Knowledge Management in Small and Medium Enterprises: An Australian Study

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Abstract: This research aims to examine the factors influencing the knowledge management practices in Australian SMEs. Primary data was collected by studying companies in Tweed and Gold Coast areas. Besides the academic contribution to the field of knowledge management, this research will be able to provide applicable and practicable suggestions on the knowledge management practices to SMEs in Australia.

Keywords: Knowledge Management, SMEs, Qualitative Methods, Content Analysis

I. Introduction

As a result of the changing market places (from capital assets market to knowledge economy), competition, and the rapid development of technology, organizations are starting to pay more attention to maximize their knowledge-based assets. More and more organizations are starting to realize that knowledge is their most important asset and the knowledge-related assets will be the base of sustainable competitive advantage and the foundation of success in the 21st century [34]. Organizations are understanding and accepting the fact that the most important source of wealth and basic economic resource in the contemporary society, the "knowledge society" called by Drucker [12], is knowledge and information [31]. When a business faces competitors that perform well in areas such as planning, marketing, products, customer services, structure, organizational resources management, effective management of knowledge may be the only weapon to win the competition [8]. Researchers (such as Drucker [12], Sveiby [29]; Nonaka & Takeuchi [21]; Davenport & Prusak [7], among many others) bring out that knowledge and intellectual capital are an organizations' primary sources of production and value and tangible assets such as land, plant, equipment are rarely their most valuable assets. Through successful knowledge management, organizations are able to act intelligently to sustain their long-term competitive advantage through developing, building, and deploying its knowledge assets [36].

A lot of research have been done on the knowledge management in large organizations. However the literature on the knowledge management in SMEs is very limited. For example, only 31 articles could be found on "knowledge management and SMEs" in Proquest 5000 database when a search was made on June 1, 2005. There is a lack of empirical study in the area of knowledge management in SMEs, especially in the Australian context. The only literature on KM in Australian SMEs can be identified is Braun [6], which suggests a conceptual model mapping access to knowledge flows within SMEs. In the mean time, there exists an argument that large organizations in Australia may not be the most innovative sources of knowledge management. Sveiby [28, http://www.sveiby.com/articles/KnowledgeOrganizationsAust.html) 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". This research is aimed to address this gap. This research investigates the knowledge management practices in SMEs in Australia. This study addresses the following research questions:

(i) to identify various factors and variables of KM benefits, and

(ii) to explore and develop a model of KM Benefits

II. The Background

"Knowledge management 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." [26, 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 [5]. On the other hand the "experience" and "judgment" aspects of KM reflects the "tacit" or "implicit" knowledge, which is difficult to capture and formalize [5]. The definition also emphasizes that primary purpose of knowledge management is to add or create "value".

Based on the literature [24] [25] [21] [3] [15], 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

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prediction & anticipation [15]. Tacit knowledge basically consists of two dimensions: cognitive and technical elements [21]. 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 [21]. The technical element of tacit knowledge includes things such as know-how, crafts, and skills [21]. Tacit knowledge is personal and context-specific; therefore it is more difficult to formalize and communicate [21]. Contrasting to tacit knowledge's subjective nature, explicit knowledge is more objective and generally can be codified or documented in formal or systematic format [21]. Information in the databases, library, and Internet are some examples of explicit knowledge. Tacit knowledge has much higher value than explicit knowledge since people always know more than they can tell [29, p. 34] [20]. Furthermore, in order to apply explicit knowledge in practices, it must be converted to the tacit knowledge [20]. 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.

Many of the past studies on innovation diffusion have applied the model(s) by Ajzen & Fishbein [1] (Theory of Reasoned Action (TRA) and Davis [9] (Technology Acceptance Model (TAM)). Basically these researchers have suggested that some external factors influence the perceptions about an innovation, i.e. "External Factors" → "Perceptions". This simple model is generic in nature and is likely to be applicable, with some adjustments, in various innovation diffusion processes. As mentioned before, the aim of this research is to study, via field study, various factors and variables affecting KM benefits and to investigate to what extent the above generic model is applicable in developing a comprehensive model of KM Benefits.

III. The Operation of Field Study

III. 1 Qualitative Research Paradigm

The paradigm of the research is qualitative, in which field study has been used as the research method [23] [37]. The field study adopts a semi-structured interview approach to better understand the participants' views on knowledge management. The literature review provides the framework for developing and refining the interview questions. It is very common to get qualitative data through interviews. Evidence exists that the interviewing has been used as an effective tool to collect data for thousands of years [33]. Like any other research method, field study involves choosing a sample of companies using either random or non-random method [37]. The details of the field study research process are presented in the subsequent sections below.

III. 2 Sample

A convenience sampling procedure was undertaken to select companies who were willing to be included in the field study. It is noted that convenience sampling is frequently undertaken in business research [37]. Main selection criterion was that the companies must be involved in various stages of knowledge management. Ten companies were selected from the list of companies where our Australian MBA students were employed in Tweed and Gold Coast areas. At least a key person in the company, who has the knowledge of knowledge management, was contacted for interview.

III. 3 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. [33] and Patton [23]. The final interviews was scheduled as per the convenience of the interviewees, so that there will be 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.

III. 4 Data Analysis via Content Analysis Approach

One of the challenges in qualitative research is data analysis. A number of tools and techniques are available in the literature [18]. These tool(s) must be selected based on the objectives of the research. Since the research in this stage was more exploratory than confirmatory in nature, "content analysis" was chosen as a method in analyzing the interview transcripts [4]. Two-stage content analyses was carried out for data analysis. Stage one dealt with single interview transcripts, while stage two dealt with cross interview transcripts [18].

IV. Results and Discussions

IV. 1 Demographic Information

Table-1 presents the demographic information on the companies, which are at different stages of knowledge management, involved in the field study. It is noted that 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. Table-1 also presents the interviewees' positions in their organizations.

All companies have adopted some form of knowledge management practices, which are supported by different technologies.

IV. 2 Factors and Variables of KM Benefits in SMEs

Altogether six factors and fifty-two variables, which have impact on the knowledge management practices, were identified from different companies via extensive content analyses as described earlier. The six primary factors are:

External inspiring factor, Individual factor, Organizational factor, Management support factor, and KM technology factor and Expected Benefits of KMS.

It is interesting to note that out of 53 variables only five variables are mentioned by all ten companies and one variable is mentioned by nine companies. Some variables are only mentioned by one or two companies. The six variables, chosen by all ten companies, are: *"Competitive Pressure"*, *"Customer Demand and Expectation"*, *"Top Management Support/ Leadership"*, *"Organizational Structure"*, and *"Organizational culture"*. Participants of the field study felt that their companies' initiative on knowledge management have been ignited by the tough competition and intensive competitive pressure in the market place and challenges from customers, who are demanding more value-for-money and expecting better services. Organizations exist within an "open" environment where external influences such as changes in the marketplace influences internal operation [32] [19]. Through fostering collaborative practices and knowledge sharing, knowledge management facilitates the learning about the external environment [14] and the implementation of a successful change management program responding to the external environment [19]. The organizations are implementing knowledge management to learn and respond to their customers better. Through effective knowledge management programs, businesses is also able to provide more enhanced or/ and new products and services. Literature, such as Alavi & Leidner [2]; suggest that knowledge about customer and customers are most important knowledge domains for businesses.

Management and leadership play critical roles in knowledge management [22]. Management provides vision and energy to stimulate and sustain effective knowledge management practices and systems. Leaders have direct impact on the organization's culture and its knowledge management approaches. Without management's commitment and emphasis on knowledge management, people won't take it seriously [10].

Those at the top of an organization should have to find the knowledge needs of the business. Simply investing money in IT only can produce more examples of KM failures and waste of investment. Leaders have to take account issues such as culture, structure, process, training and development. More attention should be given to people since businesses make profits through selling and effectively using their knowledge (tacit knowledge) [28] [16]. One important challenge for leaders is how they can embed knowledge into people's day-to-day work to help them do their jobs more effectively and efficiently [17]. Besides being role models for learning and knowledge sharing, leaders are responsible for creating a climate of trust where people can share knowledge with confidence [22]. 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 s in organization. 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 [16].

All the participants of the field study share the importance of organizational culture, which influences the effects of other factors (i.e., technology, management practices) of knowledge management practices [30], in contributing to the success of knowledge management. Organizational culture has been increasingly recognized as a major barrier to knowledge management [11] [13]. 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 [7] [13]. In the mean time, 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 [10].

There is 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 [13]. Organizations with a rigid structure must be prepared to re-engineer its organizational structure to facilitate effective knowledge management.

IV. 3 Relationships Among the Factors

Table-2 presents the links among the factors of KM benefits. Column 1 presents the pairs of factors and corresponding direction of links. Information on perceived causal links was sought during the interview process and was extracted from the interview scripts via content analysis. For example, "EI & EB" in row 1 of Table-2 represents that "External Inspiring factor" (EI) impacts "Expected Benefits factor" (PU), and this link has been identified in all the ten companies From this table a causal model of KMS diffusion can be traced for different companies.

IV. 4 A Combined KM Benefits Model

Figure-1 presents the combined model of KM Benefits which has been developed selecting the variables and links mentioned by at least 2 companies. Looking at Figure-1, it is observed that the basic KM Benefits model of "External Factors" → "Expected Benefits", which was obtained from the literature, applies quite effectively for KM. However, it must be highlighted that the factors and variables are different and very specific to KM practices in SMEs.

IV. 5 Research Implications

Figure-1 presents the comprehensive model of KM benefits. This model is unique in the sense that it has been developed based on the data obtained from ten interviews in ten different companies. Although no formal propositions are developed in this paper, the model can still be taken as a research model for further investigation. For example, a causal modeling approach (structural equation modeling) can be undertaken to test the model. Figure-1 would serve as the basic research model for further exploratory research to develop and test appropriate research hypotheses.

IV. 6 Managerial Implications

Figure-1 also presents a practical model of KM benefits. All the factors/sub-factors and variables have been obtained from the real world. Companies planning to embark on KM can consider the variables of Figure-1 as "criteria" of successful implementation of KM. It must be noted that not all criteria of Figure-1 will be applicable for all companies. A careful analysis is first needed to select the appropriate criteria for the company.

V. Conclusions and Future Study

This paper presents a comprehensive study to determine the factors and variables of KM benefits. In doing so it takes a qualitative field study approach. Six companies took part in the study, which resulted in eight interviews with key person(s) in the companies. The participating companies were in various stages of KM practices. The interviews were transcribed by the researchers and the contents were analyzed thoroughly using a structured process. The analyses resulted in six factors and 52 unique variables. Company specific individual diffusion models were first developed which were then combined to develop a comprehensive KM benefits model.

Five variables identified to be significant for KM success were: *"Competitive Pressure"*, *"Customer Demand and Expectation"*, *"Top Management Support/ Leadership"*, *"Organizational Structure"*, *"Organizational culture"*, *and "Top Management Support'*. These variables were mentioned by all the ten 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 study contributes to the KM literature in the following ways. It used a qualitative research method to develop the factors, variables and comprehensive model. The research was thus exploratory in nature. It must be mentioned that most of the existing research in KM are quantitative in nature, i.e., hypothesis testing confirmatory type. The comprehensive model can be used to undertake further research and thus add value to the literature on knowledge management. The paper elaborated on how the combined model can be used to undertake further research and how it can also be used for practical applications in companies which are embarking on KM.

The researchers' future plan is to study the combined model further using a structural equation modeling approach. This part of the research will use a quantitative approach, which will test a number of hypotheses and the model itself.

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Table-1 Demographic Information

	Company 1	**Company 2**	**Company 3**	**Company 4**	**Company 5**	**Company 6**	**Company 7**	**Company 8**	**Company 9**	**Company 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)	Education	Real Estate Services	Community Services Club (Entertainment and Leisure)	Health Services	Real Estate Services
Size	7	37	88	119	190	14	14	110	14	60
Interview Participants' Position	Owner	CEO	HR Manager	Principal	PR Manager	General Manager	Owner Manager	CEO	Office Administration Manager	Managing Director
KM Status	Advanced KM Practices	Just Thinking	Limited	Just Starting	Never Thought About it	Limited KM Practices	Never Thought About it	Limited KM practices due to complex-ity of workplace	Some KM practices	Limited KM Practices

Table-2 Casual Links Among the Factors

	Comp 1	**Comp 2**	**Comp 3**	**Comp 4**	**Comp 5**	**Comp 6**	**Comp 7**	**Comp 8**	**Comp 9**	**Comp 10**	**Frequency**
External Inspiring Factors											
EI & EB	√	√	√	√	√	√	√	√	√	√	10
ID & EB	√	√	√	√	√	√	√	√	√	√	10
MS & EB	√	√	√	√	√	√	√	√	√	√	10
KMT & EB	√	√	√	√	√	√	√	√	√	√	10
ORG & EB	√	√	√	√	√	√	√	√	√	√	10

Note: EI- External Inspiring Factor

ID-Individual Differences Factor

MS-Management Support Factor

KMT: Knowledge Management Technology

ORG-Organizational Factor

EB: Expected Benefits

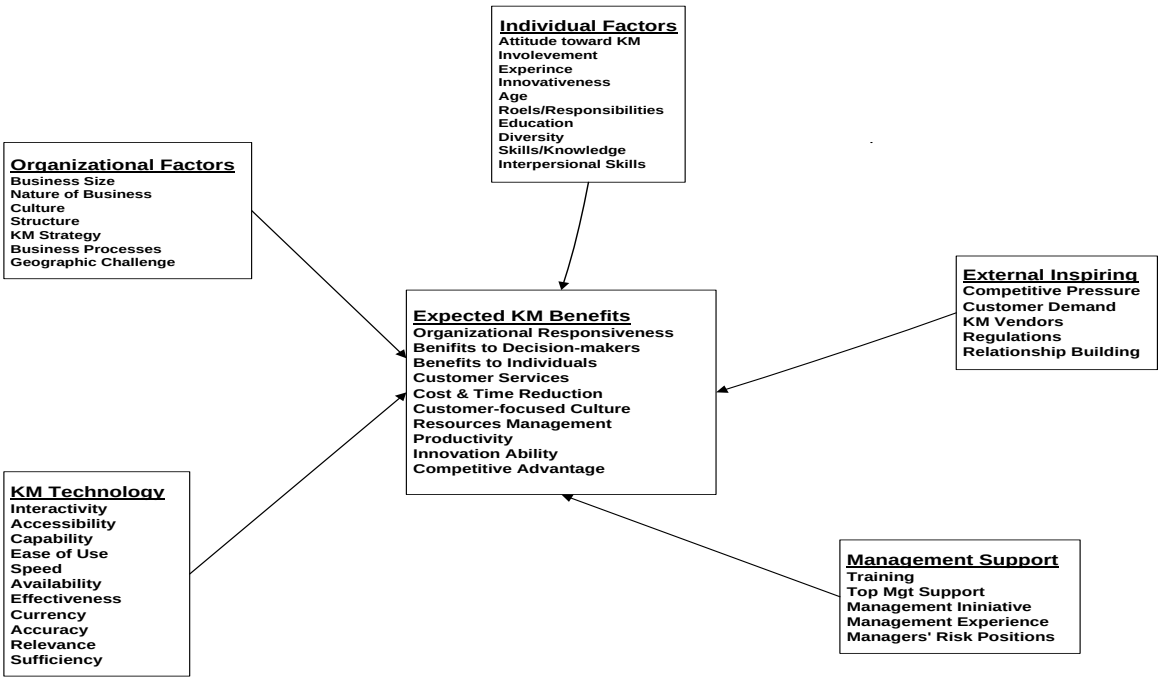

Figure-1 Combined KM Benefits Model