

# Knowledge Sharing Practices In Construction Organisation In Nigeria.

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## Abstract

*Knowledge has not been properly shared in the Construction organisations during the construction process, thereby affected the performance of the construction organisational outputs in terms of quality, time and cost. The aim of the paper is to investigate the mode of practicing knowledge sharing in the construction organisations. The research methodology adopted for this research work is a mixed method research approach. A total of three hundred and fifty (350) questionnaires were distributed to Architect, Quantity Surveying, Engineers, Builders and other professionals across the selected construction organisations. The method of analysis employed is descriptive,*

*because descriptive is a transformation of raw data in a form that make them easy to understand. The results show that face to face interaction, site meeting, internal training, project briefing means of sharing knowledge, best practice and experiences of experts and engineers in the construction organisations. Therefore, the paper recommended that, the head of construction organisations should encourage engineers and experts to share knowledge and experiences to improve the quality of project delivery, working morale and innovation in the construction organisations.*

**KEYWORDS:** construction industry, knowledge capture, knowledge management and project knowledge

## 1.Introduction

Construction organisation is a project based sector where each project is unique and emerge with a number of stakeholders who collaborate with each other at various stages during the project Lifecycle. [15] emphasizes that each construction project can be considered as a multi-disciplinary organization that may or may not continue to work together once the project is completed. This temporary nature of construction projects and its heavy fragmentation makes construction works a considerably complex process. However, construction organisations are information intensive organizations where stakeholders exchange vital information across various stages of the project life cycle. The combination of these two makes the information management (IM) and knowledge management (KM)

very difficult task for the construction industry and resulting in poor efficiency of the overall process. Nigeria construction organisations have been under considerable pressure to improve the efficiency of the construction process to avoid the delays and unnecessary variation that causes time and cost overrun in the construction projects. In this context, knowledge management (KM) has been viewed as a strategy to promote innovation and improvement in the construction process. The view has been expressed by [17] that Projects' performance can be improved when employees communicate by sharing and utilizing, best practices, lesson learnt, experiences, insights, as well as create new knowledge. In project preparation, better results can be achieved by re-using the knowledge gained from past projects to avoid repetition of the mistakes of the

past. [32] discussed the issues further that sharing experiences and re-using knowledge brings other benefits, like minimizing the need to consult past projects, improving the quality of the solutions and reducing the time and cost of solving problems, since there is no need to certainly look for answers to the questions. Therefore the paper aims at investigating the mode of practicing knowledge sharing in the construction organisations. This will provide a platform that will enhance the current practice to face the challenges of meeting the client desire and customer satisfaction. To accomplish the aim of this paper, the following objectives were formulated:

1. To determine the current status of knowledge sharing practices in the construction organisations in Nigeria.
2. To identify the most frequent means used in knowledge sharing practices in the construction organisations in Nigeria.
3. To suggest a way-forwards for improvement.

## **2. Knowledge sharing practices in CE construction firms**

### **2.1 Concept of Knowledge Sharing**

According to [12] knowledge sharing is a key to the success of KM both in theories and practice. [13] asserted that sharing knowledge is a set of commitments that involves the exchange of information and knowledge among the other employees in an organisation. [8&21] stressed that knowledge sharing is a means of sharing or disseminating knowledge from one person, group, or organization to another. In addition knowledge sharing in construction firms is vital resources that contribute to knowledge application, innovation and

construction firms competitive advantages [33;10 &16] In addition [11] emphasizes that effective sharing of knowledge depends on the mutual understanding among the employees of the construction organisation In addition [30] applied this mutual understanding to the interactions between systems analysts and their clients in the process of designing information systems, where the mutual understanding necessitates knowledge sharing to have effective communication. From these explanations knowledge sharing is a relationship between two or more parties, in which one most possesses the knowledge and the others require knowledge, and as a result effective's communication becomes necessary in the process of sharing knowledge. These were expanded further by [28] that effective knowledge sharing in the construction organization improves efficiency, reduce training cost and reduce risk due to uncertainty. Similarly [26] highlighted the two types of challenges in knowledge sharing in construction organizations as: prevent the reinvention of the wheel by sharing knowledge accumulated in the past projects with other employees. Second enhance communication among employees in construction organizations to achieve the project's goals. The figure 1 summarizes the knowledge sharing process in the construction organisation.

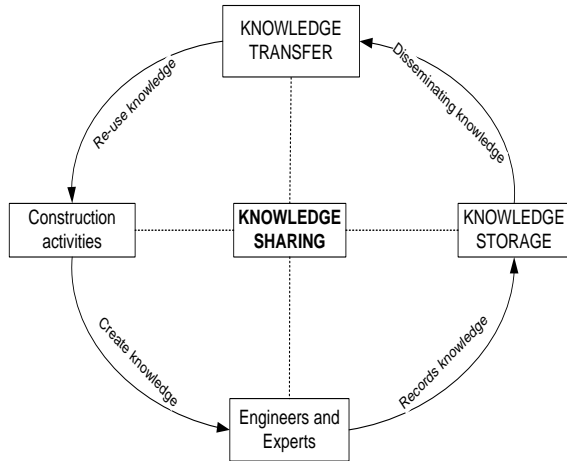


Figure 1: Knowledge sharing process

## 2.2 Knowledge management

[6] Described KM as a process of collecting, distributing and efficient uses of the knowledge resource. [24] stressed that KM is a strategy developed in an organization to ensure knowledge reaches the right people at the right time for sharing and re-uses to improve the organization's performance. Similarly [18] discussed the issue further noting that KM is not about getting the right information to the right people at the right time, rather it is about enabling people to interpret what

## 2.3 KM in the construction firms

Construction projects are characterized by their complexity, diversity and the non-standard nature of the production [5] Construction employees must adapt previous knowledge, experiences and lesson learned quickly to face new conditions, content of works and challenges in the competitive environment [14 & 1] However, most related problems solutions, experiences and know-how are in the minds of individual engineers and experts during the construction phase of a project. An effective means of improving construction management is to

they observed and empowering them to use their judgment. He further maintains that the ability of an organization to leverage soft knowledge and learn faster, its competitors may be the only source of sustainable advantage in the future. Conversely [3] with contrary opinion that KM is a set of procedures, infrastructures, and technical and managerial tools, designed to create, share and leverage information and knowledge within and around organizations. Consequently the above ideas of researchers vary in their descriptions of KM, there seems to be a consensus to treat KM as a set of processes allowing the use of knowledge as a key factor to add and generated value [2 & 22]. Therefore the concept of the KM is summarized in the figure 2.0 below.

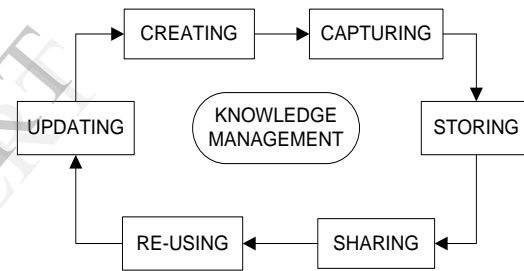


Figure 2: Concept of knowledge management

share knowledge among engineers to prevent mistakes that have already been encountered in the past projects. Whatever successful and unsuccessful projects that have been executed by the general contractors, records should be kept to identify best and worst company practices [32]

The role of effective management of knowledge is evident in improving innovation, reducing project time, improving quality and customer satisfaction [15 & 19]. However, in projects, KM can improve communications within teams, and provide more informed knowledge. [27] asserted that

the failure to capture and transfer project knowledge leads to the increase risk of reinventing the wheel, wasted activity, and impaired project performance. [25] argue that KM has always been a challenge to the construction industry, which is predominantly a project-based industry. Information overload, lack of time to share knowledge, not using technology to share knowledge effectively and difficulty in capturing tacit knowledge are few challenges in implementing KM [4]. Similarly [15] outlines areas that required KM in the construction firms: inter-organizational level, which is within projects, across temporary, multi-discipline project organization; and at intra-organizational level, i.e. within individual firms. He further points out that tacit knowledge is gaining attention and the management of it is very important, as engineers, quantity surveyors, architects and other professionals are not ready to use and follow best practice from the past projects, due to the unique and complex nature of construction projects. Tacit knowledge evolves from best practices and experience of individuals, and the company's intangible assets come from shared practices of individuals. When tacit knowledge is made explicit, it becomes the basis of new knowledge such as concepts, images, and written documents. The challenge of KM is to make it explicit through the balanced use of technology, and soft human-related factors like leadership, vision, strategy, reward systems and culture [23].

## 2.4 Project knowledge

Managing project knowledge particularly in the construction industry where projects are implemented by temporary 'virtual' organizations is open to considerable improvement, both in construction organizations, and between firms in the

supply chain [27 & 9]. The emphasis on KM reflects the growing realization that it is a core business concern, particularly in the context of the emerging knowledge economy, where the know-how of a company is becoming more important than the traditional sources of economic power examples are capital, land, etc.[7 &29]. KM in the construction industry is increasingly being acknowledged since it brings about the much needed innovation and improved business performance that is required by the industry [9]. Failure to capture and share knowledge generated within the construction projects, which is usually buried in experts and engineers heads and esoteric filing systems, or lost because people move on, leads to wasted activity and impaired project performance.

## 3. Research methodology

### 3.1 Methodology

The research methodology adopted in this paper is mixed method research approach, because of the nature of data required, fragmentation and diversification of the construction organisations in Nigeria. The combination of the qualitative and quantitative research approach is useful to cross-validate the data with each other around a common reference where applicable. However, [31] described mixed method approach as a method in which investigator collects and analyses data integrates the findings and draws inferences using both qualitative and quantitative approaches and method in a single study or a program of inquiry.

### 3.2 Population and sample techniques

In order to have a reliable data for this paper, questionnaire survey method was used for data

collection, because construction organisations are fragmented and diversified in nature with different type of professionals involved in the construction projects and sometimes at various locations, and also they are large and complex with the high proportion company being small. Therefore, the purposive sampling technique was adopted for the selection of the participants from each construction company, and a stratified sampling technique was employed for the selection of the construction companies. Thirty five (35) construction firms that fully participated in construction projects were selected for the questionnaire survey. A total of three hundred and fifty (350) questionnaires were distributed to Engineers, Architecture, Quantity Surveying, Builders and others experts across the selected construction organisations. However, 72.29% of the questionnaires distributed were filled correctly and returned; 12% were filled wrongly and returned, whereas 15.71% were not returned. Therefore, two hundred and fifty three (253) questionnaires represent 72.2% of correctly filled and returned questionnaires that was used for the descriptive analysis.

### 3.2 Questionnaire

The questionnaire was used as an instrument for the data collection, because of the nature of the data required; diversification and fragmentation of the construction organisation with different professionals in different areas of knowledge. Therefore, the questionnaire was used to record the responses of each participant contained mainly closed ended questions using a five- point Likert scale as: very high, high, moderate, little and none. However, the following means of sharing knowledge were used to design the questionnaire. This comprises of face to face interaction, site meeting and seminar, mentoring

and tutoring, project briefing and interviewing sessions, internal training courses, phone calls and teleconferencing, post monitoring of past projects, informal chatting and story telling etc. Furthermore the scores of participants were calculated based on the relevant items in the questionnaire.

### 3.3 Data analysis

The starting point in data analysis was to convert the raw data recorded in the questionnaires into numbers and arrange them into SPSS version 18.0 database for the analysis. The descriptive analysis was used, because, the descriptive analysis is the transformation of raw data into a form that will make them easy to understand and interpret. Considering the data collected from the selected CE construction firms along with the objectives of this paper, descriptive analysis was considered as the best option for the data analysis. Therefore the analysis usually includes a statistical summary briefly the characteristics of the observations and variables. This analysis has been used to describe the responses of the participants in term of mean and standard deviation. Descriptive analysis comprises of the mean statistic that was used to simplify the arithmetic average of the values in the set obtained by summing the values and dividing by the number of values. In addition the standard deviation was used for summary measure of the differences of each observation from the mean.

### 4.0 Discussion and findings

The results obtained from the descriptive statistic on the mode of practicing knowledge sharing in the construction companies in Nigeria were presented in the tabular form for easy understanding .

Table 1: The mode of practicing knowledge sharing in the construction organisation

Items measured	Mean N=253	Std. Deviation	Ranks
Face to face interactions	4.44	0.686	1
Site meeting	4.03	0.909	2
Mentoring and tutoring	4.03	0.942	3
Project briefing and interviewing sessions	3.89	1.016	4
Internal training	3.82	1.119	5

Table 1 show that face to face interaction have the highest mean value of 4.44 and the lowest value of 0.686 respectively. This implies that face to face interaction is most frequently used in knowledge sharing in the construction organisations in Nigeria. Site meeting; mentoring and tutoring have the same mean value of 4.03 with difference standard deviation values of 0.909 and 0.942 respectively, thereby ranked the second important means of sharing knowledge in the construction organisation. This Implies that knowledge are shared during the discussion in the site meeting, especially when the problems of the construction project is reviewed. Project briefing and interview session has the mean value of 3.89 and the standard deviation value of 1.016 respectively. This show that during the project briefing, knowledge and experiences are shared among the employees. In addition, internal training course have the mean value of 3.82 and the standard deviation value of 1.119 respectively. This indicates that the internal training organised the construction companies is a good strategy for sharing knowledge and experiences among the employees. The talks and seminars/workshops organized by the professional bodies was ranked sixth as a means of exchanging

courses			
Talks and seminars/workshop	3.44	1.189	6
Database system	3.42	1.329	7
Phone calls and teleconferencing	3.41	0.966	8
Monitoring of past projects	3.23	1.069	9
Informal chatting and story telling	3.04	1.149	10
Through e-mail	2.61	1.185	11
Through the internet	2.42	1.119	12

knowledge and experiences with the mean value of 3.44 and standard deviation of 1.189 respectively. This signifies that seminars/ workshops is good policies that facilitate the exchange of the knowledge among the employees in the construction companies. The database was ranked seventh as a means of sharing knowledge in CE construction with the mean value of 3.42 and standard deviation value of 1.329 respectively. Furthermore, phone call and teleconference were ranked eighth position as a means of sharing knowledge, best practice and experiences among employees in order to improve the construction project outputs. Monitoring of past project is another means of sharing knowledge and experiences among employees of construction organisation and thereby ranked ninth position with the mean value of 3.23 and standard deviation value of 1.069 respectively. This shows the significance of monitoring of the past project records. However, informal chatting and storytelling have the mean value of the 3.04 and the standard deviation value of 1.149 respectively. This implies that informal chatting and storytelling is a good strategy for sharing experience and knowledge within the construction organisation. The email and internet are



the least means of sharing knowledge in the construction organisation in Nigeria. Therefore, the current means of sharing knowledge in the construction organisations is arranged in the figure 3.0 based on the the frequency of the usage.

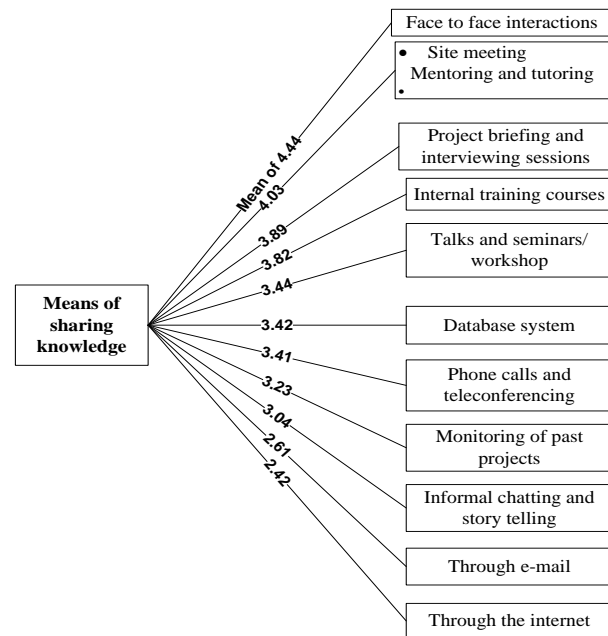


Figure 3: The level of means of sharing knowledge

#### 4.1 Summary of findings

The results showed face to face interaction as the best social means of sharing knowledge particularly the tacit knowledge of the experts and engineers in the construction companies in Nigeria. This was in line with the result obtained from the research conducted by [20] at California on the role of tacit knowledge in group innovation and discovered that the need for face to face interaction is often perceived as a prerequisite for the diffusion of tacit knowledge. The reason given by the Leonard and Sensiper is that the sharing of knowledge and experiences between colleagues can be conducted more easily, directly and effectively through these practices of face to face interaction. However tacit knowledge is characterized by unstructured and hidden knowledge which is acquired over a period of time through experiences, reflection and perception. Similarly, site meeting, mentoring & tutoring; internal

training and project brief are the other major means used by employees of construction companies to share best practice, knowledge and experience. These are commonly used during the construction process in the following areas: Brief stage (tacit knowledge); design stage (Both tacit and explicit knowledge); procurement stage; evaluation of tender documents; understanding construction technologies and methods; decision making bids; take off and preparation of bill of quantities Variation orders; progress report writing stage; financial statement issues; claims such as fluctuations, liquidated and ascertained damages, loss and expenses; programming of works; supply and sub contractor's knowledge; disputes; site management; technical skill acquisition stage etc. The results was support by [32] that knowledge can be reused, and shared among the involved engineers and experts to improve the construction process and reduce the time and cost of solving problems

## 5. Conclusion

The finding shows that face to face interaction, site meeting, internal training, project briefs and mentoring and coaching as the main means of sharing knowledge, best practice and experiences of experts and engineers in the construction companies in Nigeria. This implies that the social interaction between the senior management, engineers, experts and other professionals working in the construction companies are very important for the effective knowledge sharing practices. Because the employees of the construction companies have different knowledge in the various fields of the study with different code of practice and ethics of professions, and have to work together to produce the construction organisational products with good quality within the predetermine sum at the stipulated period. Furthermore, internal training, project briefing coaching and mentoring of the employees; site meeting and storytelling and informal chatting are the forums for the employees to exchange the knowledge and experiences among each other for re-use in the subsequent projects to avoid the same mistakes/errors that already solved to resurface again. However if the knowledge and experiences of the construction professionals are not shared among the employees for re-use, then the knowledge of engineers and experts represents a major loss for contractors in the construction company. Therefore, the paper recommended that, the head of construction organisations should encourage engineers, experts and other employees share knowledge, best practices and experiences among other employees, in order to improve the quality of project delivery, working morale and innovation in the construction

organizations. The head of construction firms should also organize events especially capacity training workshops, appraisal of the lesson learnt at the end of each project for promoting, and motivating employees to share knowledge and experiences. Similarly incentives and reward systems should be introduced in the construction organisation to facilitate knowledge sharing practices. The social interaction among the employees should be encouraged as it facilitates the knowledge sharing in the construction organisations. The Government should support the construction organisation by creating conducive atmosphere for the contractor to retain experts and engineers to coach other employees in the organization in order to improve the performance of construction products in term of quality, time and cost.

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