

Analysing the Knowledge Management Culture of Construction Firms in Abuja

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Construction projects are temporal in nature and involves project managers assembling construction professionals that are often disbanded immediately a project is completed. This disbandment causes construction knowledge that firms accumulate from the experience of teams to be lost or go uncaptured. This is a concern for firms that need to retain knowledge to remain competitive and often compete for limited contracts. Research into construction knowledge tends to focus on the relationship between the culture of organisations and construction knowledge. A second piece of the literature focusses on the nexus between construction knowledge and organisational performance. However, investigations that examine the knowledge management culture in construction firms with a view to analyse various issues and factors involved is limited. Therefore, the aim of this study is to examine the knowledge management culture within organizations in the Federal Capital Territory, Abuja, Nigeria. A descriptive survey approach is adopted, and data is obtained through questionnaires in Abuja. The results showed that many construction firms struggle or fail to formally capture/share construction knowledge because many employees have little or basic knowledge of knowledge management techniques or tools and often rely heavily on face-to-face interactions to share knowledge. The study argues that a superior knowledge of as well as an increased adoption of knowledge management techniques and tools by employees can significantly enhance the ability of an organisation to share and capture construction knowledge to minimise knowledge loss.

Keywords: Construction knowledge, culture, knowledge management tools, organisations, performance

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INTRODUCTION

Construction work is very competitive and involves knowledge based activities (Egbu & Robinson, 2005). One way that construction firms compete for limited contracts to remain profitable in business is by acquiring and applying new technology or knowledge in their construction activities. The challenge with construction projects is that they are temporal and involve project managers assembling construction professionals that are often disbanded immediately a project is completed. This disbandment causes the construction knowledge that firms accumulate from the experience of teams to be lost or go uncaptured (Schindler & Eppler, 2003). This uncaptured knowledge or knowledge loss is a concern for firms that compete for limited contracts in the market and shows that construction knowledge is a critical resource for their survival in business.

Some authors present construction knowledge as tacit knowledge or embodied knowledge. For example, Wilkinson *et al.* (2015) explored the relationship between explicit knowledge and embodied knowledge. The difference between these two types of knowledge is that the former involves knowing that, while the latter involves knowing how to execute a work or task that cannot be written down. Other authors present construction knowledge as accumulated experience gained from previous projects. For example, Song *et al.* (2009) examined the influence of knowledge input on baseline programmes at the inception stage which was also referred to as contractors' input or experience. Recent authors present construction knowledge as a trade secret that underpins their business model in the construction market. For example, Saunders and Golden (2018) presented knowledge as a trade secret

that is a critical asset in business. These authors show that the concept of construction knowledge is highly debateable.

Two main themes in the literature on knowledge dominate the discussions in construction management. First, is the assumption that there is a relationship between construction knowledge and the performance of organisations (Yusof *et al.*, 2012). Second, is the assumption that there is a nexus between the culture of organisations and construction knowledge (Can & Eser, 2015). However, what is missing in literature are investigations that examine the knowledge management culture in construction firms with a view to analyse various issues and factors involved. Therefore, the aim of this study is to examine the knowledge management culture in construction organisations in Abuja, Nigeria. More specifically, the objective of this study is to examine the factors affecting the adoption and extent of integration of knowledge capturing and sharing tools and techniques in construction firms.

LITERATURE REVIEW

Knowledge and the Performance of Organisations

Several authors assume that there is a relationship between the performance of organisations and construction knowledge. For example, Park *et al.* (2013) stated that construction knowledge is not only important for executing construction projects, but also for choosing the right projects and developing winning bids. This implies that how organisations engage construction knowledge at various stages of a project (i.e., pre-contract and contract stage) is key to their survival. This position aligns with Wang *et al.* (2011) argument that the knowledge creation capability of organisations enhances organizational

performance which is key to exploiting new opportunities. Similarly, Chang and Lee (2008) linked knowledge accumulation capability to organizational innovations and argued that the ability to obtain knowledge can positively influence administrative and technical innovations. This position agrees with Von Zedtwitz, (2003) assumption that an organisation's performance in subsequent projects can be improved from lessons learned using knowledge capturing techniques and post-project reviews. It can be seen that the above authors assume that the secret to improving organisational performance depends on the way organisations engage with construction knowledge. However, these authors fail to consider various factors that affect knowledge accumulation and creation in construction firms.

Knowledge and Culture in Organisations

In contrast to a focus on organisational performance, some authors assume that there is a nexus between the culture of organisations and construction knowledge. For example, Can and Eser (2015) assumed that the culture of an organization is a factor that can affect the knowledge management efforts either positively or negatively in their study. The term organisational culture has been described by Nesan (2005) as the manner of working that members of an organisation engage in over time. This implies that the actions or inactions of people working in an organisation over time can affect the way knowledge is handled or managed. This definition by Nesan (2005) aligns with Fahey and Prusak (1998) position that accumulated experience of members in an organisation shapes the culture of an organization and knowledge flow over time. These above authors show that there is a nexus between the culture of organisations and the way firms engage with construction knowledge.

Knowledge flow is key to organisational performance and can be facilitated with the aid of knowledge management techniques or tools. According to Kamara *et al.* (2003), capturing, sharing, retaining and reusing relevant project knowledge involves the use of diverse tools and techniques. Eight main techniques and tools have been identified in this study from Ramalingam (2006) and Ermine (2010) for capturing and sharing knowledge namely: (1) internet sources (e.g. websites), (2) video conferencing, (3) face-to-face interactions, (4) telephone conversations, (5) electronic mail or email, (6) written documents (e.g. reference books, training manuals, articles and minutes), (7) knowledge management database systems, (8) training and seminars. The availability of these knowledge management techniques and tools does not correlate to their adoption as some firms still struggle or fail to formally capture, share, and retain project knowledge in a manner that actively contributes to their performance (Park *et al.*, 2013). Five major factors were identified in Chen and Mohamed (2006) ; Nesan (2005) study to be behind the inability of firms to formally capture or share knowledge namely: (1) staff changing companies or industry, (2) separated teams after project completion, (3) lack of a standard platform to capture and share knowledge (4) lack of motivation and (5)

implementation challenges. These factors define the culture of an organisation and indirectly the way knowledge is capture or shared. It can be seen that earlier studies on organisational performance share similar assumptions with the studies that focus organisational culture. These discussions show that the way knowledge is engaged is an integral part of an organisation's culture and performance. However, these authors fail to examine the extent of integration of knowledge capturing and sharing tools and techniques in construction firms.

RESEARCH METHODOLOGY

This study adopts a descriptive survey approach to examine the factors affecting the adoption and extent of integration of knowledge sharing and capturing techniques or tools in construction firms in the Federal Capital Territory, Abuja, Nigeria. Abuja was chosen as the study area because of the increasing number of construction projects executed by construction firms and the potential that knowledge capturing or sharing tools/techniques are being adopted by those construction firms. A pilot study was conducted to identify five construction companies with construction professionals as permanent staff that utilised knowledge capturing and sharing tools in their various projects in Abuja, Nigeria. A purposive sampling technique was adopted, and 60 questionnaires were administered. A total of 50 responses were obtained from the construction firms selected.

The survey was carried out using structured questionnaires self-administered by hand and the requisite data was collected on the factors affecting the adoption and extent of integration of knowledge management techniques and tools. The participants comprised of directors, heads of department and project managers of construction firms. The level of compliance of knowledge sharing and capturing practices was measured using a 5-point Likert scale: 1= never 2= rarely, 3= sometimes, 4= often and 5= always. This was analysed using a mean score and ranked. The extent of integration of knowledge management techniques and tools was measured and analysed using percentages and ranked. The factors affecting the adoption of knowledge management techniques and tools was measured and analysed using percentages and ranked.

RESULTS AND DISCUSSION

The characteristics of respondents in the Federal Capital Territory, Abuja, that participated in the study are presented in Table 1. The results in Table 1 show that a higher percentage of professionals in construction firms were supervisors (30%) and site managers (24 %), while the least were directors (10%) and heads of departments (16%). The results also show that a higher percentage (42%) of professionals have been working in their organisations between 6 – 10 years, while those who have worked for (21 years and above) and (11 – 15) years were the least with (10%) each. Furthermore, the results also indicated that those professionals with (16 -20) years were the

least (14%), while those professionals with (11- 15) and (21 years and above) working experience were (38%) and (32%) respectively. The implication of this combined results when compared with the length of years working at their firms show that some of these

professionals had worked elsewhere before changing to their current workplace. This also implies that those firms are likely to have lost valuable construction knowledge when those staff departed to work in another place.

Table 1: Respondents characteristics

Item	Description	Freq.	%
Educational Background	PhD	12	24
	M.Sc./MTech.	11	22
	B.Sc./B.Tech.	22	44
	HND	15	30
	Total	50	100
Working Experience (Construction)	1 – 10	8	16
	11 - 15	19	38
	16 – 20	7	14
	21 & above	16	32
	Total	50	100
How long working At your firm (in years)	1 – 5	13	26
	6 - 10	21	42
	11 - 15	5	10
	16 – 20	6	12
	21 & above	5	10
Total	50	100	
Role/position in Your firm	Director	5	10
	Departmental manager	8	16
	Project manager	10	20
	Site manager	12	24
	Supervisors	15	30
	Total	50	100

The results in Table 2 show that a higher percentage (30%) of professionals in construction firms had basic knowledge and very minimal knowledge of knowledge sharing and capturing tools or techniques, while (10%) of the professionals had adequate and superior knowledge respectively. The implication is that a higher percentage of construction firms are

struggling or failing to formally capture and share construction knowledge that could enhance their performance or profitability because many professionals do not know how to use knowledge capturing and sharing techniques or tools or they possess basic knowledge.

Table 2: Extent of knowledge of knowledge sharing and capturing tools/techniques

Level of knowledge of knowledge sharing and capturing	N=50	%	Rank
Superior knowledge	5	10	4 th
Adequate knowledge	5	10	4 th
Basic knowledge	15	30	1 st
Minimal knowledge	10	20	3 rd
Very minimal knowledge	15	30	1 st
	50	100	

The results in Table 3 show that a higher percentage (34%) of professionals in construction firms relied on face-to-face interactions to capture and share construction knowledge. The implication is that construction professionals tend to share their experience or trade secrets more easily with people that they have a close relationship with. The results also show that 2% and 1% of construction professionals relied on knowledge management database systems and video conferencing to share and capture knowledge. This implies that there is a slow adoption or integration of knowledge management

technologies by construction professionals in construction firms. This explains why many construction firms are struggling or failing to formally capture and share construction knowledge even though there is a proliferation of advanced knowledge management tools or technologies. Furthermore, the result show that 18% of construction professionals relied on telephone conversations, while 14% and 5% adopted electronic records i.e. (emails) and internet sources respectively. The implication is that a greater percentage of construction professionals prefer telephone conversations, email, and internet sources

to capture and share construction knowledge in their organisations. These findings agree with Park *et al.*

(2013) suggestion that adopting knowledge management technologies supports work process.

Table 3: Percentage use of knowledge sharing and capturing tools and techniques

Knowledge sharing & capturing tools/ techniques	N	%	Rank
Internet sources	5	10	5 th
Video conferencing	1	2	7 th
Telephone conversations	9	18	2 nd
Electronic records and mail (emails)	7	14	3 rd
Written documents, minutes, and records	3	6	6 th
Knowledge mgt. database systems	1	2	7 th
face-to-face interactions	17	34	1 st
Training and seminars	7	14	3 rd
	50	100	

The results in Table 4 show that post project reviews ranked highest with a mean score of 4.2, while interviews with individuals that were exiting to another project ranked the lowest with a mean score of 2.0. The implication is that a greater number of construction professionals in construction firms waited until the end of a project before taking stock of lessons and construction knowledge. The results also imply that construction firms rarely practiced exit interviews with staff that were leaving and one reason

for this is because many construction firms have no control over a staff who is unwilling to work any longer and who fails to stay in touch. Furthermore, the results also indicates that few construction firms develop or have a knowledge management policy that guides the way staff acquire or share construction knowledge. This explains why many construction firms struggle or fail to formally capture and share construction knowledge.

Table 4: Level of compliance with knowledge sharing and capturing practices

Knowledge capturing and sharing practices	Mean	Rank
Development of knowledge management policies for acquiring or sharing of knowledge	2.1	4 th
Departmental procedures that promote knowledge sharing or capturing	3.9	2 nd
Post project reviews	4.2	1 st
Submission of minutes and periodic reports on knowledge captured or shared	2.6	3 rd
Exit interviews for individual(s) before they exit or move to another project	2.0	5 th

The results in Table 5 show that among the factors that affect knowledge sharing and capturing in organisations, a lack of a standard platform to share or capture knowledge ranked highest with 20 %. The implication is that there is no consensus among most construction professionals on the tools or techniques that should be adopted to share or capture construction knowledge. This explains why many construction firms struggle or fail to formally capture and share construction knowledge. In the same vein, the results also indicated that the disbandment of project teams also ranked highest with 20%. The implication is that because construction projects are temporal, the completion of the project and disbandment of teams is likely to cause construction knowledge that firms accumulate from teams to be lost or go uncaptured. The results also indicate that early exit or retirement from work in an organisation was a factor that ranked

least with 4 %. One reason for this is that construction firms tend to quickly replace professionals that leave an organisation unaware that construction knowledge accumulated might have gone uncaptured. Furthermore, the results also indicated that changes to staff working in an organisation and the departure of staff ranked 3rd and 4th with 18 % and 10% respectively. The implication is that changing a staff, or the departure of a staff has significant influence on the knowledge sharing or capturing ability of construction firms and one reason for this is that construction professionals tend to move or change to another organisation that pays higher than their current organisation. These findings agrees with Nesan (2005) argument that the knowledge sharing behaviour of employees are influenced by work practices that are allowed by respective organisations.

Table 5: Factors affecting knowledge sharing/capturing in organisations

Factors affecting knowledge sharing and capture	N	%	Rank
Staff changes	9	18	3 rd
Disbandment or separation of teams	10	20	1 st
Lack motivation	3	6	7 th
Lack of standard platform to share /capture knowledge	10	20	1 st
Early exit from work or retirement	2	4	9 th
Relocation of staff	4	8	5 th
Promotion of staff	3	6	7 th
Implementation challenges	4	8	5 th
Leaving for another work/job	5	10	4 th
	50	100	

CONCLUSION

The study aimed at analysing the knowledge management culture and focused on examining the factors affecting the adoption and extent of integration of knowledge capturing and sharing tools and techniques in construction firm in Abuja. This study did not focus on the benefits or effects of captured or uncaptured knowledge. Rather, the analysis dissected the issues and dynamics involved in capturing or sharing knowledge in construction firms. The results show that many construction firms struggle or fail to

formally capture/share construction knowledge because many staff have little or basic knowledge of knowledge management techniques or tools and often rely heavily on face-to-face interactions to share knowledge. The study argues that superior knowledge of as well as an increased adoption of knowledge management techniques and tools by employees can significantly enhance the ability of an organisation to formally share and capture construction knowledge to minimise knowledge loss.

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