120 (40.8%)	85 (28.9%)	3.8912	.94294
Our firm periodically evaluate the importance customers relationship	2 (7%)	11 (1.7%)	111 (12.9%)	132 (58.5%)	38 (26.2%)	4.0782	.71836
<b>Average mean</b>						4.1102	

Source: Author's Computation (2023)

#### 4.1.3 The Extent of IS among SMMEs in Southwestern Nigeria.

Table 3 showed the analysis on the extent of IS between the firms and their trading partners. Regarding sharing proprietary information with trading partners by the firms, 7% did not share such, 7.5% shared it a little, 23.5% share it moderately, 46.9% shared it greatly while 21.8% shared it very greatly. As regard the extent the firms are always fully informed by their trading partners about issues that affect their businesses, 3% affirmed that they were not always fully informed, 2.7% showed they were always fully informed a little, 6.8% revealed that they were always moderately fully informed, 59.5% said they were always greatly fully informed, 30.6% showed they were always fully informed to a very great extent. Concerning the level at which trading partners share knowledge of core business process with them, 7% showed that their trading partners never share such knowledge, 8.2% responded that their trading partners shared little knowledge, 47.3% disclosed moderate extent, 34.7% indicated their trading partners shared it greatly while 9.2% disclosed very greatly.

Concerning the extent, the business exchange information that helps establishment of business planning with their trading partners, 1.7% responded that they never shared such information, 9.9% responded that they shared such information to little extent, 26.2% said they shared it moderately. 53.1% shared such information greatly while 9.2% shared such information very greatly. As regard the level the organisations and their trading partners keep each other informed about events or changes that may affect one another, 1% of they did not keep each other informed at all, 6.1% disclosed a little, 14.3% showed moderately, 45.6% indicated great extent while 33% informed each other very greatly. The analysis revealed that IS at appropriate level by the firms and their trading partners was done to a great extent. This conclusion can be further validated by the average mean value of 3.8081 as revealed by table 3.

**Table 3**  
**The Extent of IS among SMMEs in Southwestern Nigeria.**

Statement	Frequency Distribution					Mean	Std. Dev.
	No Extent	Little Extent	Moderate Extent	Great Extent	Very Great Extent		
We Share proprietary information with our trading partners.	2 (7%)	22 (7.5%)	68 (23.1%)	138 (46.9%)	64 (21.8%)	3.8163	.88229
We are fully informed by our trading partners about the issues that affect our business.	1 (3%)	8 (2.7%)	20 (6.8%)	175 (59.5%)	90 (30.6%)	4.1735	.69654
Our trading partners share business knowledge of core business processes with us.	2 (7%)	24 (8.2%)	139 (47.3%)	102 (34.7%)	27 (9.2%)	3.4354	.79733
We exchange information that helps establishment of business planning with our trading partners.	5 (1.7%)	29 (9.9%)	77 (26.2%)	156 (53.1%)	27 (9.2%)	3.5815	.85370
We and our trading partners keep each other informed about events or changes that may affect the other partners	3 (1%)	18 (6.1%)	42 (14.3%)	134 (45.6%)	97 (33%)	4.0340	.90063
<b>Average mean</b>						3.8081	

Source: Author's Computation (2023).

#### 4.1.4 The Extent of Adoption of Postponement practice among SMMEs in Southwestern Nigeria.

Table 5 depicts the adoption extent of postponement practice among SMMES in Southwestern region of Nigeria. As regard delaying final product assembly activities until customers' orders have been actually received, 6.8% of them claimed their firm never engaged in delaying final product, 12.6% agreed to delaying final product to a little extent, 35.4% agreed to delaying it to a moderate extent, 39.5% agreed to greatly delaying the activities while 5.8% agreed to a very great extent of delaying it. Concerning the level the firms delayed final product assembly activities until the last stage in the supply chain, the result also showed that 4.1% of the respondents never delay final product, 13.9% delayed it a little, 57.8% agreed to delaying moderately, 20.4% affirmed greatly while 3.7% confirmed very greatly. As regard the extent to which the firms postpone raw materials ordering from suppliers until the receipt of orders from customers, 9.5% claimed they never postponed the order, 27.2% agreed they postponed the order little, 31.6% agreed they engaged in the practice moderately, 30.3% greatly agreed while 1.4% agreed very greatly. On delaying some value-addition to product until customers' orders have been actually received, 7% disclosed that they never engage in such delay, 20.7% agreed they engaged to a little extent in it, 60.2% agreed to practicing it to a moderate extent, 17% agreed to involve in it to a great extent while 1.4% affirmed it to a very great extent. This result indicates that SMMEs in the Southwestern Nigeria have a moderate adoption of postponement practice. This moderate practice is confirmed by an average mean value of 3.0374 on a 5.0 scale.

**Table 5**  
**The Extent of Adoption Postponement Practice Among SMMEs in Southwestern Nigeria.**

Statement	Frequency Distribution					Mean	Std. Dev.
	No Extent	Little Extent	Moderate Extent	Great Extent	Very Great Extent		
Our firm delay final product assembly activities until customer orders have actually been received	20 (6.8%)	37 (12.6%)	104 (35.4%)	116 (39.5%)	17 (5.8%)	3.2483	.98257
We delay final product assembly activities until the last possible position in the supply chain	12 (3%)	41 (2.7%)	170 (6.8%)	60 (59.5%)	11 (30.6%)	3.0578	.80954
We delay ordering of raw materials from suppliers until customer orders have actually been received	28 (7%)	80 (8.2%)	93 (47.3%)	89 (34.7%)	4 (9.2%)	2.8673	.99800
We delaying some form of value-addition to the product until customer orders have actually been received	2 (1.7%)	61 (9.9%)	177 (26.2%)	50 (53.1%)	4 (9.2%)	2.9762	1.67837
<b>Average mean</b>						3.0374	

Source: Author's Computation (2023).

#### 4.2 Discussion of Findings

The findings revealed that SMMEs in Southwestern Nigeria have adopted SSP, CRM, and IS to a great extent while only postponement was adopted to a moderate extent. This is in line with the study of Kadiane *et al.* (2023) who ranked SSP, CRM and IS among the practices that have been embraced and implemented by manufacturing firms to a great extent. The study further corroborated the studies Ojubanire and Popoola (2022) who reported moderate usage of postponement practices in SMMEs. The study however contradicts the report of Asare *et al.* (2016) who earlier agreed to a low adoption of SCMPs among firms.

#### 5. Conclusion and Recommendations

The study appraised the extent of adoption of SCMPs among SMMEs in Southwestern Nigeria. The findings revealed that SMMEs in Southwestern Nigeria have adopted SSP, CRM, and IS to a great extent while only postponement was adopted to a moderate extent. The study concluded that SMMEs in Southwestern Nigeria have high adoption of SCMPs but creating more awareness among the adopters is still important for enhancing their performance. The study hence recommends that managers of SMMEs should:

- i. promote partnership with suppliers as this will reduce the cost of sourcing for new suppliers.
- ii. improve on their relationships with customers in order to sustain loyalty of the existing customers and gain the potential ones.
- iii. consider information sharing with trading partners as a key strategy in partnering with them.
- iv. increase their levels of implementing postponement practice in order to become more flexible to customers' demands.

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