

ASSESSMENT OF SUPPLY CHAIN MANAGEMENT IN NIGERIAN CONSTRUCTION INDUSTRY FOR EFFECTIVE PROJECT DELIVERY IN IMO STATE, NIGERIA

¹MONEKE, Uchenna U.
and ²ECHEME, Ibeawuchi I.

^{1,2}Dept. of Project Management Technology,
Federal University of Technology, Owerri, Imo State Nigeria.
08101075158 and 08032403835, ibeecheme@yahoo.com

Abstract

This paper on assessment of supply Chain Management (SCM) in Effective Project Delivery in the Nigerian Construction Industry in Imo state focused on identifying the challenges of construction supply chain management (CSCM) for effective project delivery in Imo state and also to identify the CSCM practiced in curtailing challenges in the construction industry in Imo state. A survey questionnaire was distributed to ninety five (95) construction stakeholders in Imo state both in the private and public sector of the construction industry. Sixty (60) were successfully retrieved and analyzed using statistical package for social sciences. Average mean scores (AMS) and relative important index (RII) was used for analyzing the raw data obtained from the field. The findings reveal that inadequate investment in information technology (I.T), ineffective communication and diverse objective were ranked highest whereas unfair risk allocation and poor understanding of SCM were ranked lowest among the challenges facing the construction industry. More so, the relative important index ranges from 0.82 for trust-based relationship, information flow and strong financial flow respectively (being the first on the list) to 0.69 for Human Resource supply chain which is the least on the list involving common construction supply chain management practices in curtailing challenges in the construction industry. The study recommends that construction stakeholders should embrace CSCM which is a key focus area in the current scenario of global competitive market. Also, professional bodies such as COREN, NSE and others should endeavour to enlighten construction stakeholders more on the numerous benefits which accrue to effective application CSCM via workshops, seminar and conferences

Introduction

Supply chain management (SCM) is a concept that has flourished in manufacturing industry. It originated from just-in-time(JIT) production and logistics (Vrijhoefand koskela, 1999; Project Management National Conference, India, 2015). It was observed that supply chain management is recognized as a leading process improvement, cost savings and revenue enhancing business (Aneesa, et al, 2015). It therefore behooves all organizations involved in the delivery of construction projects to

incorporate the initiative supporting strategy and tactical planning as well as systems thinking which promote the practice and application of supply chain management as a concept.

Construction projects require numerous agents and specialists hired by clients who involved project designers (e.g. architect and structural designers), main contractors, subcontractors, suppliers, or project management consultants/third-party consultants. They are all expected to manage the supply chain of construction process/projects by integrating all process and activities of different agents as well as effective co-operation/coordination for a successful project delivery (Yadav, 2015). It is in this light, that Saka and Mudi(2007) supported that supply chain management synchronize a firm's functions and those of its suppliers to match the flow of material services and logistics in the supply chain. Therefore, construction supply chain management is the management of suppliers, subcontractors, related parties, all agents and processes in order to deliver information to planning, ordering, producing, delivery and installing materials and services for construction project through an organized network of organizations (Saka and Mudi, 2007)

In Nigeria, although the concept of supply chain management is still a new area to construction stakeholders, there exist certain elemental challenges identified as inhibitors to the effective development of construction supply chain management practices in the construction industry. These inhibitors commonly reported in the construction industry are inadequate investment in IT; diverse objectives; ineffective communication; poor understanding; inappropriate tendering methods; ignorance; lack of training; ineffective problem solving mechanism; passive subcontractors and the like (Olaniyan, Bosede and Olusola, 2015).The aforementioned challenges have become enormous problems faced by Nigerian construction companies in the management of supply chain which is the bane of successful project delivery. Also these challenges or inhibitors of Supply Chain Management (SCM) have resulted to poor project planning, variation of project scope, faulty designed and wrong estimates which are a direct consequence of wrong practices by construction stakeholders (contractors, consultants and clients) who are yet to fully lend credence to the conduct and practice of this management technique known as supply chain management. It is in dealing with these inhibitors that this study seeks to identify the common challenges faced by construction stakeholders in the application of SCM in effective project delivery in Imo state.

The construction companies in Imo State are faced with enormous challenges in this area of supply chain management which to a large extent involve the integration of all construction processes and activities of different agents and specialists hired by clients for successful project delivery. The challenges mostly faced by construction stakeholders are inadequate investment; ignorance of buildability issues which are commonly witnessed in the construction industry. Based on this, poor project planning, variation of project scope, faulty designs, and wrong estimates were witnessed in the past as a result of these inhibitors or challenges in the construction industry. These are results of not aligning its conduct and practices fully to SCM technique in the construction industry in Imo State. In dealing with these challenges, this research paper seeks to identify the challenges faced by construction stakeholders in application of

SCM in effective project delivering in Imo State construction industry which is a microcosm of the Nigerian construction industry as well as identify common construction supply chain management practices in curbing/curtailing these challenges faced by construction stakeholders in Imo state.

Although the concept of supply chain management is new to Nigerian construction industry, there have been efforts made in the past to enlighten construction stakeholders. This research is not mainly to add to the subject but bring to the fore, the relevance and benefits of this pragmatic concept called supply chain management. The professional bodies like The Nigerian Institute of Quantity Surveyors (NIQS), Nigerian Society of Engineers (NSE), Nigerian Institute of Builders (NIOB), Council For Regulation of Registered Engineers in Nigeria (COREN) etc, will find it beneficial as a tool to bring awareness and educate construction professionals on the need to adopt this technique of SCM in order to reduce the overall construction cost by streamlining the flow of supplies to the execution process and by improving information flow between the agencies and specialists in construction process through seminars, discussions and workshops.

Literature Review

The term supply chain management (SCM) according to Mensah, Diyuoh and Oppong (2014) is relatively new. It was first reported in logistics literature in 1982 as an inventory management approach with an emphasis on the supply of raw materials (Oliver and Webber, 1982 in Mensah, *et al*, 2014). On the other hand, Olaniyan *et al* (2015) argued that the notion of supply chain management doctrine in the 60's actually based its view on the fact that single activity cannot assure the effectiveness of a system with chain of activities. It was further reported that a supply chain involved a network of firms, their key business processes and facilities and is considered to deliver products, services or information to a given category of end users or customers (Olaniyan *et al*, 2015). The conception of SCM arose over the idea of sub – optimization which occurs to optimize its own results rather than to integrate its goals and activities with other related organization or firm to optimize outcomes of the chain (Mensah *et al*, 2014). According to Khalfa *et al* (2015), in their research work on “procurement impacts on construction supply chains: UK experiences” argued that the construction industry has moved to the adoption of supply chain management philosophy without having benefitted from other philosophies earlier propounded within the industry such as just – in – time, total quality management and concurrent engineering.

2.1 The Concept of Supply Chain Management

Mensah *et al* (2014) defined it as a set of activities undertaken in an organization to promote effective management of its supply chain. Khalfan, McDermott and Kyng (2015) in their research work defined supply chain management as a network of different organizations, linked upstream and downstream in a chain, aiming to products for the end consumers through integrated process and activities. From the definition it can be deduced that components of SCM practices include supply and material management issues, operations, information sharing and customer service. According to

Mensah *et al* (2014), the later seeks to optimize level of integration of the whole supply chain which the industry has responded. For the purpose of this research paper, the two definitions were considered since both support the integration of supply chain specifically to construction industry. However, it is noteworthy to say that there is no generally acceptable definition but there is a strong nexus and consensus among the various definitions which point in a similar direction especially with regard the construction industry.

Supply Chain Management in the Construction Industry

In the construction industry, a number of construction industries have shown and are showing interest after realizing the importance of SCM in the construction industry. Vrijhoef and Koskela (1999) and Saka and Mudi (2007) submitted that supply chain management in construction can be very complex owing to hundreds of subcontractors, suppliers involved, especially in a large scale project. A typical construction supply chain management involves information flow such as order, schedules, forecast, etc; and materials such as supplies, production, deliveries etc (Vrijhoef and Koskela: 1999). But Saka and Mudi (2007) in their own submission asserted that construction supply chain management involved suppliers, sub – contractors, related parties and processes in order to deliver information to planning, ordering, producing, delivering and installing materials and services for construction projects through organized network of organizations. Furthermore, Saka and Mudi (2007) stressed that any problem with the flow in the supply chain will disrupt the project performance and delivery. According to Ojo, Mbohwa and Akinlabi (2014) Maintained three types of construction supply chain as follows:

- The primary supply chain which delivers the material that is needed in the final construction product.
- The support chain which provides equipment and materials that facilitate construction.
- The human resource supply chain which involves supply of labour.

Though the construction process is different from production processes in factories, supply chain management can be effective and relevant in construction (Ojo *et al*, 2014). The discipline of supply chain management contrasts sharply with traditional methods of planning, controlling and contracting for projects which seek at best to optimize individual activities. Therefore, supply chain, according to O'Brien (1998), currently in construction methods seeks to support the fragmentation nature that plagues construction, hence promises an engineering basis to design, plan and manage construction projects in an integral/collaborative manner. Finally Emuze and Smallwood (2013) submitted that the client or the contractor can champion the implementation of SCM in construction process.

Model of Supply Chain in Construction: A View from Construction Industry

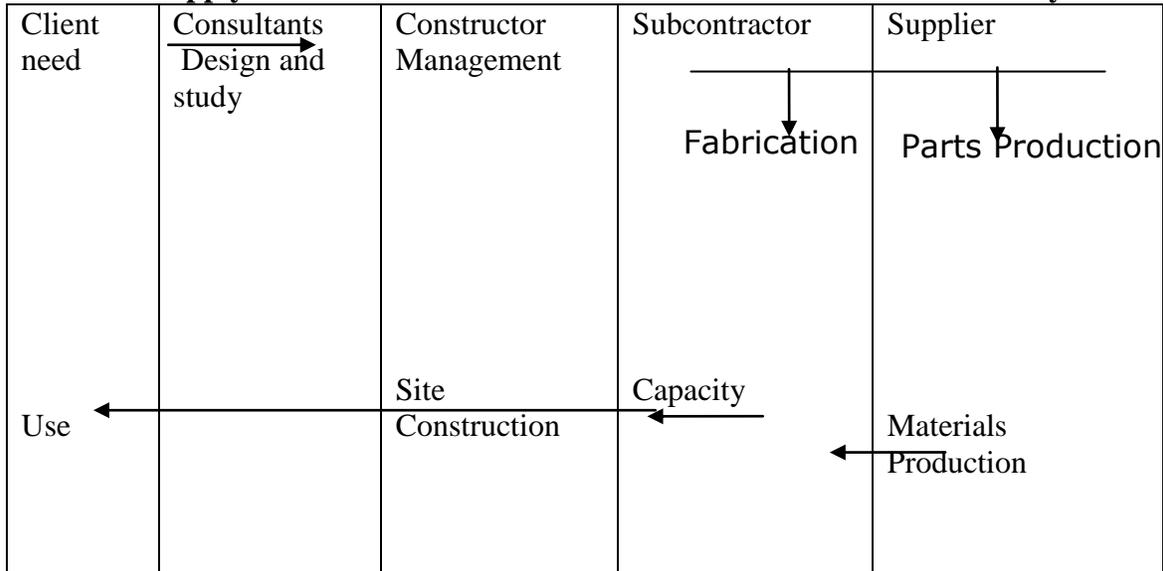


Figure 1 Model of Supply Chain in Construction

Source: Ojo et al (2014). Green Supply Chain Management in Construction Industries in South Africa and Nigeria” pp146 – 150

From figure 1 above, it is evident that construction firm has various supply chains in construction projects. In other words, for each project, there is a corresponding supply chain suitable for it based on the client’s requirements with respect to project characteristics which might be different.

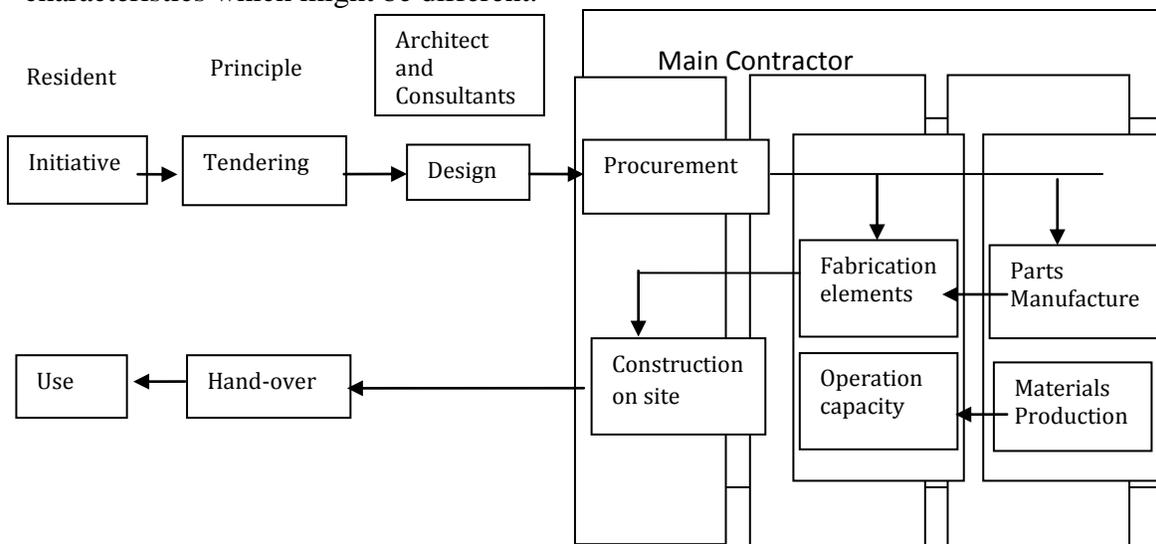


Figure2:“Generic configuration of a traditional supply chain in residential building”

Source:Vrijhoef and Koskela (1999) “Roles of Supply Chain Management in Construction”

Figure 2, applied to the part of the supply chain coordinated by the main contractor (Vrijhoef and Keskela: 1999)

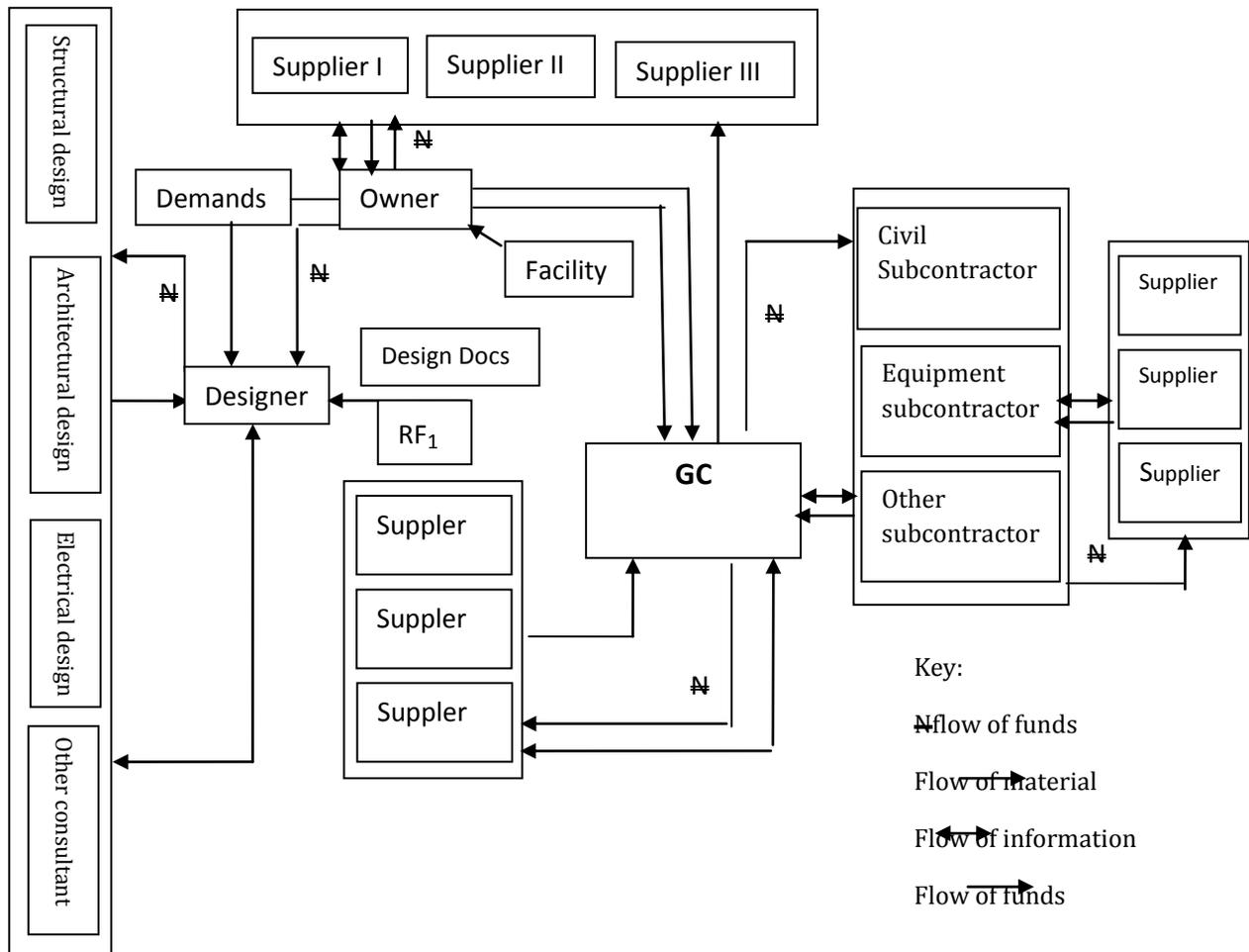


Figure 3: General structure of a construction supply chain

(Adopted from Olaniyan et al, 2015)

Nigerian Construction Industry

The construction industry in Nigeria accounts for almost 70% of the nation's fixed capital formation, 1.4% GDP (Federal Office of Statistics: 1998). Inuwa, Usman and Dantory (2014) report has it that the construction industry in Nigeria employs approximately 8 million people, which represents approximately 25% of Nigeria's workforce and the largest employer of construction labour in Africa. Also, Isa, Jimoh and Achuen (2013) submitted that the construction industry in Nigeria has witnessed an overwhelming upsurge in construction contracting dominated by expatriate companies with few indigenous companies. Oyedele (2013) submitted that

stemming from its complex and diverse nature, as a matter of fact, it is not organized neither is it controlled. Ojo et al (2014) stressed that Nigeria's operating environment, no doubt, has constraints, both from a policy and politics point of view. It was further reported that despite all these encumbrances, Nigeria still compares quite commendably relative to the big emerging markets – India, China and Brazil in some key metrics employed in the World Bank to compare general business environment, for the construction industry which Nigeria ranks 167th (out of 183 economies) compared to India (177th), China (181th), Russia (182th) according to World Bank (2011).

Nigerian Perspective of Supply Chain Management

The study of the practices and challenges of supply chain management by building contracting firms in the Lagos metropolitan area according to Saka and Mudi (2007) has shown that the management of material supply chains by building contracting companies in the Lagos metropolis has taken the most practical approach to source for material for their construction works. Although it was published that most contractors are still suffering from lack of creative mind set in managing material supply chain probably due to lack of research works in supply chain in the Nigerian environment (Saka and Mudi, 2007). Ojo *et al* (2014), also supported the views of Saka and Mudi (2007) by submitting that the level of awareness of supply chain management is low in Nigerian construction industry and that an awareness campaign be proposed to sensitize all stakeholders in the construction industry. More so, Olaniyan *et al* (2015) observed from their research survey that inadequate infrastructure in information technology is perceived to be the most serious constraints to the involvement of quantity surveyors in supply chain management issues whereas ignorance of buildability issues being the last constraint it can be deduced general from the three local literatures above (research work limited to Nigeria construction environment) that the major bent of supply chain management in the Nigerian construction industry is largely due to ignorance on the part of the construction participants as well as lack of literature limited to Nigerian construction environment. More so, Olaniyan *et al* (2015) expressed hope that based on relevant researches carried out thus far, there are opportunities for improvement when it comes to deploying supply chain management practices within the Nigerian construction industry.

Further research is needed in 36 states of the federation before it can be conclusively reached that SCM is relatively lacking in the Nigerian construction system. But with the evidence of scanty and few literature, one can obviously deduce that ignorance and lack of creative mind are still factors plaguing SCM application in the construction industry (Olaniyan *et al*, 2015); Saka and Mudi, 2007; and Ojo *et al*, 2014).

Challenges of SCM in Construction Projects

Yadav (2015) found out that the major hurdle for not implementing SCM in construction projects is the temporary nature of client – designer – contractor – subcontractor – suppliers' relations is because of the unique nature of each product. Project Management National Conference - India (2015) stressed the barriers of

construction supply chain which hinder not only integrated supply chain but also make the execution of the projects extremely difficult which manifest in the form of failure to share project information, fear of loss of control, lack of awareness, lack of understanding the project requirements, lack of understanding the supply chain, etc. Yadav (2015) has identified challenges related to SCM in construction projects. These challenges are expressed in his own words:

1. The temporary nature of the relationship between agents
2. Several layers of subcontracting within a single project setting
3. Lack of knowledge of downstream project agents about upstream project decisions.

Olaniyan *et al* (2015) in their research report outlined a list of challenges rocking CSCM practices in the construction industry such as inadequate investment in I.T., diverse objective, ineffective communication, passive contractors, anticipated rewards unclear; unfair risk allocation and the like. Ahmed *et al*, (2002) also mentioned some of the challenges of CSCM practices which can impede the growth of CSCM in construction, such as: lack of guidance for creating alliances with supply chain partners, failure to develop measures for monitoring alliances; inability to broaden the supply chain vision beyond the procurement or product distribution to encompass larger business processes; lack of trust inside and outside a company; organizational resistance to the concept; lack of integrated information systems and electronic commerce linking firms, lack of suitable organizational set up, etc.

Finally, Sharma *et al* (2012) submitted that SCM involves challenges such as developing trust and collaboration among supply chain partners, identify best practices that can facilitate supply chain process alignment and integration and successfully implementing the latest collaborative information systems and internet technologies that drive efficiency and performance through the supply chain.

Imo State Construction Industry: Supply Chain Management Approach

Nigeria is a sub-Saharan African country with rapidly growing construction projects including the mega city of Imo state. The construction process built within the public and private sector in Imo state follows the traditional approach which is characterized by adversarial relationships associated with conflicts due to its inherent nature of the so called “party’s self-interest”. Contractors are chosen based on the lowest bidder after which construction commences.

The problem with this prevailing method include: the unrealistic construction periods, nepotism and corruption interms of awarding of contracts, incomplete documents associated with unreasonable time limit given to prepare contract documents by consultants. These problems, often than not, result in poor project planning, variation of project scope, wrong estimates, inflation of contract sum and the like.

Imo state is divided culturally, traditionally and politically into three (3) zones, namely Owerri zone, Orlu zone, and Okigwe zone. Stakeholders in the cityface tremendous amount of challenges in managing construction project particularly in the areas of supply chain management. The principal problem is associated with the nature

of traditional approach to infrastructural projects which is a bent to successful project delivery.

Materials and Methods

This research paper presents assessment of supply chain management in effective project delivery in the Nigerian construction industry using Imo state as a case study.

Research Design

In the research, the following steps were adopted: The first step is to explain the concept, identified challenges/inhibitors, establish the objectives of the study and develop a research plan.

Secondly, literature on supply chain management in the construction industry were reviewed which led to a summary in order to support the survey methodology.

Thirdly, the research developed questionnaire via the literature reviewed.

Fourthly, the research pilot study was considered, hence, a draft of the copies of the questionnaire were forwarded to professionals within the construction industry for review, corrections and approval effected. The purpose of the pilot study is to prove and achieve the aim of the questionnaire which are the validity and the reliability of the instrument for data collection. Modifications effected where necessary.

Fifth step of the research is data collection. Sixth step is the statistical analysis. Final phase of the research included the conclusion and recommendations based on result and discussion of findings.

Research Population

This research was de-limited to Imo state located in South-eastern zone of Nigeria and targeted construction professionals domicile in Imo state.

S/N	Zones	Population
1.	Owerri Zone	35
2.	Orlu Zone	30
3.	Okigwe Zone	30
	Total	95

Administration of Questionnaire

Ninety five copies of questionnaire were distributed to construction professionals within Imo state and sixty were successfully retrieved representing 78% of the entire population. This provided a generalized view on the concept of supply chain management in the construction industry in the state.

Method of Data Analysis

Using the statistical package for socio-sciences, the data collected for rankings in the questionnaire were ordinal in nature. This study therefore used average mean scores (AMS) to measure the opinions of respondents based on the extent to which they agree with the statement that the challenges pose constraints to effective application of

CSCM practices. Secondly Relative Importance index is used to rate the respondents' opinion on common CSCM practices in curbing/curtailing the challenges faced by construction stakeholders in Imo state.

$$\text{Relative importance Index (RII)} = \frac{\sum W}{A \times N} \quad 0 \leq R \leq 1$$

Where W, is the weight of each factor (known as the challenges) by the respondents and ranges from 1 to 5

A = the highest Weight = 5

N = the total number of respondents

This formula used was referenced by Shaban (2008)

3.6 Results and Discussion

3.6.1 Section A: General Information

This section is designed to give general information about the respondents in terms of position of respondents, years employed in organization, years of experience, age of respondents, gender of respondents and qualification.

Table 1.1: Qualification of Respondents

Qualification	Frequency	Percentage (%)
Ph.D	3	5
Msc/M.Tech	8	13
B.Sc/HND	32	54
Others	17	28
TOTAL	60	100

Table 1.1 shows that 5% (3) of the respondents have Ph.D, 13% (8) of the respondents have master degree, 54% (32) of respondents have bachelors and 28% (17) of respondents have other lower qualifications. That gives an indication that the qualifications of the respondents qualify them to give good account of their opinions in the construction industry.

QUALIFICATION OF RESPONDENTS

■ Ph.D ■ Msc/M.Tech ■ B.Sc/HND ■ Others ■

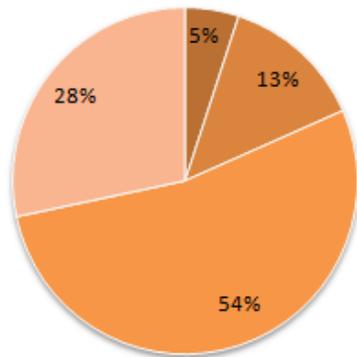


Figure 1.1

Table 1.2: Age of Respondents

AGE OF RESPONDENTS	FREQUENCY	PERCENTAGE (%)
25-30	14	23
31-35	17	28
36-40	15	26
Up to 50	14	23
TOTAL	60	100

Table 1.2 shows that 14% (23) of the respondents' ages range from 25 to 30 years old; 28% (17) of the respondents ages range from 31 to 35 years old. 26% (15) of the respondents ages range from 36 to 40 year old and 23% (14) of the respondents ages up to 50 years old.

AGE OF RESPONDENTS

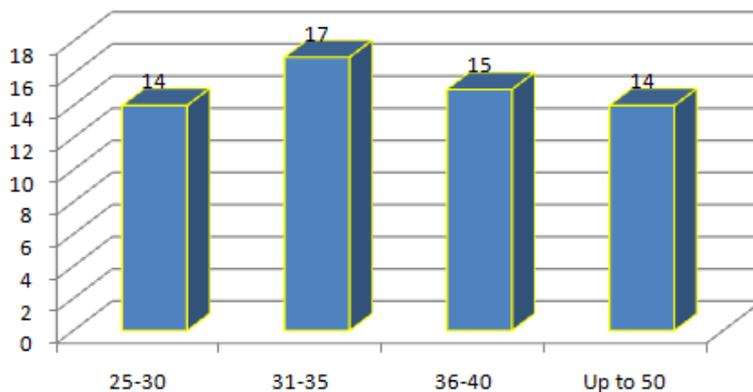


Figure 1.2

Table 1.3: Gender of Respondents

GENDER OF RESPONDENTS	FREQUENCY	PERCENTAGE (%)
MALE	39	65
FEMALE	21	35
TOTAL	60	100

GENDER OF RESPONDENTS

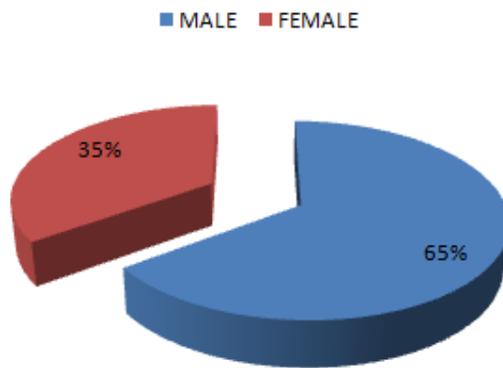
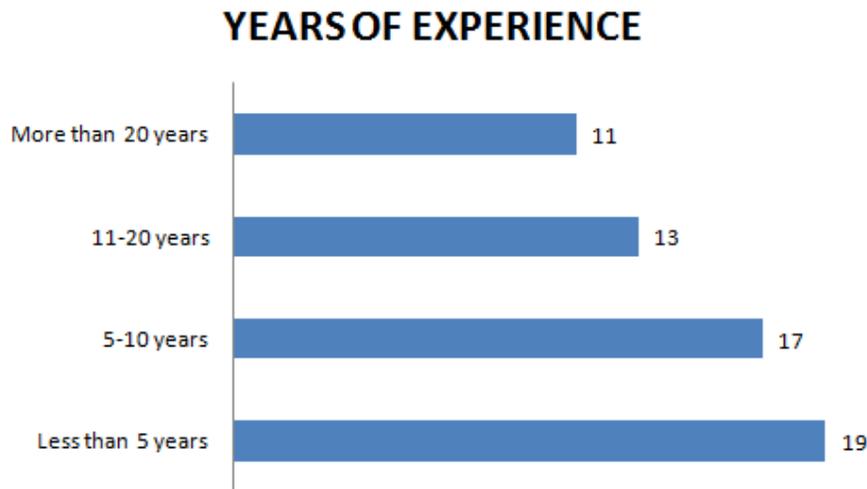


Table 1.4: Years of Experience

Years of Experience	Frequency	Percentage
Less than 5 years	19	32
5-10 years	17	28
11-20 years	13	22
More than 20 years	11	18
TOTAL	60	100

Table 1.4 shows that 32% (19) of the respondents have less than 5 years experience, 28% (17) of the respondents have years of experience between 5 to 10, 22% (13) of the respondents have 11 to 20 years of experience and 18% (11) of the respondents have more than 20 years of experience. This gives an indication that the respondents based on their various years of experience can give good option on the subject matter.



Objective One To identify the common challenges faced by construction stakeholders in application of SCM in effective project delivery in Imo state

A review of literature yields 20 different challenges/inhibitors to the effective application of construction supply chain management in effective project delivery. Respondents were asked to rate, on a 5-point Likert Scale, the extent to which they agree with the statement that “challenges” poses constraints to the application of CSCM practices. As shown in table 2 below: inadequate investment in I.T, ineffective communication and diverse objectives were ranked the highest challenges constraining the effective application of supply chain management whereas unfair risk allocation and poor understanding of SCM were ranked the lowest. This situation agrees with Olaniyan *et al* (2014).

Table 1: Constraints to CSCM

S/N	Challenges	SA	A	NA/D	D	SD	Average mean Score	Ranking
O		5	4	3	2	1		
1	Passive contractors	23	17	6	8	6	3.7	13
2	Lack of commitment	12	25	11	5	7	3.5	17
3	Lack of Awareness	23	16	13	4	4	3.8	8
4	Fear of loss of control	32	8	12	3	5	3.9	7
5	Inappropriate organizational structure	19	15	14	8	4	3.6	14
6	Inadequate investment in I.T	22	26	9	2	1	4.1	1
7	Poor Understanding of SCM	16	19	9	7	9	3.4	19
8	Inappropriate Teaching Methods	23	16	13	4	4	3.8	8
9	Lack of Training	32	8	12	3	5	4.0	4
10	Lack of partnership/Collaborative skills	19	15	14	8	4	3.6	14
11	Ineffective communication	22	26	9	2	1	4.1	1
12	Lack of creativity	19	15	14	8	4	3.6	14

13	Diverse objectives	22	26	9	2	1	4.1	1
14	Unfair risk allocation	16	19	9	7	9	3.4	19
15	Ineffective problem solving mechanism	23	16	13	4	4	3.8	8
16	Ignorance	12	25	11	5	7	3.5	17
17	Lack of understanding the supply chain	23	16	13	4	4	3.8	8
18	Myopic thinking and strategies	32	8	12	3	5	4.0	4
19	Lack of understanding of the project requirements	23	16	13	4	4	3.8	8
20	Several layers of subcontracting within a single project settings	32	8	12	3	5	4.0	4

Objective two To identify the common construction supply chain management practices in curbing/curtailing the challenges faced by construction stakeholders in Imo state

Table 3 shows the relative importance indexes for the seventeen (17) supply chain management practices in curbing the aforementioned challenges in table 2, faced by construction stakeholders in Imo state.

The rating scores ranges from 0.82 for trust based relationship, information flow and strong financial flows to 0.69 for human resources supply chain. These indicate that construction stakeholders within the state are involved in supply chain management activities to varying degrees. Therefore, there are still rooms for improvement of SCM practices as a means of improving performance and effective project delivery in the construction industry in Imo state.

Table 2: Identification of Common CSCM Practices in Curtailing Challenges

S/NO	CSCM Practices/APPLICATION	5	4	3	2	1	RII	RANK
1	Trust based relationship	22	26	9	2	1	0.82	1
2	Long Term partnering working experience	19	15	14	8	4	0.72	11
3	Information flow	22	26	9	2	1	0.82	1
4	Supplier relationship management	16	19	9	7	9	0.69	15
5	Transparency in Financial management	23	16	13	4	4	0.77	5
6	Early appointment of key members	12	25	11	5	7	0.70	14
7	Appropriate deployment of information	23	16	13	4	4	0.77	5
8	Long term collaboration/integration	20	15	15	6	4	0.74	9
9	Management support/Leadership	23	17	6	8	6	0.74	9
10	Relationship Development	12	25	11	5	7	0.70	14
11	Incentive-based contracting	23	16	13	4	4	0.77	5
12	Dedication to common goals	32	8	12	3	5	0.80	4
13	Supply chain Integration	19	15	14	8	4	0.72	11
14	Use of Information Technology (IT)	19	15	14	8	4	0.72	11

15	Strong financial flows	22	26	9	2	1	0.82	1
16	Human Resource supply chain	16	19	9	7	9	0.69	16
17	Equipment and material support chain.	23	16	13	4	4	0.77	5

Conclusion

This research paper used a questionnaire survey administered to professionals in construction industry in Imo state. This include: General Manager, Project manager, site Engineer, Architect, Surveyor, Civil engineers and others, all staffers of both public and private companies. This research work has investigated construction stakeholders in Imo state construction industry on their awareness of the challenges/inhibitors facing the effective management of supply chain in effective project delivery. It has also examined the level of perceptions of construction stakeholders in Imo state to CSCM practices in curbing/curtailing those factors which seem to militate against deployment of SCM. The finding reveals that inadequate investment in I.T, diverse objectives and ineffective communication were ranked 1st with mean scores of 4.1 each, and lack of training, myopic thinking and strategies and several layers of subcontracting with a single project settings were ranked next with mean scores of 4.0 each, Fear of loss of control came least with mean score of 3.9. With regards to CSCM practices for curbing/curtailing inhibitors or challenges, trust based relationship, information flow, and strong financial flows with RII of 0.82 each, were ranked first; and dedication to common goals with RII of 0.80 followed next whereas human supply chain with RII of 0.69 came last on the list. This study has clearly shown that there are still rooms for improvement when it comes to CSCM activities in Imo state construction industry which is a microcosm of the Nigerian construction industry. Based on this research report, the relative importance index of CSCM practices aforementioned, if taken seriously by construction professionals or stakeholders will go a long way in fostering effective deployment of SCM in the construction industry.

Recommendations

The research paper recommends the following based on its findings and result:

Construction stakeholders should embrace CSCM which is a key focus area in the current scenario of global competitive market.

Professional bodies such as COREN, NSE and the like should inform construction stakeholders on the benefits, application and use of CSCM via workshops, seminars and conferences.

This supply chain management technique, if adopted, will benefit construction stakeholders in effective project delivery and avoid unnecessary adversarial relationships that are often associated with construction process.

References

- Aneesa, M; Gupta, A.K and Desai, D.B. (2015). "Supply Chain Management: Effective Tool In Construction Industry". *International Journal Of Novel Research In Engineering And Science*. 2 (1): 35 – 40. Retrieved From: www.novleityjournals.com.
- Ahmed, S.M. Ashar, S. And Ahmad, I. (2002). "Supply Chain Management In Construction: Scope, Benefits And Barriers". *DelhiBusiness Review* 3(1).
- Emuze, F. and Smallwood, J. (2013). "How Can Supply Chain Management Profliterate In South Africa Construction?" In: Smith, S.D and Ahiaga-Dagbui, D.D (Eds) Procs 29th Annual Arcom Conference, Uk. Association Of Researchers In Construction Management. Pp 513 – 522.
- Inuwa, I.I; Usman, N.D AndDantory, J.S.D. (2015). "The Effects Of Unethical Professional Practice in Construction Projects Performance In Nigeria". *African Journal of Applied Research (AJAR)* 1 (1).
- Isa, R.B; Jimoh, R.A and Achuenu, E. (2013). "A view of the construction sector to sustainable development in Nigeria". *Net Journals of Business Management*.1 (1): 1-6.
- khalfan, M.M.A; McDermott, P.J And Kyng, E. (2015). "Procurement Impacts on Construction Supply Chains; UK Experiences".SCRI Research Centre in the Built and Human Environment (Buhu), Greater Manchester, UK.
- Mensah, C.; Diyuoh, D.And Oppong, D. (2014). "Assessment of Supply Chain Management Practices and its Effects on the Performance of Kasapreko Company Limited in Chain" *European Journal of Logistics Purchasing and Supply Chain Management*. 2(7):1 – 16.
- Olaniyan, A.,Bosede, A andOlusola, O. (2015). "Supply Chain Management Practices in Construction Procurement: Perceptions of Professional Quantity Surveyors In Ondo State, Nigeria". *PM World Journal Vol. iv (iv):*1 – 12.
- Ojo, E.; Mbohwa, C.And Akinlabi, E. (2014). "Green Supply Chain Management In Constriction Industries In South Africa and Nigeria". *International Journal Of Chemical, Environmental & Biological Sciences (IJCEBS)* 2(2):46 – 150.
- Oyedele, O. A. (2013). "Public – private partnership (PPP) and infrastructure provision in Nigeria.
- Project Management National Conference, India (2015). "A Study on the Role of Supply Chain Management in Infrastructure Construction Projects".

International Journal For Quality Research, Uk – 378. 014.3 (479.11) Short Scientific Paper (1.03) Pp 193 – 206.

Shaban, S.S.A. (2008). “*Factors Affecting the Performance of Construction Projects in the Gaza Strip*”. The Islamic University – Gaza, Deanery of High Studies.

Saka, N. and Mudi, A. (2007). “*Practices and Challenges of Supply Chain Management by Building Construction Firms in the Lagos Metropolitan Area*, Association of Researchers In Construction Management.

Vrijhoef, R and Koskela, L. (1999). “*Roles of Supply Chain Management in Construction*”. University of California, Berkeley, CA, USA.