

Knowledge Management Implementation in Consulting Firms: An Investigation in Quantity Surveying Profession

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Abstract: In construction Industry, Quantity Surveying (QS) profession has been identified as a one of significant team members who provides expert advice and professional knowledge to clients. However, the nature of construction project teams works as disparate collection of separate organizations, the project teams especially QS suffers to getting integration from other members. It still contributed to an unwillingness to share knowledge between them, resulting to cause a poor knowledge flow internal and external of QS firms. This study is aimed at investigating the implementation of Knowledge Management (KM) in QS profession with a view to creating KM practice in QS firms in Klang Valley. A questionnaire survey was used as the data collection instruments. Data collected were analysed using frequency, percentage and Mean score. The findings showed that the QS aware to the knowledge management application in the firm. In addition, The KM roles in sharing the knowledge were developed thoroughly in the firms. Effectiveness in KM also has been achieved. The study concludes that KM activities have a positive influence on knowledge creation, knowledge storage and knowledge transfer. The study recommends that this research should cover to the other area in Malaysia.

Keyword: knowledge management, Quantity Surveying, implementation, consulting firms

I. INTRODUCTION

The professionals normally take domain knowledge with them when resigning or retiring from the company and leave a little or nothing that will benefits subsequent project of the company. This situation represents a great loss for construction companies that do not uphold the know-how and experiencing the senior experts (Cheng and Yun, 2011). Since the construction project teams works as a disparate collection of separate organizations rather than as a unified team, the project teams suffers from lack of integration. Above and beyond, there is still an unwillingness to share knowledge between the construction participants, resulting to cause a poor knowledge flow (Bakri, et al. 2010). Fadhilah & Egbu (2010) expressed that managing knowledge assets can be a challenge, especially in the construction industry,

where short-term working contracts and temporary coalitions of individuals can inhibit knowledge sharing. Due to its complex and unique nature, organizations do not systematically secure knowledge for future usage even the knowledge helps to gain valuable experience from construction projects (Atapattu and Senaratne, 2013). Despite the emergence of various frameworks of knowledge management processes advocated by different scholars, there is no similar framework specifically representing how knowledge is managed in quantity surveying firms (Patrick and Sonia, 2006). Muzani, et al. (2012) exposed the findings that the use of intranet has not been used to its fullest potential because of the hindrance in using intranet as KM tools. In consequence, it has created some problems with regard to deliver quantity surveying services efficiently. Fadeke et al. (2015) reveals that knowledge acquisition has a positive influence on knowledge dimension but still lacking on knowledge implementation and maintenance in QS professions in Laos. This paper thus aims investigating the implementation of KM in QS firms in Klang Valley. Klang Valley is selected because this location has high percentage of QS firms. This aim will be attained by investigating the level of awareness of KM in QS firms in Malaysia and exploring the KM activities undertaken in QS firms in Malaysia.

II. LITERATURE REVIEW

Knowledge management is about gathering all the knowledge and distribution to the related parties, how it is managed to ensure all individuals involved in an organization is able to acquire the knowledge made by another. The definitions of knowledge itself vary and the term management is also widely defined. According to Martensson (2000), KM is about possession and storage of workers' knowledge and making the information is accessible to the employees within the organization. As referred in Chen and Mohamed (2013), KM is a process that focuses on knowledge related activities to assist knowledge creation, capture, transformation and use, with the imperative aim of leveraging organization intellectual capital to achieve organization objectives (Sveiby, 1997). As studied by Alauddin et al. (2012), the knowledge management is defined the nature of the transferal of individual or social knowledge from project to another.

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Knowledge Management Implementation in Consulting Firms: An Investigation in Quantity Surveying Profession

Koenig (2012) simplifies the meaning as organizing the information of an organization and knowledge holistically. Therefore, this study is referring to knowledge management as a structured and organized knowledge that are captured by any individuals in an organization. The management of the obtained knowledge will lead to an enhancement of any work done by the organization members. Knowledge management is the combination of the knowledge and management which has come as a strategy; the strategy to manage the knowledge thoroughly with the help of the tools or technologies or the person himself. Knowledge is internalized by the knower, and as such is “shaped” by their existing perceptions and experiences (Hey, 2004). The knowledge is understood as the information, facts, a theoretical and practical understanding on a subject and also acquired skills which are gained through learning or self-experience. Some of the researchers depict the knowledge hierarchy in their studies as it is a part of knowledge management. The knowledge hierarchy is widely used to conceptualize the knowledge. The hierarchy represents the common concept of knowledge development in which data is transformed into information and information is converted into knowledge (Mohaana 2016).

Explicit and Tacit Knowledge

Tacit knowledge expressed as a part of human skills, and experiences that related to their beliefs on any theory or ideas. Tacit knowledge comprises the skills and competencies (know-how), experiences, and any added values on the beliefs which are complex to verbalize and codify highly personal and is a comprehensive cognizance of the human mind. This type of knowledge is owned by everyone but not easy for them to articulate and make them as explicit because, it will fail them to obtain its essence due to its characteristic which is implicit. Tacit knowledge is subjective and the context is specific where it comprises the experiences and belief that could not be expressed in words. These are the cognitive skills that already available in someone’s mind as he gained from what he has been learnt, experienced and beliefs from the other people. It is rooted in every person or any individual action and experiences. According to Bratianu (2010), tacit knowledge has two types of elements. The first refers to the skills and fingertips experience in mastering certain domain of practical activities. The second element is refers to the mental model, beliefs and perception so ingrained that commonly taken for granted. Considerately, the first ingredient in tacit knowledge is the first-hand experience which the person experienced and then practices it himself and the second is understood that the knowledge already exists that everyone believes and people use it perceptively. Smith (2001) stated that people who have the tacit knowledge are considered unconsciously skilled. They know so well and lot, thus, they become unaware of what they need to do to be successful. For instance, an inexperienced managers use their tacit knowledge, as such, common sense and diplomacy to deal with a problematic employee successfully.

Researchers tend to define the explicit knowledge as a tangible data which comprises the technical information (Smith, 2001; Nonaka, 1997; Koenig, 2012). Explicit

knowledge can be simply understood where all the element of knowledge is stored and represented in technically, such as numerical or any described information in manuals and wordings or any documented information. The context of explicit knowledge is free as compared to tacit where the people can say about it. For example, theoretical accost, problem solving (i.e. mathematics) and any codification approaches. Furthermore, this type of knowledge are codified in any knowledge management tools such as databases, documents and more and it is reliable in retrieval of information, differ to tacit which required extra efforts on obtaining the knowledge from others. The gathered knowledge and information can be reused to solve repetitive problems and also connect people through the valuable knowledge. Explicit knowledge become a part of organization’s asset as Ly, Anuba and Carrillo (2005) has found that 20% of what an organization contains is explicit and another 80% of what an organization knows are tacit. Explicit knowledge is widely shared as there are easier to documented and store. As the knowledge are carefully stored, these help others or new/future workers in the organization to reuse and they can extract the information that has been developed by other person. The information can be used reasonably in problem solving. From that, similar mistakes can be avoided and this approach will be more beneficial in any field of works.

KMinQS Consulting Firms

According to Thayaparan et al. (2016), the roles of QS are significant to understand the client needs and focus, development and application of information (knowledge). Patrick and Sonia indicates a clear definition of QS as a professionals that been trained as construction cost consultants. QS has knowledge on costs, values, labour and material prices, finance, contractual arrangement and legal matters in the construction industry particularly. QS is a profession create and share knowledge by managing skills to increase efficiency, enhance leverage of previous knowledge, minimizing mistakes, added value for clients and increase profits for the firms. As project-based professional services organizations that offer client service as their main output, QS also relies on how they manage knowledge (Irani, 2005). Referring to these previous studies, QS profession has become one of the profession which by design to use the knowledge managing approach as to enhance their capabilities in giving good consultation throughout the time and the economic changes.

According to Maarof (2011), QS is concerned with contractual works and costing on construction projects and they control those works by accurate measurement of the work required. These are the main role of the QS, traditionally, and they cover a range of activities that related to project management, cost estimation and all contractual work on any construction projects. The QS assists start from the design process by systematic application of cost criteria so as to maintain a rational and economic relationship



between cost, quality, utility and appearance which thus helps in achieving the client's requirements within the agreed budget. As we know, according to the RIBA Plan of Works, the QS is responsible starts from the inception stage where he should know all about client's project and from that he can make the feasibility studies on that particular

project.

Table 1 shows KM approaches used in the quantity surveying firms. These shows how the quantity surveying firms for example, used and develop the knowledge management as to obtain the benefits.

Table. 1 Overview of KM approaches in QS Firms

Author, Year	KM Roles Approaches
Esther Ly., CJ Anumba, PM Carillo (2005)	By "live and learn" and acquiring new knowledge and experience from the projects they handle is the fundamental one. Besides, traditional way like going to the library, watching TV programs, reading journals, and magazines like Project Management Today is still commonly adopted. Attending courses like CPD (continue professional Development, company training, conference and presentation talks is another source.
Patrick SW Fong, Sonia KY Choi (2006)	Reference by personal experiences, colleague's experiences and personal network Job rotation, record of knowledge by experienced or departing staff Review the conclusion of project
Chintaka Atapattu, Sepani Senaratne (2013)	Lesson learnt from every completed project Through CPD Exhibitions Technical report and publications, internet Interaction with external environment
Sepani Senaratne, S Sabesan (2008)	Depends on experiences Interactive process among team members Recruitment
Patrick SW Fong (irani, 2005)	CPD Past project interview Lesson learned Reward, mentoring, Library Databases (electronic)

Source: Literature Review

From the studies, the knowledge management roles implemented in the quantity surveying firms are effectively returning the benefits back to the main, either in terms of grouping works, overall firms working fields of the individual benefit. We also can wind up these with the flow that start or acquired by an individual can shore up the knowledge management roles to the bigger or wider intellectual usage among the members of the company.

III. RESEARCH METHODOLOGY

A questionnaire has been selected as instrument to do the findings of this research. Primary source of data collection was employed through questionnaires administered to appropriate quantity surveyors in quantity surveying firms in Klang Valley. This is because Klang Valley is the area where most registered QS firms located. Using this approach, questions on applications and effectiveness in QS firms were designed from the literature. The levels of measure were from 1= strongly disagree to 5=strongly agree. The questionnaire employed is using 5 point likert scale with 5 being the highest and 1 the lowest. This

research used the convenience sampling techniques because it involves both easily accessible and willing to participate in this study. Questionnaires were administered to one to five quantity surveyors per firm. 100 questionnaires has been distributed to randomly selected QS firms and distributed by hand and through email as to get the respondent's feedback in shorter time. This study only managed to collect 73% feedbacks due to some of the respondents that did not reply the emails and did not post the questionnaires back to the researcher. Those collected data was analyzed by using Statistical Package for Social Science (SPSS) latest version software as in developing the statistical data and the result will be in statistical and graphical outlook. This was used for finding the frequency, percentage and average mean. All the data was analyzed into mean, maximum, minimum of the value. The values of the average means are 0.00-1.00 = strongly disagree (SD),



Knowledge Management Implementation in Consulting Firms: An Investigation in Quantity Surveying Profession

1.01-2.00 = disagree (D), 2.01-3.00 = Neutral, 3.01-4.00 = Agree (A) and 4.01-5.00 = Strongly agree (SA).

IV. FINDINGS

Awareness of application KM in QS Firms

Perceptions

Table 2 shows the percentage of the respondents' perception towards knowledge management. From the chart shown, 11% of the respondents said that they never heard about the knowledge management which shows the least from the respondents. Increasingly, 14% of them took KM just as the management conduct that are common and 16% of the respondents adapting as a strategic part of business. 28% of them choose to say that KM as something they already doing but not under the same name and the remaining percentage which the highest perceptually took KM as something that could be beneficial for the organization. Some of them are familiar and most of the respondents knew what knowledge management terms stands for but these does not shows that they are very specifically knew how the KM plays its roles in an organization.

Table. 2 Respondent's Perception towards KM

	Frequency	Percent
Familiar	30	41.1
Management conduct	16	21.9
Business strategy	17	23.3
Business advantage	10	13.7
Total	73	100.0

Current status

Table 3 shows the percentage of the current status of knowledge management in the respondent's organization. Apparently, some organization does not implement the knowledge management as we can see KM does not exist in 11% of the respondents' organization. Most of the organization have the KM but still in the growing stage. Only 28% has the knowledge management that was already at the growth stage.

Table. 3 Current Status of KM in Organization

	Frequency	Percent
Growing stage	37	50.7
Introduction Stage	17	23.3
Growth stage	19	26.0
Total	73	100.0

The roles of KM in QS firms

Based on Table 4, the analysis shows the respondent level of agreement towards the KM roles which helps them in

their department. From the analysis, their respondents tends to strongly agree that KM helps them in the Knowledge Creation (mean = 4.11), knowledge storage or retrieval (mean = 4.30) and Knowledge Transfer (mean = 4.23). From the table, the respondents agree more that knowledge management helps in the storage of knowledge which comprises data, information, etc. Meanwhile, the average means indicates the respondents' agreement that the creation of knowledge can be utilized by implementing the KM. Finally, KM also helps in transferring the knowledge, but only few of the respondents agree on those particular roles. These can be concluded that the respondents perceived that the KM roles help them more in the storage of the data and knowledge.

As relating to the KM roles, the respondents were asked on the knowledge that they acquired by the implementation of the KM. Their responses shown in the Table 4 indicates their agreement on the knowledge they found. The mean shows that they are strongly agree that acquisition of knowledge in KM roles helps them found the knowledge. From the top, respondent always found the knowledge that enable them in completing their task (mean = 4.45). Subsequently, the respondents always found the supports from the member in related to acquire knowledge by knowledge sharing and knowledge creation (mean = 4.38). From that, the respondents able to acquire knowledge well. Besides that, some respondents recognized that they found the knowledge they need precisely with the KM (mean = 4.38). The acquisition of the knowledge can be easily developed. Last but not least, with the KM, they tend to remark the acquisition of knowledge by adapting the KM roles help them to find the knowledge available in the department or firms, easily.

Table 4 also shows the mean on their level of agreement toward the KM roles in regards to their behavior. This has been asked this question so as to review how they would put their knowledge they acquired in implementation of KM. The analysis shows that the ranging of their level of agreement. The analysis indicates that knowledge acquired by the respondents was not only belongs to the respondents. They strongly disagree that the knowledge their found were belong to them alone and to the company alone. These may become as the barriers of implementing the KM in the organization if the knowledge found were not being absorbed to the whole department effectively. Some of the respondents put their level of agreement on the neutral scale (mean = 2.86) on the behavior of the respondents' toward acquired knowledge. They tend to indicate that the knowledge they found in their job were depending on how much they put into it. Meanwhile, respondents strongly agreed that knowledge they found were belongs to them and the company as well. Conclusively, the respondents have distinguished that their behavior would become the knowledge management's stimulus in the organization.

Table 4 tabulates the knowledge sharing strategy which is



one of the KM roles in an organization. The ranging of this data only lies on the mean 4.01-5.00 which indicate that the respondents were strongly agreed on the strategies of knowledge sharing. On the top of the overall analyzed data, respondents were more agreed that the KM is developed by

lesson learnt followed by knowledge management roles that developed within the working hours. And the least mean (mean = 4.29) indicates that library set up was not preferable by the respondents.

Table. 4 The roles of KM

Variables	Frequency (Rating scale)					Mean	Rank
	1	2	3	4	5		
Knowledge Dimension							
Knowledge Creation	-	1	10	42	20	4.11	3
Knowledge Storage	-	-	8	35	30	4.30	1
Knowledge Transfer		2	5	40	26	4.23	2
Knowledge Acquisition							
Knowledge I need	-	-	4	39	30	4.36	3
Knowledge completing task	-	1	1	35	36	4.45	1
Easily obtained	-	-	6	39	28	4.30	4
Supports from member	-	1	1	40	31	4.38	2
KM Acquisition in regards to respondents' behavior							
Belongs to me alone	28	45	-	-	-	1.62	4
Belongs to company alone	25	46	1	1	-	1.70	3
Depends how much I put	5	20	30	16	2	2.86	2
Both me and company	-	-	-	32	41	4.56	1
Knowledge Sharing Strategies							
Within working hours	-	-	2	36	35	4.45	2
Non-working hours	1	1	5	28	38	4.38	3
Budget allowance	-	1	8	28	36	4.36	6
Library set up	1	2	2	38	30	4.29	10
Publication	-	-	2	46	25	4.32	9
Informal communication	-	-	1	44	28	4.37	5
Databases	-	2	2	39	30	4.33	8
Job rotation	-	1	3	39	30	4.34	7
Internet chat	-	1	6	30	36	4.38	4
CPD, conference	-	1	2	43	27	4.32	8
Lesson learnt	-	1	-	30	42	4.55	1

Based on Table5, there are twelve (12) benefits of implementing knowledge management (KM) in a quantity surveying firms. Increasing the level of expertise higher (m = 4.78) is the main benefits in implementing the KM. This is followed by enhancing morale and creativity in relation to decision making (mean = 4.73), practice efficiency (mean = 4.71) effective conflict handling and business growth share the same mean, (mean = 4.63) which indicates that respondents distinguish this benefits equally. Then, the average mean point out that respondents are strongly agree

to the effectiveness of KM that increase and improve flexibility, adaptability and client's satisfaction respectively. Meanwhile, the respondents also strongly agree on the effectiveness of KM in improving services quality (mean = 4.49), overall job performance (mean =4.49), followed by rapid and effective problem solving (mean =4.48). Finally, improvement of decision makings were indicated least (mean = 4.45) as the benefits of KM implementation.



Knowledge Management Implementation in Consulting Firms: An Investigation in Quantity Surveying Profession

Table. 5 The Effectiveness and Benefits of KM in QS Firms (n=73)

Effectiveness	Frequency (Rating Scale)					Mean	Rank
	1	2	3	4	5		
High level of expertise	-	-	-	37	36	4.78	1
Enhance morale and creativity	-	-	1	18	54	4.73	2
Practice efficiency	-	-	-	21	52	4.71	3
Effective conflicts handling	-	-	2	23	48	4.63	4
Business growth	-	-	2	23	48	4.63	5
Increase flexibility and adaptability	-	-	-	30	43	4.59	6
Improve client's satisfaction	-	-	-	33	40	4.55	7
Reduce mistakes	-	-	1	32	40	4.53	8
Improve services quality	-	-	-	37	36	4.49	9
Improve overall job performance	-	-	-	37	36	4.49	10
Rapid and effective problem solving	-	-	2	34	37	4.48	11
Improve decision making	-	-	2	36	37	4.45	12

V. DISCUSSIONS OF FINDINGS

The awareness of knowledge management application in QS firms.

This study found that the respondents are aware to the application of the knowledge management in their firm. Conclusively from the analyzed data, majority of perceptively take the KM as something that they are familiar with. It is something they already doing but not under the same name. Other than that, the respondents signify the KM as a business advantage, generally and few of them denote KM just as a management conduct. As expressed by Frost (2014), given Knowledge Management are the explicit and systematic management of vital knowledge - and its allied processes of creation, organization, diffusion, use and exploitation - in interest of business objectives. This can be supported relatively with definition perception given. The indication of the KM status made by the respondents, this result distinguishes that the respondents are aware to the application of KM in their firms. Agop and Marinova (2003) define KM as a process through which organizations engender value from their intellectual and knowledge based assets. In this research, the findings initiate the respondents that value their knowledge as the asset base in concerning their awareness to the KM application in the firms.

The roles of Knowledge management (KM) in QS firms.

This study also investigates the roles of KM in which how the KM runs in an organization/firms. The finding from the analyzed data shows that the respondents are utilized by the KM implementation as it helps the respondents in facilitate

knowledge creation, facilitate knowledge storage and retrieval and also facilitate them in knowledge transfer. This is related to the article written by Stuhlman (2012) that recount the knowledge management as creation, capture, storage, cataloging, and sharing of organizational knowledge. Other than that, the analyzed data also found that most of the respondents strongly agreed that KM helps them found the knowledge that enable them in completing task besides easily obtain the precise knowledge they need. With the KM, they also found that KM enable them to get support from the members of the firms in the applying the KM in regards to the knowledge sharing and creation.

This was analyzed as to come back with the statement from Bhojaraju (2005) that expressed KM activities are relying on the voluntary participation of employees. He uttered that management should be sensitive to the knowledge activities that are already going on within the company and seek mean to support them. As for that, this finding has shown that the respondents are able to take up the KM within the firms among the members.

Relatively, the research also looks into the behavior of the respondents towards the knowledge they acquire. From the analysis, most of them are strongly disagree that the knowledge their found were belong to them alone and to the company alone. Few of the respondents put their level on agreement on the neutral state, that may be inferred as they did not sure on the knowledge acquired by them were depend on the knowledge they put in the organization. This finding also can be related to the statement by Bhojaraju



above and majority of the respondents strongly agree that the knowledge acquired in the company belong to them and the company itself. Another finding was made in investigating the KM roles in a firm. The finding is about how the KM was developed in the respondents' firm. From the analysis, this objective manages to ascertain the KM strategies as the roles of KM to facilitate the knowledge sharing. The respondents were strongly agreed to all variable stated. These strengthen the previous study on the knowledge sharing strategies by Irani (2005) that revealed the tools used such as peer coaching, interview on past project, lesson learned, KM sharing meeting, internal discussion visit, knowledge sharing boards, talks and seminars, internal training courses and mentoring system, etc.

The effectiveness of KM in QS firms.

The analysis found that all the respondents were strongly agreed to the listed variable and the main benefits of implementing the KM is increase in the level of expertise. The main benefits that could be obtained in KM implementation is problem solving (Ly et al. 2005; Smith 2001; Davis et al. 2007). These have put on view on the benefits of KM that may vary. Apart from that, the finding proves that the effectiveness of KM implementation are numerous and reasonably according to the roles of KM itself. The findings also acknowledge that the knowledge management effectiveness not only for general business advantages but also particularly to the quantity surveying (QS) practice. The advantage towards overall QS job performance and efficiency can be developed as well as all the practice done. The finding majorly looks upon the efficiency of respondents such as level of expertise, practice efficiency, conflicts handling, rapid and effective problem solving, decision making, etc. Besides, the level of agreement on the effectiveness toward the organization was also indicated strongly agreed by the respondents.

VI. CONCLUSION AND RECOMMENDATION

The findings in this research showed that the quantity surveying and the assistant are aware to the knowledge management application in the organization and they assuredly knew the status of the KM implemented in their firms. Besides that, the roles of KM were assured by the respondents which resulting from the answer given by the respondent on the variable. The investigation made as to achieve the second objective has come out with the finding and produce the overall idea of KM roles, starts from the knowledge creation, anticipating the behaviour of the respondent to ensure the KM plays the roles and how the KM was developed in their firms. The KM roles in sharing the knowledge were developed thoroughly in the firms. In occasion of those KM strategies in the second objective, the respondents also give out the idea in about effectiveness of KM. Effectiveness in KM also have been achieved. From the primary research made in the literature review, the effectiveness of the KM was again confirmed by the respondents from their agreement toward the given variable.

VII. LIMITATION

Even though this research has come to its end and has been completed as well as reached the objectives, it still comes with some weaknesses. This drawback may reduce the accuracy and increase the ambiguity of the research findings. Throughout the findings and analysis, the weak point of this research is the scope area of the research. The respondents of the study were only focused on the quantity surveying firms located in Klang Valley. As the result, the finding could not be taken a broader view though out Malaysia. The finding could be different from that one specific area. Besides that, the questions are constricted to the quantity surveyor. Thus, it does not encompass the other staff works in certain organization. The finding could be varying as the response could be taken from different point of view such as from the financing managerial sectors, administrative sectors available in the organization.

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Knowledge Management Implementation in Consulting Firms: An Investigation in Quantity Surveying Profession

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