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Supply Chain Management in Service-based Firms: Empirical Study of Nigeria Telecommunication Sector

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Abstract – **The study examined service supply chain management practices adopted by the Nigerian Telecommunication industry. It also evaluated the relationship between organizational performance and service supply chain management in the Nigerian Telecommunication Industry. A sample size of 368 respondents was selected using a simple random sampling technique. Data were analysed using descriptive and inferential statistics - regression analysis. Results from the study showed that customer relationship, strategic supplier partnership, quality of information sharing, and extent of outsourcing were the supply chain management practices adopted by the telecommunication companies. Also, certain financial performance such as market share, adjusted operating profit, revenue, and related organic growth was the highest. Finally, results showed that strategic supplier partnership and customer relationship all had a significant and positive influence on organizational performance, while the quality of information sharing, the extent of outsourcing, and postponement all had no significant influence on the performance of the organization. The contribution of this study is that it expounds on the existent supply chain methodologies from a service-based enterprise perspective with empirical validation. While extant studies have focused majorly on supply chain issues in manufacturing enterprises, this study examined the concept in the service industry of an emerging market.**

Keywords: Supply chain, Service supply chain, Supply chain management, Telecommunication, Organizational performance, Service-based firms

1. Introduction

Supply Chain Management (SCM) embodies a scheme of organized activities, technology, people, information, and resources who take part in distributing merchandise or services from suppliers to clienteles. The concept is rapidly evolving and has attracted lots of attention from both industry and the academia. In every economy, developed or emerging, the appropriate management of supply chain is pivotal for the development, sustainability, and profitability of every industrial sector.

According to [1] supply chain management is a consolidative strategy for achieving organizational growth and development especially in the long-term. An established supply chain management determines the extent to which a firm and other business stakeholder manages inter and intra organizational processes in order to achieve high performance [2]. It has been postulated that an effective way to mitigate poor performances and its consequences such as decline in market share, loss of competitive advantage, poor profit, among others is through an effective supply chain management system [3].

Today's world has experienced an accelerated flattening with increasing global interconnectedness. While developed economies might be seen at the fore of this revolution, emerging markets are a critical component in the global supply chain. Much more than ever, emerging economies today are hot, evolving and beaming with opportunities. However, the management of supply chain in these economies constitute a major turn-off for investors and a bane to business and economic development. Doing business therefore in emerging markets, especially in Africa requires firms to not only adapt their strategies to accommodate the "unique" supply chain issues but also develop novel mechanisms for peculiar challenges in these markets. Today, emerging digital technologies are disrupting conventional organizational principles, process, and culture. Organizational survival depends largely on adaptive and innovative supply chain strategies. In today's market, the competitive standing of an organization is a product of the efficiency of its supply and distribution network. This holds true in not only manufacturing firms, but also in service-based enterprises [4]. Services, although abstract compared to more tangible products, has a far overreaching

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economic importance. Service-based firms according to [5] are pivotal for economic success at national levels.

The Nigerian economy ss a major emerging market in Africa, is faced with many difficult and systemic challenges, right for government policies and institutional decay to lack of basic infrastructure. The telecommunication industry in the country is not left out of these many difficult challenges that has led to the collapse and/or close downs of many local and international businesses operating in the country over the past few years. Some of these problems include different sanctions on these major telecommunication companies (MTN, GLO, Airtel and Etisalat) by the regulatory body, NCC [3]. Unlike the production of tangible products, service production includes the joint effort of more than a few performers; the service providers, suppliers of additional services or assets required for the design, service delivery and the final consumers of these services. All these co-operators co-deliver value in the value chain creating a complex supply chain network that must be well managed. This study therefore explores the practices, challenges and relationship that exists between service supply chain management and business performance in the Nigerian telecommunications industry.

2.   Literature review

The telecommunication industry is one of the major industries that form the information technology sector, and this industry is particularly sensitive to external environmental changes. According to [6] the services provided by the telecommunication industry is one major aspect in the development of the economy of the nation. However, for profitability and competitiveness, it is important for telecoms to be flexible so as to quickly adapt to external environment challenges. Different changes in both internal and external environments may pose different and direct effects on a telecommunication industries performance [7]. There are constant and often rapid fluctuations in users' attitude, tastes and preferences. Also, with increasing technological advancements, change becomes inevitable leaving the eventual survival of firms to their ability to manage the attendant complexities [8]. "*Factors such as unstable economic and political environments, attitudinal changes, growth in market competition, technological developments and governmental interventions create an increasingly volatile environment for telecommunication industry and consequently they can only perform effectively through flexibility and responsiveness to change*" [9]. [10] opined that the Nigerian Telecommunication industries face a lot of challenges, right from internal, external challenges, as

well as challenges from the government, infrastructural problems and competitions.

Another important aspect of the Telecommunication industry in Nigeria is the area of customer loyalty and satisfaction. Overtime GSM services providers in Nigeria have been criticized overtime for poor services including arbitrary dropping of calls, server-system congestion, indiscriminate billing of customers, bad signals, among others, and all these at the face of high tariffs being charged by these companies [11] [12]. Some of the services provided by these telecommunication companies have been referred to as epileptic and these have both social and economic implications [13]. These facts have left customers with no other options than to migrate from one service provider to another in the quest of searching for better services that will also be affordable. Thus, in order to remain relevant in the telecommunication industries, there is need for sustainable supply chain management system.

Sustainable supply chain system deals with the synchronization and coordination of products/services related activities within and among organizations [14]. "*This system involves certain components which consist of suppliers, manufacturers, distribution centres, wholesalers, and retailers all working with the purpose of meeting the demands of the end consumers*" [15]. Developing effective supply chain management requires the integration of customers' requirements with the supply network of services and products of the organization. Also, the system has an integrated function of linking business processes and final output within and across the company to realize a consolidated and high-performance business model [14].

Supply chain management strategies in telecommunication companies are significantly and rapidly changing as a result of high competition in the industry, rapid and constant changes in technology, and demand fluctuations [14] [16]. For emerging markets such as Nigeria, there are elemental challenges that inhibits the effective supply chain management development across various economic sectors including service-oriented industries like telecommunications. These challenges often resulted in poor performance in the organization, especially in terms of poor planning, and ultimately limit the effective delivery of products to consumers [17]. According to [18], choice of supplier, demands and supply, and appropriate technology choices are major risk factors affecting organizational performance in the telecommunication industry. However, choosing the right supply chain system and effective management of the same could solve these problems and meet the demands of the end users and ultimately lead to increase in the performances of the industry.

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2.1   Supply Chain in Service-based Industry

A complete supply chain loop is such that encompasses all activities and stakeholders required in the delivery of value to requesting customer. "*Recent research and practices show that the focus of supply chain discussion has been moving from modelling supply and movement of tangible materials in manufacture to more general models on partnership, relationship, networks, value creation and value constellation. However, the nature of supply chain that involves many players to serve customer suggests that a supply chain should have a strong service-oriented foundation to make the supply chain as competitive advantage*" [19]. Supply chain from every standpoint involves series of relationships among firms and business actors with the aim of satisfying the customers. Service-based enterprises are strategic for economic development especially in emerging economies. The contributions of service-based industries to Gross Domestic Products (GDP) in emerging economies has continued to increase [20]. Unlike in the manufacturing industries, service supply chain management (supply chain management in service-based enterprises) has not received so much attention despite the increasing contribution of the sector to GDP and Global Value Chain (GVC) [21].

Services are intangible, often difficult to assess. Measuring and standardizing the supply and logistics activities in the service industry is therefore challenging and requires high-level cooperation, collaboration, and integration among actors – suppliers and customers. Further, [22] posits that "*The changing structure service supply chains from a linear to network form makes the evaluation of the functioning of the entire supply chain more complicated, which requires tracking a growing amount of information to select the proper performance indicators*".

The differences between supply chain in manufacturing and service-based enterprises along four indicators – inputs, logistics, outputs, and supply chain optimization, adapted from [23] is presented below:

Table 1: Differences between supply chain in Manufacturing and Service-based Firms (Adapted from [23])

Indicators	Manufacturing sector	Service Sector
Materials and Inputs	Direct physical labor, raw materials, packaging, shipping, etc.	People, relationships, and information exchange
Logistics	Physical movement (internal and external) of tangible products	Transfer and/or exchange of intangible products (services) often by electronic means
Finished products/Outputs	Finished or semi-finished products. "Completely processed goods"	Service delivery. "Closed files"
Optimization	-Cost optimization through negotiations for good prices, lead time optimization, consideration for physical accessibility, etc.	"Focus on better relationships, service delivery, and elimination of virtual bottlenecks"

2.2   Conceptual framework

Supply chain management practices are characterized as a few administration exercises that purposed to enhance the supply chain performance in this study. Strategic supplier partnership is a very good cordial harmonisation between the firm and its suppliers; organizations in general have a long-haul association with suppliers that make esteem. A strategic supplier partnership incorporates purchasing merchandise and enterprises from suppliers and affecting the suppliers' framework and operational abilities, including esteem and in this manner enhancing the business performance.

Customer relationship is important for the management of customers' dissensions and building an enduring relationship with customers which in turns promotes loyalty. Effective communication between customers and suppliers should translate to improved operational performance [24]. The significance of setting up a proximate customer relationship as a noteworthy routine with regards to supply chain mix to empower firms to react quicker to customers, doing this leads to expansion of consumer loyalty and builds customer faithfulness accordingly expanding the customer delight index and customer net addition. The primary goal of supply chain management is efficient and effective sharing of quality information across the supply network [25]. An organisation can react all the

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more rapidly to the customer's evolving needs by sharing quality information with suppliers [26] [27], this builds employees' morale and quality cognizance.

Quality information sharing has to do with precision and validity exchange of information, this practice is essential and critical. The effect of information sharing does not just rely on the information shared but on how, how and when the information is shared. Outsourcing on the other hand is an agreement between two company whereby the first company hires the other company to be responsible for an existing or a planned activity that can be carried out internally sometimes it has to do with transferring both material and human resources from one firm to the other. It is a business practice of employing a company to perform services that were performed in-house this helps reduce labour cost. While postponement is pushing forward a task or an operation to a future date, and also creating distinctive services, this practice enables firm to adapt better to the customers changing needs. These supply chain practices therefore have a relationship with both financial and operational performance of a service firm.
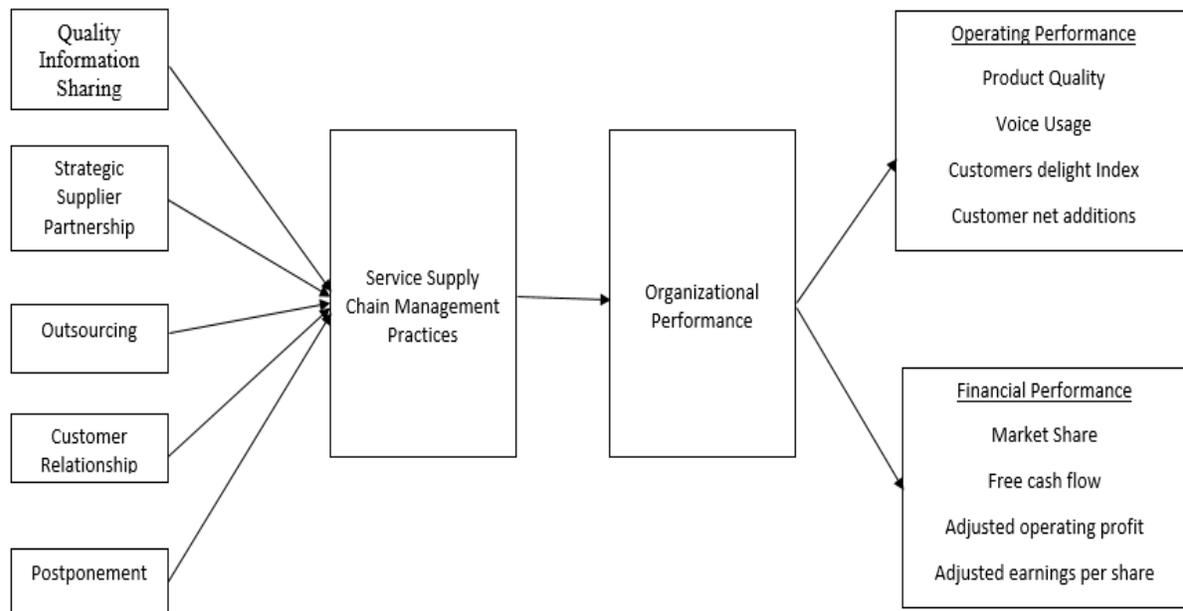

Figure 1: Conceptual framework for interaction between service supply chain management practices and organizational performance in telecommunications industry (*Source: Authors*)

2.3   Gap in Literature

Previous studies have explained supply chain management practices, performance, and challenges in emerging markets, while recent studies have been based on systematic reviews and literature analysis, empirical studies evaluating supply chain management issues in the service sectors of emerging markets remains relatively few. Further, extant studies have expounded on how emerging markets have fallen behind in the application of global best-practices in supply chain management to their processes, however, little is known in this regard particularly in the service sectors of emerging economies. More specifically, Nigeria as of now paucity of data in supply chain management research including but not limited to technology adoption in supply chain, digitalization of supply chain, supply chain management approaches in service-based firms, among others. This study therefore focused on establishing the relationship between supply chain management practices in the telecommunications industry as a service sector and the organisational performance of these firms. Also, some of the supply chain management processes in manufacturing that has been adopted in the service firms, their effects on performance, and the challenges faced in the adoption of these practices.

3.   Methodology

This work was carried out in Lagos State, Nigeria, being the major home to leading players in the telecommunications sector, and accounting for over 60% of organisational activities in the nation as it is the major economic centre with the highest GDP that generates a significant portion of Nigeria's GDP [28]. As at 2017, the number of registered telecommunication company in Nigeria was six (6) namely: MTN, Airtel, GLO, Etisalat, Visafone and Multilinks Nigeria Mobile Telecommunications Ltd (M-Tel). All these telecommunications firms are located in different parts of Nigeria and their head offices are in Lagos state. The leading telecommunication firms operating on the 900/1800 MHz

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spectrum, which are: MTN, Globacom, Airtel, and 9Mobile were purposively selected for this study.

Data were collected using a questionnaire that is administered through "drop and pick" method, the questionnaires were administered to employees at both management and operational level.

Table 1: Population of the Study (Field Survey)

Telecommunication Firms	Population of Employees in Lagos	Computation of Proportion	Proportional Sample for number of employees
MTN	1100	1100/4578x 368	88
GLOBACOM	999	999/4578x3 68	80
AIRTEL	1526	1526/4578x 368	123
9MOBILE	953	953/4578x3 68	77
Total	4578		368

(Source: Authors based on 2016 annual report of selected firms)

The sample size as derived Using Taro Yamen's formula:

Sample size (n) = $\frac{N}{1+N(e)2}$

n = Sample Size; N = Population; e = Degree of tolerable errors (5%)

N = 4578

n = $\frac{4578}{1+4578(0.05)2}$;   n= 368

3.1 Validation of Research Instrument

The content validity of the research instrument was done with the use of Kaiser Meryer Olkin (KMO) and Bartlett's test of sphericity was carried out in the study, which was passed by all the construct in the study the pass criteria.

Table 2: Validity test

Service Supply Chain Practices	KMO Test	Bartlett's Test (X^2)
Strategic supplier partnership	0.781	664.114 (p<0.05)
Customer Relationship	0.783	560.293 (p<0.05)
Quality Information Sharing	0.779	678.003 (p<0.05)
Extent of Outsourcing	0.727	266.684 (p<0.05)
Postponement	0.721	235.77 (p < 0.05)

Finally, the data obtained from the questionnaire administered were edited as each copy of the questionnaire was checked for consistency, errors, and completeness. The resulting data were tabulated and prepared for analysis.

4. Findings and Discussion
4.1 Findings of the study

Research Question 1: What are the supply chain management practices adopted by the Nigerian telecommunication industry?

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Table 3: Service Supply Chain Management Practices among Telecommunication Industry

Service Supply Chain Management Practices	SA F (%)	A F (%)	U F (%)	D F (%)	SD F (%)	Mean(s)
Strategic Supplier Partnership (SSP)						
SSP01	179(49.7)	160(44.4)	11(3.1)	10(2.8)	0(0.0)	4.41(0.69)
SSP02	233(64.7)	100(27.8)	5(1.4)	22(6.1)	0(0.0)	4.51(0.80)
SSP03	203(56.4)	117(32.5)	22(6.1)	18(5.0)	0(0.0)	4.40(0.82)
SSP04	190(52.8)	129(35.8)	21(5.8)	19(5.3)	1(0.3)	4.36(0.84)
SSP05	155(43.1)	167(46.4)	15(4.2)	16(4.4)	7(1.9)	4.24(0.88)
Total						4.38(0.62)
Customer Relationship (CR)						
CR01	207(57.5)	133(36.9)	4(1.1)	12(3.3)	4(1.1)	4.46(0.78)
CR02	198(55.0)	144(40.0)	11(3.1)	7(1.9)	0(0.0)	4.48(0.66)
CR03	184(51.1)	149(41.4)	10(2.8)	17(4.7)	0(0.0)	4.39(0.76)
CR04	184(51.1)	153(42.5)	9(2.5)	12(3.3)	2(0.6)	4.40(0.75)
Total						4.43(0.60)
Quality of Information Sharing (QIS)						
QIS01	72(20.0)	191(53.1)	63(17.5)	33(9.2)	1(0.3)	3.83(0.86)
QIS02	66(18.3)	199(55.3)	73(20.3)	21(5.8)	1(0.3)	3.86(0.79)
QIS03	30(8.3)	211(58.6)	71(19.7)	46(12.8)	2(0.6)	3.61(0.83)
QIS04	43(11.9)	190(52.8)	68(18.9)	55(15.3)	4(1.1)	3.59(0.93)
Total						3.72(0.71)
Extent of Outsourcing (EO)						
EO01	44(12.2)	232(64.4)	39(10.8)	41(11.4)	4(1.1)	3.75(0.85)
EO02	48(13.3)	198(55.0)	37(10.3)	75(20.8)	2(0.6)	3.60(0.98)
EO02	22(6.1)	204(56.7)	46(12.8)	86(23.9)	2(0.6)	3.44(0.94)
EO04	15(4.2)	220(61.1)	36(10.0)	87(24.2)	2(0.6)	3.44(0.94)
EO05	19(5.3)	279(77.5)	32(8.9)	28(7.8)	2(0.6)	3.79(0.68)
Postponement (PSP)						
PSP01	14(3.9)	172(47.8)	81(22.5)	86(23.9)	7(1.9)	3.28(0.94)
PSP02	10(2.8)	183(50.8)	121(33.6)	43(11.9)	3(0.8)	3.43(0.77)
Total						3.35(0.68)

Code: SA= Strongly Agree (5), A= Agree (4), U= Undecided (3), D=Disagree (2), SD= Strongly Disagree (1), s= standard deviation

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Table 3 presents the opinion of respondents on the five service supply chain management practices (SSCMP) by Nigerian telecommunication firms covered by the study. The SSCMP are: Strategic supplier partnership, customer relationship quality of information sharing, extent of outsourcing and postponement.

Strategic supplier partnership had five metrics upon which the respondents gave their responses. The respondents on the overall were unanimous in their agreement that the practice is very evident in the operations of the telecom firms with mean ($\bar{x}$ = 4.38). and very low standard deviation (s =± 0.62). Customer relationship and four of its metrics were considered. Overall mean response on customers' relationship revealed a level of agreement on the items evaluated ($\bar{x}$=4.43, s=0.60).

Also, quality information sharing four metrics and an overall mean response of 3.72 which revealed an agreement over average among employees. While the employees generally agreed that their firms are involved in outsourcing, the overall mean and standard deviation are 3.6 and 0.51 respectively affirms this. However, some employees do not know the extent of outsourcing in their firm. For postponement, two metrics were considered. For the delay of final product assembly activities until customers' orders have been received 51.1% agreed while 22.5% were uncertain, also, 53.6 agreed that their products are designed for modular assembly while 33.6% weren't sure of it. The overall mean result of respondents on postponement capability of their firm revealed a level of uncertainty with a mean value of 3.35. This showed that employees were not ready to disclose how well their firms have been handling final product assembly activities until customers' orders are received and the products designed for modular assembly.

Table 4: Descriptive Statistics and Ranked Order of Service Supply Chain Management Practices Adopted

Service Supply Chain Practices	Minimum	Maximum	Mean	S	Rank
Customer Relationship	2.00	5.00	4.43	0.60	1
Strategic Supplier Partnership	2.20	5.00	4.38	0.62	2
Quality of Information Sharing	2.00	5.00	3.72	0.71	3
Extent of Outsourcing	1.40	4.80	3.60	0.51	4
Postponement	1.50	5.00	3.35	0.68	5

s= standard deviation

The result shown in table 4 is the overall minimum, maximum and mean response of respondents. Service supply chain management practices adopted by Telecommunication firms studied were presented in rank order. The highest rank practice has a value of 3.35 ±0.68. and the lowest rank practice is 3.35 ±0.68. Customer relationship has the highest mean value, this was followed by strategic supplier partnership (4.38 ±0.62) quality of information sharing (3.72 ±0.71), Extent of Outsourcing (3.60 ±0.71) and postponement (3.35 ±0.68).

This shows that firms engaged more in customer relationship, followed by strategic supplier partnership, then quality information sharing, extent of outsourcing then the least is postponement.

Research Question 2: What are the challenges in the adoption of Supply Chain Management Practices of firms in the Nigerian Telecommunication Industry?

Table 5: Service Supply Chain Management Issues

Challenges of practicing SSCM	Airtel (%)	9Mobile (%)	MTN (%)	GLO (%)	Average
Distance of suppliers to requesting facilities	32.2	31.8	20.4	36.0	30.1
Poor information sharing among stakeholders	45.6	54.5	49.5	57.3	51.7
Poor inventory management across supply network	11.1	33.0	15.1	31.5	22.7
Performance feedback from end users	31.1	33.0	18.3	33.7	29.0
Lack of advantage in the supply network	32.2	44.3	37.6	57.3	42.9
Growing capabilities for JIT	56.7	63.6	50.5	57.3	57.0
Lack of cooperation among service supply chain members	73.3	72.7	69.9	80.9	74.0
Stakeholders' unwillingness to participate efficiently	57.8	61.4	53.8	83.1	64.0
Non availability of required skills and talents	26.7	18.2	16.1	10.1	17.8
Poor market forecast	14.4	14.8	9.7	33.7	18.2
Communication breakdown with strategic partners	14.4	21.6	20.4	27.0	20.9
Shortening response time across supply network	42.2	54.5	37.6	59.6	48.5

Table 5 presents the service supply chain management challenges as indicated by respondents. The data shows that Glo and 9mobile had more than the overall average in agreement that they lacked sophisticated systems for information sharing among their supply chain members. About 57.3% of the Glo respondents concluded that they lack leverage in the supply chain. More than half of the respondents of the telecommunications firm agreed that they have challenges in increasing the firm's Just-in-time. Majority (74%) of respondents across all the firms also agreed that they lacked cooperation among supply chain stakeholders. Also, there is also lack of interest among suppliers and customers to participate in the supply chain, this is validated by more than 57% of the respondents. While respondents in 9mobie and Glo admitted that they still experience challenges in reducing response time across the supply chain.

Issues indicated by above average respondents include lack of sophisticated information system for information sharing among supply chain members, increasing firm's Just-In-Time. (JIT) capabilities, lack of cooperation among supply chain members and lack of interest among suppliers or customers to participate in the supply chain.

Research Question 3: What is the organisational performance of the firms in the Nigerian Telecommunication Industry?

Table 6: Organizational performance of telecommunication Industry

Operational performance Metric	DS (%)	D (%)	S (%)	I (%)	IS (%)	Mean (s)	Rating
Product Quality	6(1.7)	15(4.2)	12(3.3)	184(51.1)	143(39.7)	4.23(0.83)	
Customer satisfaction relative to competitors	9(2.5)	6(1.7)	18(5.0)	167(46.4)	160(44.4)	4.29(0.84)	
Customers' complaint	94(26.1)	150(41.7)	48(13.3)	36(10.0)	32(8.9)	2.34(1.22)	
Employee morale and quality consciousness	8(2.2)	10(2.8)	17(4.7)	168(46.7)	157(43.6)	4.27(0.85)	
Timely Delivery of Products	12(3.3)	3(0.8)	8(2.2)	207(57.5)	130(36.1)	4.22(0.82)	
Voice usage	8(2.2)	1(0.3)	13(3.6)	189(52.5)	149(41.4)	4.31(0.76)	
Customer net additions	9(2.5)	1(0.3)	11(3.1)	196(54.4)	143(39.7)	4.29(0.76)	
Customer delight index	6(1.7)	1(0.3)	23(6.4)	170(47.2)	160(44.4)	4.33(0.75)	
Mobile customers and related organic growth	6(1.7)	0(0.0)	23(6.4)	139(38.6)	192(53.3)	4.42(0.76)	
Total						4.08(0.65)	Increasing
Financial performance							
Capitalized fixed assets addition	3(0.8)	26(7.2)	122(33.9)	209(8.1)	209(58.1)	4.48(0.70)	
Market share	1(0.3)	1(.3)	12(3.3)	139(38.6)	207(57.5)	4.53(0.61)	
Adjusted Earnings per share	20(5.6)	1(.3)	17(4.7)	118(32.8)	204(56.7)	4.35(1.00)	
Revenue and related organic growth	10(2.8)	1(0.3)	10(2.8)	120(33.3)	219(60.8)	4.49(0.81)	
Return on Capital employed	11(3.1)	1(0.3)	12(3.6)	113(31.4)	222(61.7)	4.48(0.84)	
Adjusted operating profit	10(2.8)	2(0.6)	11(3.1)	107(29.7)	230(63.9)	4.51(0.82)	
Free cash flow	12(3.3)	11(3.1)	14(3.9)	107(29.7)	216(60.0)	4.40(0.95)	
Total						4.45(0.73)	Increasing steadily

Code: DS= Decreasing steadily (1) D=Decreasing (2) S=Static (3) I= Increasing (4) IS=Increasing steadily (5)

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The organizational performance of the telecommunication industries was operationalized using operational performance metrics with nine (9) operational performance indicators, and financial performance metrics with seven (7) financial performance indicators as shown in table 7. The data shows that both the operational performance ($\bar{x} = 4.08 \pm 0.65$), and financial performance ($\bar{x} = 4.45 \pm 0.73$), of were increasing.

In summary, majority of respondents indicated that product quality, customers' satisfaction relative to competitors, employee morale and quality consciousness, timely delivery of products, voice usage, customer net additions,

customers delight index and related organic growth are increasing in their industry. Mean response of employees on organizational financial performance showed that capitalized fixed assets addition, market adjusted earnings per share, revenue, and related organic growth, rerun on capital employed and free cash flow are increasing while market share and adjusted operating profit are increasing steadily.

Research Hypothesis
There is no significant relationship between service supply chain management practices and organisational performance in the Nigerian telecommunication industry.

Table 7: The Relationship between Supply Chain Management Practices and Organisational Performance of Telecommunications firms in Nigeria.

| R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
				R Square Change	F Change	df1	df2	Sig. F Change
.354[a]	.125	.113	.37514	.125	10.150	5	354	.000

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	7.142	5	1.428	10.150	.000
Residual	49.819	354	.141		
Total	56.961	359			

Predictors: (Constant), P, QIS, EO, CR, SSP
Dependent Variable: Organizational Performance

Table 8: The Relationship between Supply Chain Management Practices and Organisational Performance of Telecommunications firms in Nigeria

| Model | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
	B	Std. Error	Beta		
(Constant)	2.847	0.223		12.788	0.000*
SSP	0.130	0.041	0.204	3.179	0.002*
CR	0.101	0.039	0.152	2.576	0.010*
QIS	0.008	0.031	0.015	0.268	0.789
EO	0.062	0.041	0.079	1.533	0.126
P	0.037	0.030	0.063	1.227	0.221

Dependent Variable: Organizational Performance
Predictors: (Constant), P, QIS, EO, CR, SSP
P= Postponement
QIS= Quality of Information Sharing
EO= Extent of Outsourcing
CR= Customer Relationship
SSP= Strategic Supplier Partnership
*= significant

A multiple linear regression was performed to investigate the relationship between organisational performance and service supply chain management practices which depicts the hypothesis of the study (which include customer relationship (CR), strategic supplier partnership (SSP), quality of information sharing (QIS), extent of outsourcing (ES) and postponement (P). Table 7 contains the model summary of the regression model used for the investigation and the ANOVA analysis of the predictor and dependent variables of the model.

Table 8 shows the coefficient of the predictors and relationship with the dependent variable (organisational performance). These variables significantly predicted the organizational performance, all variables have a positive effect on organisational performance [F $(5, 354) = 10.150$, $p<0.05$, $R^2 = 0.125$]. Only two variables (CR and SSP) added significantly to the prediction ($p<0.05$) while the other three variables (QIS, EO and P) added statistically insignificantly to the prediction ($p>0.05$).

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Table 9: Pearson Correlation Coefficient of Supply Chain Management Practices and Organisational Performance

	Organisational Performance	Supplier Strategic Partnership	Customer relationship	Quality of Information Shared	Extent of Outsourcing	Postponement
Organisational Performance	1.000					
Supplier Strategic Partnership	0.316**	1.000				
Customer relationship	0.268**	0.512**	1.000			
Quality of Information Shared	0.152**	0.429**	0.247**	1.000		
Extent of Outsourcing	0.122**	0.196**	-0.027	0.156**	1.000	
Postponement	0.135**	0.197**	0.172**	0.005	0.076	1.000

** Significant p<0.05 two-tailed

Further, the test of relationship between organisational performance and supply chain management practices using the Pearson correlation coefficient. The result showed that there exist positive, weak, and statistically significant relationship between organisational performance and supply chain management practices (strategic supplier partnership, customer relationship, quality of information sharing, extent of outsourcing and postponement). Therefore, the null hypothesis was rejected, and the alternate hypothesis accepted.

4.2   Discussion of findings

This study sought to investigate service supply chain management practices and organisational performance in the Nigerian Telecommunications Industry. In order to achieve this study, four objectives were raised. Results to research question one shows that among the service supply chain management practices adopted by Telecommunication firms, Customer Relationship ranked as first, this was followed by strategic supplier partnership, which was followed by quality of information sharing, and followed by Extent of Outsourcing, while postponement ranked as least. This is in direct agreement with the findings of [29], who in their study found the supply chain management factors found in this study. Whereas all the factors influence organizational performance as well as competitive advantages. Also, the study of [30], also agree with the presence of this supply chain management practices and their influence on organizational performance.

In research question two, results showed some of the challenges of practicing the supply chain management practices among the telecommunication industries. Some of the challenges that cut across the industries include lack of sophisticated information system for information sharing among service supply chain members. Another challenge is increasing the firm's Just-In-Time (JIT) capabilities, lack of cooperation among service supply chain members is another challenge, as well as lack of interest among suppliers or customers to participate in the service supply chain. Reducing response time across the service supply chain is another challenge being faced by all the telecommunication industries. This finding is consistent with the findings of [31] on the challenges confronted by telecommunication companies in Kenya. Some of the challenges highlighted include quality, increased costs, poor communication, and lack of adequate resources to implement SCRM practices. In addition, [32] highlighted diverse challenges to the implementation of supply chain management practices in his research work, some of which include communication breakdown, cooperation problems, insufficient training and competence levels, lack of trust and weak information sharing among others. However, understanding issues and challenges is the supply chain is a useful element in assessing supply chain perormance. "*SCP allows an organization to measure the source of problems in different procedures and create a better understanding of a supply chain as a whole*" [33].

Research question three showed the operational performance and financial performance of the organizations. For operational performance, mobile customers and related organic growth have the highest operational performance, followed by customer delight index, followed by voice usage. This is followed by customer satisfaction and customer net addition. Employee morale and quality consciousness ranked next, followed by product quality, and then timely delivery of products, and finally, customer's complaint ranked as least, which indicates reduction in complaints of customer. This result is consistent with that of [34] who highlighted the operational performance of some telecommunication industries in Kenya. Some of these operational performance with high ranking includes handling of customers, customer satisfaction, employees' opinions and morale, employee's welfare, product quality and others.

Also, in the aspect of financial performance, market share has the highest financial ratings followed by adjusted operating profit, revenue and related organic growth, capitalised fixed assets and return on capital employed, free cash flow, and adjusted earnings per share. This result is in line with that of [35] who in his research discovered that financial performance positively influences operations and survival of firms. More specifically, [36] found that Operating Margin, Current Ratio, Equity to Capital, Interest Coverage and Receivables Turnover were all strong factors of financial performance of telecommunication industries. While [37] added that net profit margin, dividend per share, return on net worth per equity among others were high financial factors.

Result from the research hypothesis showed that only Strategic Supplier Partnership and Customer Relationship had significant and positive relationship on the organizational performance, while Quality of Information Sharing, Extent of Outsourcing and Postponement all had no significant influence on the performance of the organization. Partly, this result is consistent with that of [38], who in their study found that strategic supplier partnership and customer relationship have significant relationship on the performances of firms. Whereas the same study conducted by [38] also negate these findings as it was discovered that quality of information and postponement also had significant relationship with performance. Whereas, in the findings of [24], [36] - [38], all the supply chain management practices influence performance. This discrepancy may be due to the facts that the studies considered supply chain management in different industries and business environments.

5.   Conclusions

Generally, the implications of the findings of this work based on the objectives as analysed conclude that; the telecommunications industry in Nigeria successfully adopted the service supply chain management practices such as customer relationship than strategic supplier partnership, quality of information sharing, outsourcing and postponement. The results from the study showed there is a positive but weak and statistically significant relationship between organisational performance and supply chain management practices (strategic supplier partnership, customer relationship, quality of information sharing, extent of outsourcing and postponement). On the other hand, the major challenges faced by the firms in the adoption of service supply chain management includes lack of sophisticated information system for information sharing among supply chain members, increasing firm's Just-In-Time (JIT) capabilities, lack of cooperation among supply chain members and lack of interest among suppliers or customers to participate in the supply chain. While extant studies have focused on exploring supply chain management issues in the manufacturing industry, this study elucidates the supply chain management practices,

issues and challenges, as well as the effect of the practices on firm performance in service-based industry. With the high paucity of data on service supply chain management in emerging economies, this study provides a significant contribution to body of knowledge with empirical data on service supply chain management from the Nigerian telecommunications industry.

5.1   Implications for management practice

From the challenges noted in this study, it is highly important that certain issues be addressed in telecommunication industry in Nigeria. Lack of sophisticated information system service supply chain management and suppliers' and customers' interest should be well integrated. This is to ensure the productivity and performance of the telecommunication industries in delivery optimal and best services to their consumers. As recommendations, managers of the telecommunications firms, especially in Nigeria should give more attention to service supply chain management and make available enough sophisticated information system for quality information sharing among supply chain members.

The creation and promotion of cooperative and competitive supply chain ecosystem among partners especially with digital connectivity to drive value for all stakeholders should be the thrust of business managers in the telecommunication industry. Promote programmes that can help create a holistic suppliers and customers integration into firms' supply chain.

5.2   Suggestion for further studies

Further studies may be conducted on the conducted without limit to telecommunication industry to assess the readiness of firms for digital supply chain management, ecosystem issues and how government and the industry could work together in providing adequate services for the final consumers.

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