

# Knowledge Management Practice in The Ghanaian Construction Industry: A Case Study of 4 Firms in The Tamale Metropolis

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## Abstract

The paper investigates the environmental enablers that promote Knowledge Management (KM) implementation and test them in Ghanaian construction firms. A case study design was used. Data were collected from a set of questionnaires administered to four (4) different construction firms. Findings revealed that the right environmental enablers (culture, infrastructure, and technology) are essential to knowledge management implementation. Construction firms in Ghana are not equipped with adequate environmental enablers of knowledge management implementation. As a step to KM implementation, the firms must begin to see KM as a strategic tool and nurture the environmental enablers of KM implementation within their respective organizations. The study is limited to four (4) construction companies (a case study approach) through a longitudinal survey would have represented the true situation of knowledge management in Ghanaian construction firms. Lack of the right environmental enablers hinders knowledge management implementation. This paper is one of the first to investigate the environmental enablers of KM implementation in construction firms in Ghana and Africa. Inadequate environmental enablers are a challenge to KM implementation in Ghanaian construction firms.

**Keywords:** Construction firms, Environmental enablers, Ghana, Knowledge management,

## 1 Introduction

The global revolution in the business environment has necessitated businesses to re-think their approach to business and to adopt from different economies and business environments successful lessons to ensure that their businesses survive. Knowledge has emerged and overtaking both capital and labor as the key economic resource in improving competitive advantage (Egbu and Botteril 2002:125). This intangible asset is a crucial resource in every organization, and an enabling management environment must therefore be created for its integration within the firm.

Compared to other industries, the construction industry is characterized with high level of knowledge loss due to its project based, fragmented and unstable nature (Oke, Ogunsemi, and Adeeko 2013; Orange, Blurke and Colledge 2003). The construction industry as knowledge-based hence needs construction firms to formally manage their knowledge in order to meet current and future challenges. Recognized as knowledge based industry, knowledge management is thus imperative in the construction industry in order to grow whiles remaining competitive. Knowledge management must therefore be considered a core business competence because the knowledge of the employees constitutes the company and brand (Payne and Sheeham 2004). The ability of construction firms to formally capture and transfer knowledge generated on projects for the benefit of other future projects could be an important source of competitive advantage (Senaratne and Sexton 2008). Though a new strategic tool, the concept of a formal knowledge management system is still in its infancy in Ghana. This paper attempts to study the environmental enablers of knowledge management practice in four Ghanaian construction firms in the Tamale metropolis. It explores the existing informal knowledge management systems in the Ghanaian construction industry. The structure of the paper is hinged on the theoretical review of the environmental enablers of knowledge management. A case study approach to research is adopted, with data analyzed and recommendations made.

## 2 Knowledge Management

Understanding of Knowledge Management will best be achieved with the separate understanding of underlying constructs; “Knowledge” and “Management”. Davenport and Prusak (1998:5) define knowledge as “a fluid mix of framed experiences, values, contextual information, and experts’ insight that provide a framework for evaluating and incorporating new experiences and information”. Sverlinger (2000) on the other hand defines knowledge as consisting of all the initiatives an organization takes to create and transfer knowledge. Despite numerous other definitions and classifications of knowledge, Nonaka and Takeuchi (1995) classify knowledge into two distinct types within every organization; tacit and explicit knowledge. According to Nonaka, Konno and Toyama (2000); tacit knowledge defines the skills and experiences embedded within the individual and not

easily articulated and transferred whereas explicit knowledge on the other hand can be seen, felt and documented. Some examples of explicit knowledge include: procedure manuals, organization maps, document management systems, work breakdown structure, collaborative intranets, and extranets (Uriarte 2008:4).

Management is a vital aspect of the economic life of man, which is an organized group activity. It is considered the indispensable institution in modern social organization marked by scientific thought and technological innovations. Management is the integrating force in all organized activity. It is management that regulates man's productive activities through coordinated use of material resources. Without the leadership provided by management, the resources of production remain resources and never become production (Pal 2011).

Knowledge management therefore represents a “systematic and formal approach of identifying, capturing, and managing intellectual assets; with the aim of creating value and to increase the company’s performance to gain and sustain competitive advantage” (Webb 1998:4). Wiig (1997) defines knowledge management as the systematic, explicit and deliberate building, renewal and application of knowledge to maximize an enterprise’s knowledge related effectiveness and returns from its knowledge assets. Drawing on the work of Benjamin (2001), Wiig’s definition is both process oriented and result oriented. It is process oriented in that it describes KM as a systematic management of process by which knowledge is identified, created and shared. His definition is also result oriented because it seeks to maximize the enterprise’s effectiveness. Wiig’s definition however fails to see KM as a technology because it fails to capture KM tools and techniques. Sverlingers’ describes KM as process oriented while it does not capture results and technology. From the analysis above, the current study presents KM as a holistic and systematic management process by which a company identifies, creates, and shares knowledge with the aid of KM tools, techniques to maximize the company’s performance.

### **2.1 Knowledge Management Practice in the Ghanaian Construction Industry**

While the construction industry has been characterized as a knowledge hub (Hashim, Talib and Alamen, 2014), it has globally had challenges in capturing and managing project knowledge in a systematic manner for growth and competitive advantage (Md Khuzaimah and Hassan 2012). It is reported by Oke, et al (2013) of funding as the major challenge accounting for the poor adoption of KM in the Nigerian construction industry. The Ghanaian construction industry is no exception as it shares similar industry characteristics and therefore need to adopt knowledge management strategies for their continuous growth and competitiveness. Hackman, Agyekum, Smith, (2017) laments on absence of KM systems, lack of leadership support and awareness of KM practices as the challenges confronting the adoption of KM in the Ghanaian construction industry. Similarly, among the quantity surveying practice in Ghana, Appiah B (2014) reported that the lack of time and support from management posed as dire challenges in implementing KM.

The Ghanaian construction industry has been characterized with poor construction practices (Tengan, Anzagira, Kissi, Balaara and Anzagira 2014) and involves multiple levels of professionals, skilled and unskilled personnel’s as well as several interlinked departments thereby inhibiting the ease of knowledge sharing and management to upscale industry performance. Hence, learning from the experience of professionals on projects and best practices from different projects is critical to eliminate bad practices that contribute to project failure. Innovative KM strategies, awareness creation and use of knowledge storage have been professed as the way of encouraging the adoption of KM in the Ghanaian construction industry (Hackman et al, 2017).

### **2.2 Environmental Enablers of Knowledge Management Practice**

According to O’Dell and Grayson (1998), an effective knowledge management practice depends on several factors. Among them is an *enabling knowledge management environment* which highlights on a knowledge sharing culture, the right technology, infrastructure, and periodic KM assessment/measurement. Other determinants of KM practice are the *prerequisite knowledge management processes* which must be followed in knowledge management implementation. They include creation of knowledge, capturing, and the dissemination of knowledge. This paper concentrates on the environmental enablers to measure the extent of implementation with four D1/K1 (large construction firm category in Ghana) construction firms in the Tamale metropolis.

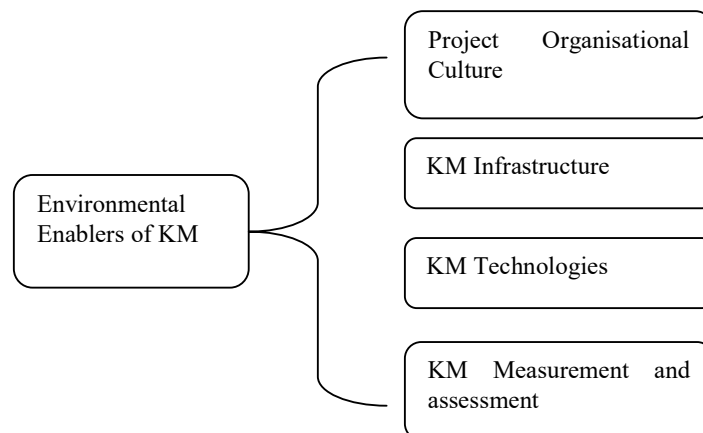


Figure 1. Factors of Environmental enablers of Knowledge Management

#### **Enablers 1: Organizational Culture**

Culture is the most important variable for successful knowledge management. Corporate culture in this regard entails all the values and standards that govern organizational behavior. Examples of organization culture that promote KM include documentation of problems solutions, collaboration and teamwork, mentoring, socialization etc.

#### **Enablers 2: Knowledge Management Infrastructure**

The second variable talks about the organization's physical infrastructure that promotes knowledge management. These include a formal KM department, company's procedure manuals, record of best practices, knowledge café etc.

#### **Enablers 3: Knowledge Management Technological Infrastructure**

The key technologies that support knowledge management are communication and collaboration. KM technological tools include document management systems, collaboration and communication facilities.

#### **Enablers 4: Knowledge Management Measurement**

The final enabling variable is periodic assessment of knowledge management within the firms.

### **3. Research methodology**

The study relied on the four (4) major KM environmental enablers outlined by O'Dell and Grayson (1998). They include culture, the right technology, infrastructure, and periodic KM assessment/measurement (see figure 1). The four factors are further expanded into ten (10) thematic questions to measure the extent of the firms' implementation of KM. The understudied firms rated the variables on a five-point Likert scale. A descriptive survey design was used. The survey instrument was a set of questionnaires distributed to four (4) construction firms in the Tamale metropolis to conduct a multiple case study. Purposively, only DI/K1 construction firms were selected for the study. The study admitting that funding is a major challenge for firms to implement KM only DIK1 construction firm who are perceived to have the necessary financial capacity under the contractor classification in Ghana, the structure and formal nature of these firms as against the unstructured nature of the other classes of construction firms. The units of analysis were the managers, employees, and the company's KM infrastructure. A total number of 53 questionnaires were administered, with 38 returned.

### **4. Findings and discussion**

From the table 1, most environmental enablers have a standard deviation of less than 1, indicating a consistent response. The respondents evaluated the environment enablers of knowledge management within their respective firms. A total of 10 sub variables were rated which are broadly classified as organization culture, KM infrastructure, and KM tools/technology,

#### **4.1 Organization Culture**

It has been identified that, an average of 3.74 of the respondents rated their companies having the right organizational culture conducive for K.M. However, issues pertaining to the development of a formal KM strategy, the documentation and codification of problem solutions and expertise of staff generally had low approval ratings of 2.92 and 3.16 respectively. This indicates the variables are not practiced at all. The findings correlate to a similar study conducted by Mpofu (2011) on forty (40) Malawian construction organizations where 20 out of 40 firms did not have a formal KM strategy. Socialization of new staff and offering performance related support were generally rated high (4.05) but not practiced frequently.

Also, issues pertaining to the mentoring of junior staff, collaboration and team work which is characteristic of construction companies had high approval ratings of being practiced frequently (4.34), emphasizing the existence of some kind of informal knowledge management within the organizations.

#### **4.2 KM Infrastructure**

The research also conducted a KM infrastructural assessment of the respective firms. It is found out that generally all the four (4) case study firms do not have the modern infrastructure that promotes K.M. The total average was 1.59 was recorded for all the variables. All the firms lacked a formal KM department and a training office that coordinates the training of staff. One out of the four companies however have procedure manuals and record of company's best practices. The finding is consistent with the study of Hackman, Agyekum and Smith (2017) where lack of training and support was identified as one of the barriers and challenges of KM implementation in Ghana,

#### **4.3 KM Technological Infrastructure**

In analyzing the organizations' KM technological infrastructure, all the firms had basic KM tools such as communication services and internet facilities but generally lacked collaboration systems such as video conferencing facilities, expert systems and decision support system, IT databases, and document libraries which facilitate knowledge management.

#### **4.4 KM Measurement**

The study revealed none of the companies practice knowledge management assessment which is the key enabler that sustains knowledge management.

#### **5.0 Conclusion and Recommendation**

In conclusion, the study recommends the development and implementation of a formal KM strategy as the fundamental stage of Knowledge management. This should begin with companies viewing their intellectual assets as a strategic tool, and the overall business strategy taking into account the knowledge assets and capabilities as a competitive tool (Zack, 1999). The study also recommends the companies nurture a knowledge management organizational culture within their respective organizations. This is because corporate culture assumes a central role in knowledge management. Corporate culture in this regard entails all the values and standards that govern organizational behavior. In the special case of construction, a culture that promotes the formal documentation, codification and storage of problem solutions and special skills of expertise must be encouraged because each set of projects presents a new set of problem which requires a different solution or approach. For such a problem-solving to become true innovation the solutions reached for problems should be converted from personal knowledge to organizational knowledge by capturing and documenting it; and applying it to future projects (Sexton and Barret 2003). To conclude this research intends to develop a KM model in further research, tailored specifically to the needs of Ghanaian construction.

Table 1 Environmental Enablers of KM Implementation

Construction firms	Firm 1 (N=10)		Firm 2 (N=9)		Firm 3 (N=8)		Firm 4 (N=11)	
	Mean	Stand Dev.	Mean	Stand Dev.	Mean	Stand Dev.	Mean	Stand Dev.
<b>Environmental KM Enablers</b>								
Existence of a Formal KM department	1.00	.000	1.78	.972	1.00	.000	2.00	.775
Existence of a training office that coordinates training of staff	1.00	.000	1.89	.782	1.13	.354	1.55	.934
Existence of a company's website	3.00	.000	2.11	.782	1.00	.000	1.45	.820
Socialization of new staff and offering performance related support	4.20	.422	3.44	1.131	4.00	.000	4.45	1.036
Appraising performance and rewarding accordingly	4.30	.483	3.56	.727	3.63	.518	2.00	1.095
Mentoring and coaching of junior staff	4.30	.483	4.33	.500	4.88	.354	4.00	.632
A culture of sharing and reuse of knowledge	4.30	.483	4.11	.928	3.38	.744	4.18	1.168
Encouraging collaboration and team work	4.30	.483	4.22	.972	4.00	.535	4.45	.934
A formal KM strategy	4.00	.516	2.67	1.323	1.00	.000	3.18	.934
Documentation a codification of problem solution and staffs' expertise	4.00	.516	2.78	1.481	1.57	1.389	3.36	1.120

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