

2007

Does Size Matter in Knowledge Management? A Qualitative/Quantitative Enquiry

Mohammed Quaddus
Curtin University of Technology

Jun Xu
Southern Cross University, jun.xu@scu.edu.au

Follow this and additional works at: <http://aisel.aisnet.org/acis2007>

Recommended Citation

Quaddus, Mohammed and Xu, Jun, "Does Size Matter in Knowledge Management? A Qualitative/Quantitative Enquiry" (2007).
ACIS 2007 Proceedings. 5.
<http://aisel.aisnet.org/acis2007/5>

This material is brought to you by the Australasian (ACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ACIS 2007 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Does Size Matter in Knowledge Management? A Qualitative/Quantitative Enquiry

Mohammed Quaddus
Graduate School of Business
Curtin University of Technology
Perth, Australia

Jun Xu
Graduate College of Management
Southern Cross University
E-mail: jun.xu@scu.edu.au
Armidale, Australia

Abstract

Literature in knowledge management is rich with studies of successful factors and case studies of large organizations. But question still remains: does size matter? Are there any differences in the use and practice of knowledge management between small and medium enterprises (SMEs) and large organizations? This paper reports a recent study investigating this fundamental question. A two phase research approach is undertaken in this study. First a qualitative field study is undertaken by collecting data via interviews of five large organizations and ten SMEs. Content analysis of the interview data indicate "Competitive Pressure", "Customer Demand and Expectation", "Top Management Support/Leadership", "Organizational Structure", "Organizational culture", and "Benefits to individuals" being the significant factors of knowledge management. The qualitative study reveals that there are no significant differences between the SMEs and large organizations on KM factors. A quantitative analysis is then undertaken on a recently collected dataset and the qualitative results are reconfirmed. This is contrary to the traditional literature on Information Systems which generally reports that size does matter in IS adoption. The implications of the study are highlighted.

Keywords

Knowledge Management, Knowledge Management Systems, SMEs, Large Organizations, Australia, Qualitative, Quantitative, Content Analysis, PLS

Introduction and Background

Human civilizations have been preserving and passing knowledge from generation to generation for a better understanding of the past and therefore, the future. Knowledge management refers to a systematic and organizational specific framework to capture, acquire, organize, and communicate both tacit and explicit knowledge of employees so that other employees may utilize them to be more effective and productive in their work and maximize organization's knowledge (Alavi & Leidner 1999; Davenport, Long & Beers 1998). Knowledge management includes four knowledge processes: knowledge creation, knowledge storage, knowledge distribution, and knowledge application (Alavi & Leidner 1999; Myers 1996; Wiig 1993).

Literature has defined knowledge management (KM) in a number of ways. For example, Carayannis (1999, p. 219) suggests that knowledge management "can be viewed as a socio-technical system of tacit and explicit business policies and practices. These are enabled by the strategic integration of information technology tools, business processes, and intellectual, human, and social capital". Wiig (1993, p.458) defines knowledge management as "the field of deliberately and systematically analysing, synthesizing, assessing, and implementing knowledge related changes to attain a set of objectives". Sveiby (1998) describes knowledge management as "the art of creating value from an organization's intangible assets". Sarvary (1999, p.95) defines knowledge management as "a business process". It is the process through which firms create and use their institutional or collective knowledge. Saffady (1998, p.3) views knowledge management as "the systematic, effective management and utilization of an organization's knowledge resources". Malhotra (1998) defines knowledge management as "Knowledge Management caters to the critical issues of organizational adoption, survival and competence in face of increasingly discontinuous environmental change. Essentially, it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings". In this study, the definition by Ruggles (1998) is adopted, which is as follows: "KM is.... an approach to adding or creating value by more

actively leveraging the know-how, experience, and judgment reside within and, in many cases, outside of an organization.” (Ruggles 1998, p. 80).

This definition highlights important elements of knowledge management. The “know-how” aspect of KM emphasizes the “explicit” knowledge, which can be easily captured and codified (Bonner 2000). On the other hand the “experience” and “judgment” aspects of KM reflects the “tacit” or “implicit” knowledge, which is difficult to capture and formalize (Bonner 2000). The definition also emphasizes that primary purpose of knowledge management is to add or create “value”.

Based on the literature (Polanyi 1962, 1967; Nonaka & Takeuchi 1995; Spender 1996; Alavi & Leidner 2001; Leonard & Sensiper 1998), knowledge basically can be divided into two categories: tacit knowledge and explicit knowledge. Some common applications of tacit knowledge are problem solving, problem finding, and prediction & anticipation (Leonard & Sensiper 1998). Tacit knowledge basically consists of two dimensions: cognitive and technical elements (Nonaka & Takeuchi 1995). The cognitive dimension of tacit knowledge refers to “mental models”, which assist human beings in interpreting and understanding the world around them; individuals’ perspectives, beliefs, and opinions are some examples of tacit knowledge (Nonaka & Takeuchi 1995). The technical element of tacit knowledge includes things such as crafts, skills, and problem-solving abilities (Nonaka & Takeuchi 1995). Tacit knowledge is personal and context-specific; therefore it is more difficult to formalize and communicate (Nonaka & Takeuchi 1995). Contrasting to tacit knowledge’s subjective nature, explicit knowledge is more objective and generally can be codified or documented in formal or systematic format (Nonaka & Takeuchi 1995). Information in the databases, library, and Internet are some examples of explicit knowledge. Tacit knowledge could have higher value than explicit knowledge since people always know more than they can tell (Sveiby 1997, p. 34; Moody & Shanks 1999). Furthermore, in order to apply explicit knowledge in practices, it must be converted to the tacit knowledge (Moody & Shanks 1999). For example, students have to understand the knowledge, i.e., concepts, definitions, theories, formulas, they learn in the classroom and books before they can apply them to interpret, understand, and solve the problem in reality.

A lot of research has been done on various aspects of knowledge management in large organizations. However the literature on knowledge management comparing large businesses (more than 200 staff) and SMEs (less than 200 staff) is very limited. This research is aimed to address this gap and it investigates the role of business size in knowledge management practices. Thus this study addresses the following research questions:

- (i) are there any differences in the use and practice of knowledge management between SMEs and large organizations?
- (ii) does size matter?

Research Design

A two phase research approach is undertaken in this study. First a qualitative field study is undertaken by collecting data via interviews of five large organizations and ten SMEs. A quantitative analysis is then undertaken on a recently collected dataset. A revised ‘Unified Theory Acceptance and Use of Technology (UTAUT)’ is developed and tested in this phase (Venkatesh et al. 2003).

Qualitative Field Studies

A convenience sampling procedure was undertaken to select companies which were willing to be included in the field study. It is noted that convenience sampling is frequently undertaken in business research (Zikmund 2000). Main selection criterion was that the companies must be involved in various stages of knowledge management. Five large businesses and ten small and medium size companies took part in the study. At least one key person in the company, who has the knowledge of knowledge management, was contacted for interview.

Data Collection

Semi-structured interview technique was used as the primary vehicle to collect data. The interview plan followed the guidelines of Whiteley et al. (1998) and Patton (1990). The final interviews were scheduled as per the convenience of the interviewees, so that there were minimum disruptions and interruptions in their working schedules. A pre-interview session was conducted first via telephone, which provided each interviewee an idea about the interview process and gave them some food for thought. Each interview lasted for about one hour. With the permission of the interviewees, each interview was recorded using a micro-audio recorder. Each interview was transcribed the following day in order to reflect on the body language and other non-verbal cues fresh from memory. The semi-structured interview questions focused on the areas of information needed in this research include: (i) the general perceptions and understanding of KM, (ii) current practices of KM in the company (iii) motivations for adopting KM, (iv) main factors that influence the establishment of KM and the

links between those factors, (v) barriers to putting KM into place, (vi) factors that would encourage people to participate in KM, (vii) factors that would prevent people in adopting and practising KM, (viii) required resources and facilitating factors of implementing KM, (ix) elements of KM critical to firm's strategic capabilities or survival, (x) most important knowledge areas for your business, (xi) individual factors which impact upon KM effectiveness, (xii) information technology for KM and it's role in KM, (xiii) expected KM benefits, and (ixx) relationship of KM with organizations' strategic objectives and with business success. Before the final interviews were carried out a pre-test of the interview questions was conducted with a company. The interview questions proved to be working well in getting the required information. However, minor adjustments were made based on the feedback.

Data Analysis

One of the challenges in qualitative research is data analysis. A number of tools and techniques are available in the literature (Miles & Huberman 1994). These tool(s) must be selected based on the objectives of the research. Since the research in this phase was more exploratory than confirmatory in nature, "content analysis" was chosen as a method in analyzing the interview transcripts (Berg 2001). Two-stage content analysis was carried out for data analysis. Stage one dealt with single interview transcripts, while stage two dealt with cross interview transcripts (Miles & Huberman 1994). Tables 1 and 2 present the demographic information on the companies involved in the field study. It is noted that among 10 SME participants (see Table-2) there are two community services clubs, tourism and hospitality service, two real estate services, two health services, two education providers and one IT firm. The size of the company varied from 7 staff to around 200. In the meantime, among five large business participants there are two government organizations and three private companies (one mineral resource, one consulting, and one engineering). Size of the company varies from 200 staff to over 4000 staff. One private company and one public organization have knowledge manager or chief knowledge officer on board. All companies are involved in various stages of knowledge management. Tables 1 and 2 also present the interviewees' positions in their organizations.

Table 1: Demographic Information of SMEs

| | Com 1 | Com 2 | Com 3 | Com 4 | Com 5 | Com 6 | Com 7 | Com 8 | Com 9 | Com 10 |
|---|--|----------------------------------|--|-----------|---|-----------------|----------------------|---|-----------------------|-----------------------|
| Nature of Business | IT (Software Development, sales and support) | Tourism and Hospitality Services | Aged Care services and community health services | Education | Community Services Club (Entertainment and Leisure) | Educ-ation | Real Estate Services | Comm-unity Services Club (Enter-tainment and Leisure) | Health Ser-vices | Real Estate Ser-vices |
| Size | 7 | 37 | 88 | 119 | 190 | 14 | 14 | 110 | 14 | 60 |
| Interview Participants' Position | Owner | CEO | HR Manager | Principal | PR Manager | General Manager | Ow-ner | CEO | Office Admin Man-ager | Man-aging Dire-ctor |

Table2: Demographic Information of Large Organizations

| | Company 1 | Company 2 | Company 3 | Company 4 | Company 5 |
|---|---|-------------------|---------------------------------|----------------------------|--|
| Nature of Business | Public Service (Resources preservation) | Mineral Resources | Consulting (International) | Public Service (Justice) | Engineering & Construction (Multinational) |
| Size | >2,00 | 593 | 4,500 | >2,00 | 4000 |
| Interview Participant's Position | Director of Strategic Development & Corporate Affairs | Managing Director | National Board Member & Partner | Change & Knowledge Manager | 1. Director & Chief Financial Officer 2. Director of Business Development & Director of Corporate Affairs 3. Manager-Business Proposal |

Results

Table 3 presents significant factors of knowledge management for both large businesses and SMEs. The five significant factors of KM for SMEs, chosen by all ten companies, are: “*Competitive Pressure*”, “*Customer Demand and Expectation*”, “*Top Management Support*”, “*Organizational Structure*”, and “*Organizational culture*”. The four significant factors for large businesses, chosen by all five companies, are: “*Organizational Culture*”, “*Organizational Structure*”, “*Top management support*”, and “*Benefits to individuals*”. It is noted that financial issues were not mentioned.

Table 3: Significant Factors of Knowledge Management

| | SMEs | Large Businesses |
|-------------------------|--|---|
| External Factors | <ul style="list-style-type: none"> ▪ Competitive Pressure ▪ Customer Demand and Expectation | |
| Internal Factors | <ul style="list-style-type: none"> ▪ Top Management Support ▪ Organizational Structure ▪ Organizational culture | <ul style="list-style-type: none"> ▪ Organizational Culture ▪ Organizational Structure ▪ Top management support ▪ Benefits to individuals |

Participants of the field study felt that their companies’ initiatives on knowledge management have been initiated by the tough competition and customers’ demand for better and more value-for-money services. Organizations exist within an “open” environment where external influences (i.e., changes in the marketplace) have direct impact on their internal operation (Ward 1994; Moffet, McAdam & Parkinson 2003). Through fostering collaborative practices and knowledge sharing, knowledge management can enhance organizations’ ability of learning about the external environment, and thus improve their responsiveness (Lemon & Sahota 1998; Moffet et al. 2003). In the meantime while the knowledge about customer is the most important knowledge domain for businesses (Alavi & Leidner 1999), effective knowledge management can equip organizations with the capability to better understand and better serve their customers.

Top management plays critical roles in knowledge management (Pan & Scarbrough 1999), and provides vision and energy for the organization’s efforts in managing its knowledge assets. For example, the leadership process in General Electric (GE) is all about sharing knowledge and creating knowledge. The top management in GE has focused on the importance of sharing knowledge. The knowledge sharing practice starts at the top (Lloyd & Stewart 2002). All the interview participants express the view that support from top management, i.e., understanding the importance of knowledge management, commitment, leadership, is crucial for the success of knowledge management in organization. Without management’s commitment and emphasis on knowledge management, people won’t take it seriously (De Tienne et al. 2004). At the same time, business leaders should pay attention to various issues associated with of knowledge management, including culture, structure, process, training and development. Simply investing money in IT can only produce more examples of KM failures. And more attention should be given to people since businesses make profits through selling and effectively using their knowledge (tacit knowledge) (Sveiby 1995; Lloyd & Stewart 2002). Top management need to work on creating a climate of trust where people can share knowledge with confidence (Pan & Scarbrough 1999) and look at how they can embed knowledge into people’s day-to-day work to help them do their jobs more effectively and efficiently (Lytras 2005).

Organizational culture has been increasingly recognized as a major barrier to knowledge management (De Long & Fahey 2000; Gold, Malhorta & Segars 2001). All the participants of the field study shared the importance of organizational culture, which influences the effects of other factors (i.e., technology, management practices) of knowledge management practices (Syed-Ikhsan & Rowland 2004), on the success of knowledge management. Organizations have to create an environment where people feel comfortable and are willing to share their knowledge. A knowledge-oriented culture challenges people to share knowledge throughout the organization (Davenport & Prusak 1998; Gold et al. 2001). In the meantime, the benefits of knowledge management need to be demonstrated, and knowledge-sharing practices should be rewarded with tangible (i.e., financial rewards) and intangible (i.e., recognition) incentives (DeTienne et al. 2004). There was also a general agreement among participants that organizational structure facilitates the knowledge sharing and cross-boundary collaboration. Organizations with flexible and organic structure are more likely to achieve the perceived benefits of knowledge management than those organizations that are rigid and bureaucratic (Gold et al. 2001). Organizations with a rigid structure must be prepared to re-engineer its organizational structure to facilitate knowledge management.

The Role of Business Size in Knowledge Management

Past research has reported the impact of size in the adoption of technology. For example, Kimbley and Evansiko (1981) suggest that adoption of technical innovation tend to spread widely in large organizations. Premkumar et

al. (1997) report larger organizations are more likely to adopt EDI. Thong (1999) finds that organizational size is positively related to the organization's adoption decision of information systems. Buonanno et al. (2005) find company size is significantly related to ERP adoption. Rogers (1995) points out that business size has positive impact on organizational innovativeness, the organization's willingness to adopt the innovation. Sarvary (1999) suggests that large firms with large customer base tend to perceive a KMS more useful and have a better chance to apply KMS to build sustain competitive advantage. In the mean time, there exists an argument that large organizations in Australia may not be the most innovative sources of knowledge management. Sveiby (1995) says that "If we wish to see the future of corporate Australia, we don't need a crystal ball or sophisticated forecasts by economists. All we need to do is to visit some of the small fastest growing and most successful knowledge companies. The management styles they are pioneering and the strategies they are pursuing will be the case stories taught in the standard curriculum of the management schools of Australia".

The results of this study indicate that there are no major differences in significant factors of KM between large businesses and SMEs across different industries. In today's highly competitive market environment, companies have to practice knowledge management and it is quite impossible to survive the severe competition without effectively managing knowledge. Perhaps larger companies are practising knowledge management more consciously and systematically than their smaller counterparts. And the former might have more resources and deploy more advanced information technology to manage knowledge.

Quantitative Studies

The impact of business size in knowledge management was further studied through a confirmatory approach. In this phase of the research the impact of business size in knowledge management systems (KMSs) adoption and diffusion was particularly studied via quantitative analysis. Knowledge management system (KMS) is a way or approach to deal with the generation, preservation, and sharing of both tacit and explicit knowledge within and outside of the organization, which essentially involves the applications of Information Technology systems and other organizational resources (Alavi & Leidner 1999). Some of the common applications of KMS are: (1) organizing and sharing/ transferring of internal benchmarks/best practices, (2) constructing corporate knowledge directories, such as corporate yellow pages, people information archive, etc., (3) creating knowledge networks and knowledge maps; among many others (Alavi & Leidner 2001). Diffusion is "the process by which an innovation is communicated through certain channels over time among the members of a social system". The four elements of a KMS diffusion process are: the innovation (KMS), communication channel, time (to adopt or reject a KMS), and the social systems (Australian Organizations).

The Research Model

Past research on the diffusion process has identified a number of factors influencing the diffusion of an innovation. Many of the past studies on innovation diffusion have applied model(s) by Ajzen & Fishbein (1980) and Davis (1986). Ajzen & Fishbein (1980)'s Theory of Reasoned Action (TRA) and Davis (1986)'s Technology Acceptance Model (TAM) have been widely used to explain the diffusion of innovation. Basically, the researchers have suggested that some external factors influence the perceptions about an innovation, which in turn affect the diffusion of the innovation, i.e. 'External Factors' → 'Perceptions' → 'Diffusion'. This simple model is generic in nature and is likely to be applicable, with some adjustments, in various innovation diffusion processes. Built on the simple model, this research developed a KMS diffusion model arising from "Venkatesh et al.'s (2003) Unified Theory of Acceptance & Use of Technology (UTAUT) model (see Figure-1) was developed. There are six factors in the model, namely performance expectancy, effort expectancy, social influence, facilitating conditions, initiation of KMS, and Use Behavior. Organizational size was used as a moderating variable. The model was tested with two data sets collected from two surveys of KMS adoption and diffusion conducted Australia-wide and in Western Australia respectively.

Performance Expectancy can be defined as the belief that KMS will attain gains in job performance (Venkatesh et al. 2003). Some expected benefits of use of KMS include: (1) benefits to decision makers, (2) more effective in jobs, (3) more creative in jobs, (4) productivity enhancement, (5) cost and time reduction, (6) increased knowledge building, (7) avoiding repeating the same mistakes, (8) better customer services, and (9) high-tech image. Effort Expectancy is defined as the degree of ease associated with the use of KMS (Venkatesh et al. 2003). Dimensions of effort expectancy include (1) simple to learn and use, (2) cheap to learn and use, (3) quick to get knowledge from, and (4) accessible from anywhere anytime. Social Influence is about others' influence on use of KMS (i.e., peer pressure, following leaders' lead, respected people's influence, superior's encouragement, and subordinate's encouragement) (Venkatesh et al. 2003). Facilitating Conditions refer to the existence of organizational and technical infrastructure to support KMS (Venkatesh et al. 2003) and address areas of (1) people's experience and skill, (2) understanding of organizational knowledge, (3) organizational structure supporting KMS, (4) organizational culture rewards and encourages KMS, (5) IT infrastructure, (6) supporting business processes, (7) Support from IS/IT department, (8) top management initiative, (9) top management

support, (10) management challenge to people to be innovative, and (11) effective knowledge reuse. Initiation of KMS is concerned with activities of preparing and embracing the introduction of KMS into the organization. Some examples of such activities are: (1) establishing that KMS is the ideal solution, (2) background research in KMS conducted, (3) budget allocation, (4) appointing a knowledge champion, (5) building supporting infrastructure for KMS introduction, and (6) organizational adjustments (processes etc.). Use Behaviour of KMS refers to implementation and diffusion of KMS and looks at areas of (1) routine use of KMS, (2) consistent use – needs satisfying, (3) being integral part of business process, (4) supporting users’ working style, (5) adjustment of business processes for KMS implementation, (6) discouraging old means to capture knowledge, (6) having rigorous procedure to use KMS, and (7) monitoring the usage of KMS. Organizational size refers to number of employees.

Hypotheses

Links in the research model (Figure-1) represent the hypotheses. The revised UTAUT model thus has five hypotheses. As a result of page limitation, the details of hypotheses development will not be presented here. The five hypotheses are:

- H1: The influence of expected performance of KMS on initiation of KMS will be moderated by business size, such that the effect will be stronger for larger organizations.*
- H2: The influence of expected effort to use KMS on initiation of KMS will be moderated by business size, such that the effect will be stronger for larger organizations.*
- H3: The influence social influence on initiation of KMS will be moderated by business size, such that the effect will be stronger for larger organizations.*
- H4: The influence of facilitating conditions on use behavior of KMS will be moderated by business size, such that the effect will be stronger for larger organizations.*
- H5: Initiation of KMS will have a significant positive influence on use behavior of KMS.*

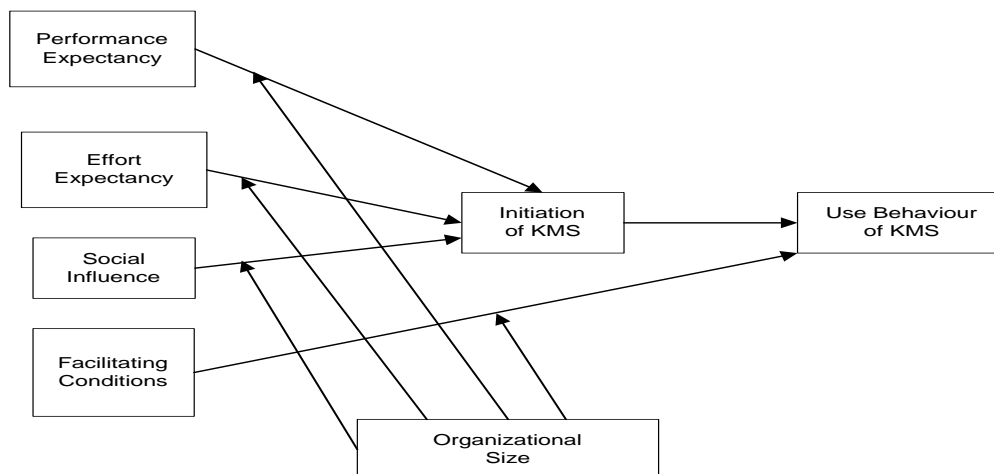


Figure 1: A Revised Venkatash et al. 's (2003) Unified Theory of Acceptance & Use of Technology (UTAUT) model

Data Collection

National Survey

1,500 top revenue firms were organized from Business-Who-is-Who database (online-version). 1,500 questionnaires were distributed to functional and senior managers in these companies who appear to be most relevant to KM and KMS. At the end 285 valid responses were received resulting in 23% response rate. Table-4 presents the distribution of size (number of employees) in national survey

Table 4: Distribution of Size (number of employee) in National Survey

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|---------------|-----------|---------|---------------|--------------------|
| Valid | Less than 100 | 30 | 10.5 | 10.5 | 10.5 |
| | 100 to 300 | 62 | 21.8 | 21.8 | 32.3 |
| | 301 to 500 | 48 | 16.8 | 16.8 | 49.1 |
| | More than 500 | 145 | 50.9 | 50.9 | 100.0 |
| | Total | 285 | 100.0 | 100.0 | |

Western Australia (WA) Survey

The questionnaires were also sent to 300 top companies in Western Australia (WA). There were 2 respondents from each company, thus 600 respondents took part in the study. At the end 149 valid responses were received. Thus final effective response rate was 24.8%. Distribution of size (number of employees) can be seen in Table 5.

Table 5: Distribution of Size (number of employee) in WA Survey

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------|-----------|---------|---------------|--------------------|
| Valid Less than 100 | 50 | 33.6 | 33.6 | 33.6 |
| 100 to 300 | 38 | 25.5 | 25.5 | 59.1 |
| 301 to 500 | 13 | 8.7 | 8.7 | 67.8 |
| More than 500 | 48 | 32.2 | 32.2 | 100.0 |
| Total | 149 | 100.0 | 100.0 | |

Data Analysis via PLS

The national survey data was analysed by Structural Equation Modelling approach using PLS-Graph 3.0. Before the data were analysed, it was necessary to assess its properties. Data were tested for assumption of multinormality. Although the Kolomogorov-Smirnov normality test showed the distribution anomalies in all items, the skewness and kurtosis of each item fell within the acceptable range (± 2). It is noted that PLS is specially appropriate for small sample analysis (Chin & Newsted, 1999). According to Barclay et al. (1995) PLS requires a minimum sample size that is ten times the greater of: (i) the number of items comprising the most complex formative construct, or (ii) the largest number of predictors leading to an endogenous (dependent) construct. We don't have any formative construct in our research model and in our case the largest number of predictors leading to an endogenous construct is 11(Facilitating Conditions in Figure-1). Thus this study requires a minimum sample size of 77. Therefore 285 usable responses in national survey and 149 valid responses in WA study are both appropriate for PLS analysis. Reliability of factors in the model was measured by examining cronbach's α . The cut-off point for reliability is normally taken as 0.7. However 0.6 is acceptable for exploratory research (Hair et al. 1998). This study is exploratory in nature since it is testing a revised model with KMS as the case. Table 6 shows that all the latent variables for both national and WA studies have internal consistencies above 0.6, indicating that the constructs are internally consistent and hence reliable.

Table-6: Reliability of Factors

| Factors | National Data | WA Data |
|-------------------------|---------------|---------|
| Performance Expectation | 0.836 | 0.841 |
| Effort Expectation | 0.64 | 0.684 |
| Social Influence | 0.8 | 0.786 |
| Facilitating Conditions | 0.858 | 0.871 |
| Initiation of KMS | 0.765 | 0.796 |
| Use Behavior of KMS | 0.815 | 0.812 |

Results

Results of National Survey

Table 7 and Table 8 report the results of National Survey using business size (number of employee) as moderating variable. It can be seen from these two tables that H1 to H4 were not supported while H5 was supported by our national survey data.

Table 7: Results of National Survey

| Predictors | Initiation | | |
|--|---------------------------|----------------------------------|-----------------------------|
| | 1 | 2 | 3 |
| (a) Control variables: Gender Age Experience | 0.113 0.049 0.027 | 0.027 0.059 -0.02 | 0.035 0.058 -0.015 |
| (b) Independent variables: Performance Expectancy Effort Expectancy Social Influence | | 0.286*** 0.246*** 0.229*** | 0.201 0.342* 0.228 |
| (c) Moderation: Performance Expectancy * Organizational size (empl no.) Effort Expectancy * Organizational size (empl no.) Social Influence * Organizational size (empl no.) | | | 0.207 -0.252 -0.029 |
| F (sig.) Adj. R ² | 1.238 (0.296) 0.013 | 25.67*** (0.00) 0.343 | 17.42*** (0.00) 0.343 |

*p<0.05, ** p < 0.01; ***p<0.001

Table 8: Results of National Survey (cont)

| Predictors | Use Behaviour of KMS | | |
|--|---------------------------|------------------------------|-----------------------------|
| | 1 | 2 | 3 |
| (a) Control variables: Gender Age Experience | 0.141* -0.013 0.046 | 0.048 -0.033 0.017 | 0.049 -0.031 0.017 |
| (b) Independent variables: Initiation Facilitating conditions | | 0.558*** 0.255*** | 0.553*** 0.267*** |
| (c) Moderation: Facilitating conditions * Organizational size (empl no.) | | | -0.035 |
| F (sig.) Adj. R ² | 1.97 (0.119) 0.02 | 68.235*** (0.00) 0.542 | 56.91*** (0.00) 0.542 |

Results of WA Survey

Table 9 and Table 10 report the results of WA Survey using business size (number of employee) as moderating variable. It can be seen from these two tables that H1 to H4 were not supported while H5 was supported in the WA study.

Table 9: Results of WA Survey

| Predictors | Initiation | | |
|--|----------------------------|--------------------------------|----------------------------|
| | 1 | 2 | 3 |
| (a) Control variables: Gender Age Experience | 0.089 0.258** -0.112 | 0.091 0.234** -0.044 | 0.099 0.227** -0.047 |
| (b) Independent variables: Performance Expectancy Effort Expectancy Social Influence | | 0.288*** 0.26*** 0.222** | 0.16 0.108 0.51** |
| (c) Moderation: Performance Expectancy * Organizational size (empl no.) Effort Expectancy * Organizational size (empl no.) Social Influence * Organizational size (empl no.) | | | 0.362 0.592 -0.986 |
| F (sig.) Adj. R ² | 2.647 (-.051) 0.033 | 12.99*** (0.00) 0.33 | 9.049 (0.00) 0.332 |

Table-10: Results of WA Survey (cont)

| Predictors | Use Behaviour of KMS | | |
|--|---------------------------|------------------------------|------------------------------|
| | 1 | 2 | 3 |
| (a) Control variables: Gender Age Experience | 0.045 0.081 -0.165 | -0.011 -0.101 -0.076 | -0.011 -0.101 0.076 |
| (b) Independent variables: Initiation Facilitating conditions | | 0.59*** 0.259*** | 0.591*** 0.256*** |
| (c) Moderation: Facilitating conditions * Organizational size (empl no.) | | | 0.009 |
| F (sig.) Adj. R ² | 1.278 (0.284) 0.006 | 41.076*** (0.00) 0.577 | 33.999*** (0.00) 0.574 |

Conclusions and Future Research Directions

This paper first presents a comparative study of knowledge management between large businesses and SMEs. In doing so it takes a qualitative field study approach. Fifteen companies (5 large organizations and 10 SMEs) and took part in the study. The interviews were transcribed by the researchers and the contents were analyzed thoroughly using a structured process. Three variables identified to be significant for KM success in both SMEs and large businesses were: “*Organizational Structure*”, “*Organizational culture*”, and “*Top Management Support*”. These variables were mentioned by all the participating companies. Organizations planning to embark on KM or currently practicing some parts of KM should look into these variables carefully for successful implementation of KM.

This paper then presented second-phase of the research in which a revised UTAUT model was tested by utilizing two recently collected data sets of KMS adoption. The results of quantitative analysis suggest that “organizational size” did not have any effect on the ‘initiation’ and ‘use behaviour’ of KMS. Such finding is not in line with many past IT adoption study. A possible explanation is that the competitive pressure has forced every business and organization practice knowledge management even though there are some differences in format, extent, complexity, advances, and experience of their knowledge management activities. Another possible explanation for this is that the required technologies (intranet, databases, communication tools, etc) for managing knowledge is already in place and are available to people. Everyone has thus become familiar with those technologies. As a result, people may tend to take this availability for granted and hence is the indifference to KMS Characteristics as an influencing factor in the KMS adoption. More research on the impact of business size on IT adoption is needed.

This study contributes to the KM literature by adopting a combined qualitative and quantitative research method. It first uses qualitative field studies to identify significant factors of knowledge management then validate it in the subsequent quantitative analysis. It must be mentioned that most of the existing research in KM are quantitative in nature, i.e., hypothesis testing confirmatory type. The researchers’ future plan is to further test the moderating impact of size and examine the moderating impact of other factors such as industry sector, business models, country/cultural differences, etc. This part of the research will use a quantitative approach, which will test a number of hypotheses and the model itself.

References

- Ajzen, I. & Fishbein, M. 1980, *Understanding Attitudes and Predicting Social Behavior*, Prentice-Hall, Inc., Englewood Cliffs, New Jersey 07632.
- Alavi, M. & Leidner, D. E. 1999, ‘Knowledge Management Systems: Issues, Challenges, and Benefits’, *Communications of the Association for Information System*, 1(7), [WWW document] <http://cais.isworld.org/articels/1-7/article.html> [accessed 15 May 2001].
- Alavi, M. & Leidner, D.E. 2001, ‘Knowledge management and knowledge management systems: Conceptual foundations and research issues’, *MIS Quarterly*, vol. 25, no. 1, pp.107-146.
- Berg, B. L. 2001, *Qualitative Research Methods for the Social Sciences*, Allyn and Bacon, Boston.
- Bonner, D. 2000, *Leading Knowledge Management and Learning*, American Society of Training & Development, Virginia.
- Buonanno, G., Faverio, P., Ravarini, P. A., Sciuto, D, & Tagliavini, M. 2005, ‘Factors affecting ERP system adoption: A comparative analysis between SMEs and large companies’, *Journal of Enterprise Information Management*, vol. 18, no.4, pp.384-426.

- Carayannis, E.G. 1999, 'Fostering synergies between information technology and managerial and organizational cognition: the role of knowledge management', *Technovation*, vol. 19, no.4, pp. 219-233.
- Chin, W and P. R. Newsted, (1999) 'Structural Equation Modelling Analysis with Small Sample Using Partial Least Squares', in *Statistical Strategies for Small Sample Research*, R. H. Hoyle, Ed. Thousand Oaks – California: Sage Publication, Inc., pp. 307-341.
- Davenport, T. H. & Prusak, L. 1998, *Working Knowledge: How Organizations manage What They Know*, Harvard Business School Press.
- Davis, F. D. 1986, *A technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results*, Doctoral Dissertation, Massachusetts Institute of Technology.
- DeTienne, K. B., Dyer, G., Hoopes, C. & Harris, S, 2004, 'Toward a Model of Effective Knowledge Management and Directions for Future Research: Culture, Leadership, and CKOs', *Journal of Leadership and Organizational Studies*, vol. 10, no.4, pp. 26-43.
- De Long, D. W. & Fahey, L. 2000, 'Diagnosing Culture Barriers to Knowledge Management', *Academy of Management Executive*, vol. 4, no. 4, pp. 113-127.
- Gold, A. H., Malhotra, A. & Segars, A. H. 2001, 'Knowledge Management: An Organizational Capabilities Perspective', *Journal of Management Information Systems*, vol. 18, no. 1, pp. 185-214.
- Hair, J.E., Anderson, R.E., Tatham, R.L. & Black, W. C. 1998, *Multivariate Data Analysis, Fifth Edition*, Prentice-Hall, Upper Saddle River, USA.
- Leonard, D. & Sensiper, S. (1998), "The role of tacit knowledge in group innovation", *California Management Review*, Vol. 40, No. 3, pp.112-132.
- Lloyd, B. & Stewart, T. A. 2002, 'Leadership and Knowledge Management', *Leadership & Organization Development Journal*, vol .23, no. 5-6, pp. 288-292.
- Lytras, M. D. 2005, 'An interview with Tom Davenport', *AIS SIGSEMIS Bulletin*, 2005, vol. 2, no.2, [WWW document], http://www.sigsemis.org/columns/interviews/Tom_Davenport_for_SIGSEMIS.pdf [accessed 26 May 2005].
- Malhotra, Y. 1998, *Knowledge Management, Knowledge Organizations & Knowledge Workers: A View from the Front Line*, [WWW document], <http://www.brint.com/interview/maeil.html> [accessed 10 November 2001].
- Miles, M.B. & Huberman, M. A. 1994, *An Expanded Sourcebook: Qualitative Data Analysis, 2nd Edition*, SAGE Publications Thousands Oaks, California, USA.
- Moffet, S., McAdam, R. & Parkinson, S. 2003, 'An empirical analysis of knowledge management applications', *Journal of Knowledge Management*, vol. 7, no. 3, pp. 6-26.
- Moody, D. L. & Shanks, G.G. 1999, 'Using knowledge management and the internet to support evidence based practice: a medical case study', in *Proceedings of the 10th Australasian Conference on Information Systems*, Wellington, New Zealand, December 1-3, 1999, pp. 660-676.
- Myers, P. S. 1996, *Knowledge Management and Organizational Design*, Butterworth-Heinemann, Boston, USA.
- Nonaka, I. & Takeuchi, H. 1995, *The Knowledge-Creating Company-How Japanese Companies Create the Dynamic of Innovation*, Oxford University Press, New York.
- Pan, S. L. & Scarbrough, H. 1999, 'Knowledge Management in Practice: An Exploratory Case Study', *Technology Analysis & Strategic Management*, vol. 11, no. 3, pp.359-374.
- Patton, Q.M. 1990, *Qualitative Evaluation and Research Methods, 2nd Edition*, Newbury Park: SAGE Publications.
- Polanyi, M. 1962, *Personal Knowledge: Toward a Post-Critical Philosophy*, Routledge and Kegan Paul, London, UK.
- Polanyi, M. 1967, *The Tacit Dimension*, Anchor Books, Doubleday, Garden City, New York, USA.
- Premkumar G, Ramamurthy, K. & Crum, M. 1997, 'Determinants of EDI adoption in the transportation industry', *European Journal of Information Systems*, vol. 6, no. 2, pp. 107-121.
- Rogers, E. M. 1995, *Diffusion of Innovations (Fourth Edition)*, The Free Press, New York, USA.

- Ruggles, R. 1998, 'The state of the notion: knowledge management in practice', *California Management Review*, vol. 40, no. 3, pp.80-89.
- Saffady, W. (1998) *Knowledge Management: A Manager's Briefing*, ARMA International, Prairie Village, KS.
- Sarvary, M. 1999, 'Knowledge management and competition in the consulting industry', *California Management Review*, vol. 41, no.2, pp. 95-107.
- Scarborough, H., Swan, J. & Preston, J. 1999, *Knowledge Management: A Literature Review*, Institute of Personnel & Development, London.
- Spender, J. C. 1996, 'Organizational knowledge, learning, and memory: three concepts in search of a theory', *Journal of Organizational Change Management*, vol. 9, pp. 63-78.
- Sveiby, K. 1995, *Small Knowledge Companies-Wave of the Future*, [WWW document], <http://www.sveiby.com.au/KnowledgeOrganizationsAust.html> [accessed 16 September 1999].
- Sveiby, K. E. 1998, *Intellectual Capital and Knowledge Management*, [WWW document], <http://www.sveiby.com/articles/IntellectualCapital.html> [accessed 12 November 2002].
- Syed-Ikhsan, S. M. & Rowland, F. 2004, 'Knowledge Management in a Public Organization: A Study on the Relationship between Organizational Elements and the Performance of Knowledge Transfer', *Journal of Knowledge Management*, vol. 8, no. 2, pp. 95-111.
- Thong, J. Y. L. 1999, 'An integrated model of information systems adoption in small business', *Journal of Management Information Systems*, vol. 15, no. 4, pp. 187-214.
- Venkatesh, V., Morris, M.G., Davis, G. B. & Davis, F. D. 2003, 'User Acceptance of Information Technology: Toward A Unified View', *MIS Quarterly*, vol. 27, no. 3, pp. 425-478.
- Whiteley, A., McCabe, M., Buoy, L., Howie, F., Klass, D., Latham, J., Bickley, M. & Luckheenariam, L. 1998, *Planning the Qualitative Research Interview*, Working Paper Series 98.01, Graduate School of Business, Curtin University of Technology, Australia.
- Ward, M. 1994, *Why your corporate culture isn't working and what to do about it*, Part 1, Organizational Culture and Change, Gower, London.
- Wiig, K. 1993, *Knowledge Management Foundations: Thinking about Thinking: How People and Organizations create, represent, and use knowledge*, Schema Press, Arlington, Tex., USA.

Copyright

Mohammed Quaddus & Jun Xu © 2007. The authors assign to ACIS and educational and non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to ACIS to publish this document in full in the Conference Proceedings. Those documents may be published on the World Wide Web, CD-ROM, in printed form, and on mirror sites on the World Wide Web. Any other usage is prohibited without the express permission of the authors.