

A FRAMEWORK OF KNOWLEDGE PROCESSES FOR PROFESSIONAL QUANTITY SURVEYING FIRMS IN HONG KONG

Patrick S.W. Fong¹ and Sonia K.Y. Choi²

ABSTRACT

Knowledge is increasingly recognised as a competitive advantage of organisations. In view of the essence of knowledge, this research seeks to explore the knowledge processes which are being undertaken in professional quantity surveying firms in Hong Kong. As quantity surveying firms are characterised by their professional identity and knowledge-driven nature, knowledge is highly crucial to their successes in the competitive and dynamic business environment. Owing to the fact that knowledge management is still in its infancy in the construction industry and that structured knowledge management processes have probably not yet been well deployed in the surveying discipline, this research focuses on implicit knowledge management processes.

A framework of knowledge processes was developed from a detailed literature review with an attempt to enhance the knowledge flow in Hong Kong professional quantity surveying firms. The applicability and validity of the framework were verified by quantitative research method. Based on the proposed process model, a questionnaire survey was then conducted to study the opinions of professional quantity surveyors on the details of these processes; the questionnaire was returned with a response rate of 42.6% out of 260.

Taking advantage of the findings collected in the questionnaire survey, this research confirms the six knowledge management processes in quantity surveying firms, namely acquisition, creation, storage, distribution, use and maintaining. These processes interact with one another to form a powerful tool for sustaining the competitiveness of the firms.

KEY WORDS

quantity surveying, process model, professional services firms, knowledge management.

INTRODUCTION

Knowledge is increasingly regarded as a survival tool in a dynamic and competitive environment (Laudon and Laudon, 2000). Drucker (1993, p.7) shares this view and states in his text, "Post-Capitalist Society", that "the basic economic resource is no longer capital, natural resources, nor labour. It is and will be knowledge". Therefore, there is always a pressing need in every knowledge-intensive organisation for knowledge to be well managed to cope with the shortcomings arising from the common uneven distribution of knowledge in

¹ Department of Building & Real Estate, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, Phone 852/2766-5801, FAX 852/2764-5131, bspafong@polyu.edu.hk

² Department of Building & Real Estate, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, Phone 852/2766-4307, FAX 852/2764-5131, sonia.choi@polyu.edu.hk

these organisations. This is fully echoed by Nissen (2004, p.186), who emphasises that “efficient knowledge flow is critical to enterprise performance”. In spite of its inherently crucial role, knowledge is often not managed in a systematic manner, and its contribution to firm success is commonly overlooked. These firms may hold a belief that investment in knowledge processes would rarely boost the firms’ business and generate proportionate financial returns.

In line with other knowledge-intensive organisations in Hong Kong, like accounting, engineering and legal firms, quantity surveying firms place heavy reliance on their wealth of knowledge in their business. Despite the existence of lots of variants in form and context, it is evident that this wealth of knowledge invariably injects substantial influence into the firms’ operation and project deliverables. For instance, exchanges of ideas and discussions are normal scenes in corridors and across meeting tables. Reference to archives of useful cost data and contract document templates almost constitutes an indispensable process in the compilation of every contract document.

Quantity surveying firms not only are knowledge-intensive firms but also possess the characteristics of professional services organisations. Theoretically, the issue of managing knowledge should have attracted much attention in quantity surveying firms, as only those that can best manage knowledge are able to preserve their competitive advantage (Hiebeler, 1996). To the contrary, little is known about the current practice adopted in quantity surveying firms. Even worse, despite the emergence of various frameworks of knowledge management processes advocated by different scholars, there is so far no similar framework specifically representing how knowledge is managed in quantity surveying firms.

In view of the dominance of quantity surveyors practising in both the construction industry and the surveying discipline and the intermingled relationship between knowledge and quantity surveying firms, a study of the process of how quantity surveying firms manage knowledge seems to be of significant and practical importance. The overall aim of this research is to ascertain how professional quantity surveying firms in Hong Kong implicitly manage knowledge. The specific objectives of this research are: (1) to investigate the knowledge managing activities / actions generally undertaken in quantity surveying firms, and (2) to develop a conceptual framework of managing knowledge for professional quantity surveying firms.

LITERATURE REVIEW

MANAGING KNOWLEDGE

Nowadays, knowledge is considered as an input potentially more influential than the traditional factors of production such as land, labour, capital and raw materials (Liao and Yau, 2001). However, knowledge itself is an abstract concept and thus cannot be defined in simple terms. Although knowledge originates from a hierarchical scale with “data”, “information” and “wisdom”, attempts to identify the definition of knowledge by adopting these distinctions are considered far from satisfactory (Kamara et al., 2002).

On the other hand, some scholars suggest that knowledge can instead be identified by reference to its functions. Sveiby (1997, p.38) believes that “knowledge is a capability to act” and this view is also supported by Roth (2002, p.13), who defines knowledge as:

“... the evaluating and incorporating of new experiences and information. It is a set of insights, experiences, and procedures that guide thoughts, behaviours, actions and decisions. Action is a choice made on the basis of knowledge.”

A close examination of the knowledge in a firm can enable us to arrive at a more delicate classification. It can be categorised into two distinct stocks of knowledge, namely private and public stocks. This concept of private and public stocks of knowledge was introduced by Matusik (2002). He states that “private knowledge is unique to the firms ... which can be a source of competitive advantage whereas public knowledge resides in public domain ... not unique to any one firm and is public good” (Matusik, 2002, p.458).

Evans (2003, p.3) is concerned with private knowledge and asserts that “knowledge is now considered the key strategic business asset”. Further, quantity surveying firms in Hong Kong are operating as private enterprises and competing among themselves. In order to differentiate itself from others, every quantity surveying firm has to strive to demonstrate its competitive advantage to potential clients by promoting the wealth of knowledge residing in the firm’s output. This wealth of knowledge generally represents the organisational memory of the firm, which is a fruit of the experience and knowledge gained by quantity surveyors over time.

The debate about the definition of knowledge does not cease at this point. Among numerous schools of thoughts, some scholars have proposed that knowledge is indeed either tacit or explicit (Polyani, 1966; Nonaka, 1994). Tacit knowledge is subjective and personal. On the other hand, explicit knowledge is objective, formal and can be codified in the form of words, models, and formulae for communicating to others (Nonaka and Takeuchi, 1995). In view of the above, knowledge itself is basically an intangible concept. The demarcation line differentiating it from other entities is sometimes too fine to be identified. After all, as indicated above, it can still be sensibly defined in different contexts and perspectives.

IMPLICITLY MANAGING KNOWLEDGE

In recent years, academic literature has placed a strong emphasis on the crucial role of knowledge in organisations. This is because knowledge management is gaining importance in organisations and is well proved to shorten production time, improve customers’ satisfaction and minimise cost (Leonard-Barton, 1995). Nevertheless, knowledge management is still in its infancy in the construction industry. It is common for firms to somehow be involved in knowledge management, but often it is implemented implicitly and informally (Gamble, 2001). Although knowledge management is perceived by the majority as a way to enhance knowledge and to establish competitive advantage, knowledge management in the Hong Kong surveying industry has not been extensively adopted. This phenomenon is well reflected by the observation of Fong and Cao (2004) that knowledge management in general practice surveying firms has received limited awareness and application. Owing to the fact that formal knowledge management, such as employing knowledge management consultants, importing knowledge management practice and establishing internal knowledge management departments, is less likely to be observed in the Hong Kong surveying industry, the focus of this research is to reveal how professional quantity surveying firms implicitly manage knowledge, i.e. the underlying aspects of knowledge management practice.

QUANTITY SURVEYING FIRMS

Most quantity surveying firms in Hong Kong operate as private partnerships. The entry barrier into the professional quantity surveying field lies in one's academic qualification and training. In most cases, university graduates with a major in quantity surveying basically fulfil the entry requirements. After that, these novice quantity surveyors are assigned to teams with existing staff under the supervision and direction of an associate or a partner. When these firms are commissioned by clients to provide cost and contractual expertise for construction projects, the partner in charge will appoint team members, comprising associates and quantity surveyors, to fulfil the professional duty. As such, it can reasonably be deduced that quantity surveying firms predominantly adopt quantity surveyors' expertise, knowledge and skill to satisfy their clients' needs. Therefore, quantity surveyors can be considered a key component of the wealth of knowledge in their firms. Undoubtedly, they should be given a clear and precise definition. An authoritative organisation, the Hong Kong Institute of Surveyors (2004, p.17), provides a clear indication in this respect. It states that:

"Quantity surveyors are professionals who have been trained as construction cost consultants. They have expert knowledge of costs, values, labour and material prices, finance, contractual arrangements and legal matters in the construction field."

In general, the value of quantity surveyors lies in their ability to fulfil the need to control expenditure and to strive for the best value for their clients' investment in building and civil engineering projects. On the other hand, the duty of quantity surveyors is multifold and can easily be identified in many reference books. For instance, quantity surveyors in the United Kingdom are often involved in the selection of construction materials. By contrast, quantity surveyors in Hong Kong seldom provide such service. As this research is confined to the study of implicit processes for managing knowledge in quantity surveying firms in Hong Kong, the duty of quantity surveyors should be defined with due regard to the practice in Hong Kong construction industry.

METHODOLOGY

This research is best established by an inquiry into the views of a wider spectrum of relevant respondents. In view of this, questionnaires to quantity surveyors practising in professional quantity surveying firms are therefore proposed. The findings derived in questionnaires allow the researcher to elaborate and refine the definition of the knowledge processes to ensure a broader representation in quantity surveying firms. Regarding the mode of the survey, it is shown that questionnaires are most popular among academic scholars. Its popularity does not stand for no reason. It does not only allow a large amount of data to be gathered in shorter time and at less cost (Sekaran, 2003), but also easily extends the reach of contact to a large number of respondents. Furthermore, its anonymous nature guarantees a secure environment for respondents to freely indicate their genuine views. Apart from these, this mode of survey also allows respondents to allocate their time to respond at their own convenience.

260 questionnaires are administered to quantity surveyors practising in professional quantity surveying firms in Hong Kong. The composition of those selected is determined by an entirely random ballot of the lists in the Membership Directories so as to guarantee a well graded distribution.

Nederhof (1985) observes that response rates between 10% and 30% are generally anticipated. Similarly, Owen and Jones (1994, p.313) posit that “on average a response rate of 20% of questionnaires returned without reminders is considered satisfactory, while 40% is exceptionally good”. Alreck and Settle (2004, p.36) further discuss the response rates of questionnaires and opine that “mail surveys with response rates over 30% are rare”. Based on the views above, the response rate of this questionnaire lies above the acceptable level. Among the 260 questionnaires dispatched, 111 questionnaires were completed and returned which constituted 42.6% of the entire sample of quantity surveyors.

Based on the above literature review regarding the intermingled relation between knowledge and quantity surveying firms and the insufficient awareness of knowledge aspect in these firms, a hypothesis is put forward as: There are underlying activities / actions undertaking in quantity surveying firms to manage knowledge.

QUANTITATIVE DATA

This research aims to present a framework of managing knowledge processes for professional quantity surveying firms. The proposed framework is derived from an analysis of a variety of processes described in academic literature and is further substantiated by detailed statistical survey. In the light of the ever growing demand for knowledge innovation and the fast changing nature of knowledge managing frameworks, it is sensible to confine the discussion to managing knowledge processes prevailing in the past ten years so as to maintain the validity of the research. In total, twenty one knowledge management models/processes were examined in detail and result in the proposed framework for knowledge processes for quantity surveying firms in Hong Kong, as shown in Figure 1.

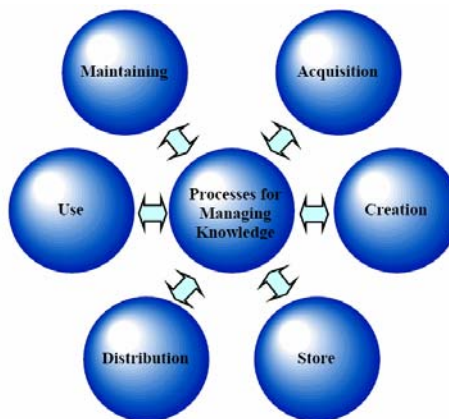


Figure 1: Proposed Framework of Knowledge Processes in Hong Kong Quantity Surveying Firms

The questionnaire was specifically framed with an aim to affirm the presence of the six proposed framework of knowledge processes in Hong Kong quantity surveying firms. The wordings in the questions were normalised to account for the relatively immature recognition of managing knowledge processes in these firms. Technical terms, such as knowledge acquisition, etc., frequently adopted in academic literature were deliberately avoided and

replaced by easily comprehensible and lay descriptions of scenes and examples in their working environment. For example, broad questions, like “Do you find knowledge acquisition in your workplace?”, clearly dropped out of the list. This was then transformed into discrete question items, including “What do you seek?”, “Where can you find them”, “How can you get them?”, in a literally simple and direct format. Following this particular approach, a circle by a respondent on the affirmative responses for a question item would draw two inferences. This would not only represent his agreement with the statement, but also indicated that the relevant knowledge process, in the form of the behaviour, examples and scenes as posed in the question item, would be proved to exist in his workplace. Under this questionnaire setting, it is reasonably envisaged that as a derivative of the associated question items, the overall mean values of the knowledge processes, bear a larger representation than those of the individual question items. As opposed to the overall mean values of the knowledge processes, those of the individual question items merely give an indication of their validity.

Table 1: Justification of Question Design

Knowledge Processes	Purpose of Questions	Question Number
	To indicate the attitudes towards time, cost and quality in quantity surveying firms	1, 2 & 3
	To indicate work load and time stress in quantity surveying firms	4 & 5
	To indicate job nature of quantity surveying discipline, i.e. workers in a toy factory compared to workers with decision making skill	6
	To indicate demand for new knowledge	7
	To indicate the significance of knowledge in quantity surveying firms	8
	To test the research hypotheses: awareness of how to manage knowledge is low in quantity surveying firms	9
<i>Knowledge Acquisition</i>	To indicate where quantity surveying firms to acquire knowledge and what kind of knowledge is acquired	10 & 11
	To indicate how quantity surveying firms acquire external knowledge and the reliance on external knowledge	12, 13 & 14
	To indicate how quantity surveying firms acquire internal knowledge	15, 16 & 17
<i>Knowledge Creation</i>	To indicate how knowledge is created	18 to 23
<i>Knowledge Store</i>	To indicate how knowledge is stored	24 to 34
<i>Knowledge Distribution</i>	To indicate how knowledge is disseminated	35 to 45
<i>Knowledge Use</i>	To indicate how knowledge is utilised	46 to 48
<i>Knowledge Maintaining</i>	To indicate how knowledge is maintained	49 to 53

Table 1 summarises the question design of the knowledge process in the questionnaire. The mean value of each question was derived from the numerical responses of the question item under a 5-point Likert scale (5 = Strongly Agree, 4 = Agree, 3 = Neither Agree Nor Disagree, 2= Disagree, 1 = Strongly Disagree). A threshold is set at point 3 (Neither Agree Nor Disagree) to determine the existence of a knowledge process. In other words, a knowledge process with an overall mean value above the threshold is taken to exist in their workplace

and vice versa. In Table 2, five of the knowledge processes - Knowledge Creation, Knowledge Store, Knowledge Distribution, Knowledge Use and Knowledge Maintaining managed themselves above the threshold value whereas Knowledge Acquisition, with an overall mean value of 2.837, fell marginally below the passing point.

Table 2: Mean Values of the Six Proposed Knowledge Processes

Knowledge Processes in Quantity Surveying Firms	Mean Value
Knowledge acquisition occurs in my workplace	2.837
Knowledge creation occurs in my workplace	3.555
Knowledge store occurs in my workplace	3.492
Knowledge distribution occurs in my workplace	3.059
Knowledge use occurs in my workplace	3.757
Knowledge maintain occurs in my workplace	3.270

At this point, the research hypothesis that presumes the existence of a possibility of deriving a framework of managing knowledge for professional quantity surveying firms has been proved to stand. The findings also affirm the essence of Knowledge Use to Hong Kong quantity surveying firms. This is consistent with the proposition of Hussein and Wahba (2003, p.246) that “value is only created when the knowledge is used”.

The reliability of scale refers to a statistical concept that measures “how free it is from random errors and the degree to which the items that make up the scale ‘hang together’” (Pallant, 2005, p.6 & 85). Peterson (2000, p.79) explains further that reliability is “the extent to which a scale produces identical results if a particular construct is measured repeatedly”. In other words, it serves as an objective numerical indicator of the scale’s “consistency or dependability in measuring whatever it is designed to measure” (Peterson, 2000, p.79). This technique is adopted as a quantitative reliability assurance of the result of this questionnaire. In general, internal consistency is a tool among academic scholars in reliability assessments of survey data. To turn this concept into a comparable numerical scale, it is commonly transformed into an index - Cronbach’s coefficient alpha. In his literature, Nunnally (1978) recommends that survey data should satisfy a minimum alpha, 0.70, to ensure an acceptable data consistency. Higher value of Cronbach’s coefficient alpha implies greater data reliability. The Cronbach’s coefficient alpha of the 83 question items is 0.9078 which lies above 0.70.

ANALYSIS AND DISCUSSION

THE UNDERLYING ACTIVITIES ADOPTED TO MANAGE KNOWLEDGE

Knowledge acquisition

The degree of knowledge acquisition in quantity surveying firms lied unexpectedly below the passing point. This phenomenon may be attributed to the nature of knowledge which quantity surveying firms normally possess. Reference to personal experience, colleagues’ experience and personal network remains the favourite mode of knowledge searches among quantity surveyors. Regarding the types of knowledge, cost data, forms of contracts and standard methods of measurement reportedly attract the most frequent visits by quantity surveyors in

their searches. In some other industries, staff recruitment is also considered capable of bringing surges of new knowledge into organisations. By contrast, this effect is probably dampened by the reluctance of the majority of Hong Kong quantity surveying firms to introduce experienced recruits. The anomaly is further aggravated in the light of a general lack of specifically assigned staff for knowledge acquisition from external sources. The unpopularity of these alternative modes of knowledge acquisition reflects a relatively low reliance on external knowledge by these firms. Other means of knowledge acquisition, such as job rotation, or records of knowledge by experienced or departing staff, are not better off and receive a similar degree of indifference from these firms. Despite this, quantity surveyors generally agree that they gain knowledge from reviews at the conclusion of projects.

Knowledge creation

Webber (1999, p.41) points out that “a new economy is emerging built on knowledge and innovation”. In line with this assertion, Hong Kong quantity surveying firms are fostering a culture that facilitates the creation of new personal and organisational knowledge. For instance, quantity surveyors are constantly encouraged to put forward more efficient alternative solutions and proposals for existing assignments and other work-related issues. In this way, existing knowledge would be further developed or even sublimated in the knowledge creation. Moreover, firms also encourage staff to identify their individual working practice and procedures as recommended practice for future use. Apart from these, analysis of precedents of successes and mistakes is revealed as a means of enriching organisational knowledge.

Knowledge store

Speed of response is a distinct feature distinguishing a firm's competence from that of its competitors (Buckman, 2004). Hence a speedy and reliable knowledge retrieval system may somehow help improve an organisation's competitive strength. Knowledge in Hong Kong quantity surveying firms is arranged in quite a systematic form so that data and information are selected and organised before being stored. It is mainly stored either in paper documentation or by electronic means. Some are transformed into organisations' routines / procedures and memories in the human brain. Furthermore, knowledge, which is reduced into paper documentation, is generally made available to all staff instead of being personal documentaries. Regarding the dominance of these means, it is suggested that knowledge in quantity surveying firms is being transformed to explicit knowledge.

After all, this development in terms of on knowledge storage is not perfectly free of flaws and inevitably requires some protection. Explicit knowledge, which codified the organisational wisdom, is famous for its susceptibility to malicious damage and pirating by rivals. Therefore, quantity surveying firms often impose restricted access to confidential / sensitive information. However, security protection, such as in the form of records of access, rarely works its way into these firms' protection strategy. From the study, knowledge in Hong Kong quantity surveying firms is easily located by intended knowledge users.

Knowledge distribution

Mobilisation of knowledge is also observed in quantity surveying firms. Mentoring ranks highest among the various methods of knowledge transfer. Other alternatives, such as the appointment of specific expertise to specific projects, daily interaction, electronic means and paper documentation, enjoy slightly less popularity. These findings in effect acknowledge the presence of tacit knowledge transfer. However, tacit knowledge can seldom be treated as the only object of knowledge transfer in the firms since only a few can survive by sole reliance on face-to-face knowledge transmission. Regarding knowledge sharing, financial incentives may arouse the interest of the staff in sharing.

Nevertheless, the findings suggest that neither monetary rewards to staff nor the incorporation of knowledge sharing into staff appraisals is put into play in Hong Kong quantity surveying firms. Besides this omission, the physical environment, such as office layout, is not specifically designed by quantity surveying firms to enhance knowledge sharing. In addition, the provision of remote access to organisational databases is still rare in quantity surveying firms. Ultimately, although knowledge in quantity surveying firms is generally accessible, there is ample room for development.

Knowledge Use

With regard to knowledge use, knowledge in quantity surveying firms is mostly used for problem solving. The purpose of product / service development is less frequently cited. Quite often, knowledge gained in previous projects is sought in order to be applied to current ones.

Knowledge Maintain

In light of the problem of obsolescent knowledge, about half of the quantity surveyors described regular updates and maintenance of validity of knowledge in their workplace. However paramount the need, a clear policy / strategy governing the ways in which knowledge should be handled is far from prevalent in the firms. The appointment of managers for knowledge aspects is only carried out by one third of the responding quantity surveyors. Despite the absence of such an appointment and policy, nearly half of the responding quantity surveyors can seek the necessary knowledge when they need it.

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