

KNOWLEDGE MANAGEMENT STRATEGIES BY PROPERTY MANAGEMENT COMPANIES IN MALAYSIA

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ABSTRACT

This paper attempts to develop a theoretical base for the understanding of knowledge management concepts that can be used by property management companies in Malaysia. The strategy, which is a conceptual model, is formulated from various literature surveys on knowledge management. A case study includes 25 property management companies registered with the Board of Valuers, Estate Agents and Appraisers. The empirical validation was done to propose a KM strategies model in the context of property management. Using factor analysis, several dimensions were identified as key strategies of KM in property management companies. From the findings, an inclusive set of activities of KM in property management companies in Malaysia is shown.

Keywords: Knowledge management strategy, property management, Malaysia

INTRODUCTION

In the property management industry, the concept of knowledge management (KM) is relatively new. From the literature survey, very few studies focus on the concept of knowledge management in property management. However, literature exists in other subject areas, particularly in relation to the concept of local knowledge that provides debate and useful insight on how knowledge is acquired by and transferred between individuals (Almond, 2001). Thus, this paper will show the level of implementation of a knowledge management strategy among property management companies in Malaysia. Results from this study will to some extent be a basis for the whole KM framework.

The property management industry has also seen innovative change in recent years, not least caused by the advent of the internet and the evolution of new routes to market (Wynn *et al.*, 2007). Dixon (2005) highlighted that there was an increasing debate during the late 1990s over the emergence of a 'new economy', built on major structural changes driven by globalisation, information and communication technology (ICT). He further stated that the trend was shifting away from tangible physical assets towards intangible goods, such as knowledge, information. Consequently, it also reflects the real estate business today. Traditionally, real estate businesses are engaged with land, money, location, value, property and estate. Dixon also propagates of the new economy which now takes place in

a globalisation environment, driven by technological change in alliance with other forces (Dixon, 2005). Furthermore, real estate professionals should re-orientate themselves in a globalised world. In the management playing field, knowledge management is already a common term for organisations to become better as well as developing managerial skills among workers. Knowledge management represents a logical progression beyond information management (Baker and Badamshina, 2002). Furthermore, knowledge management can also be seen as representing a culmination and integration of many earlier organisation development ideas such as total quality, reengineering, organisational learning, benchmarking, competitive intelligence, innovation, organisational agility, asset management, supply chain management, change management etc. (Baker and Badamshina, 2002).

According to Callahan (2003), a knowledge management strategy should encompass:

- i. actions that are intended to result in anticipated business outcomes;
- ii. actions that emerge as a result of the many complex activities that are undertaken within an organisation.

Lam (2008) highlighted that from the strategic management point of view, managers should always review the environmental changes and seize opportunities to improve their organisational performance. In the information age, many organisations compete for shrinking profit margins in an increasingly global market (Aurum *et al.*, 2007). Malmberg *et al.* (1996) brought to light three key issues to ensure competitiveness in firms:

- i. localised innovation processed
- ii. barriers to the diffusion of knowledge
- iii. attraction of outsider sources of knowledge.

THE KM FRAMEWORK FOR PROPERTY MANAGEMENT

Until recently, there has been relatively little effort to formulate a knowledge management strategy in property management practice. Chin and Poh (1999) touched on quality in property management in Singapore, based on the ISO and TQM model. While Li (1997) found that there were many problems for the implementation of good property management in the emerging property market, he also stressed that this is especially the case when the supply of good quality buildings is increasing in various cities, and competition among cities and buildings will be very keen. Users also have a very different view of property from that of the property managers (Gibson, 1994). Nonetheless, this paper identifies the gap by summarising all models suited and appropriate for the property management practices. The KM framework from the literature review was assessed and examined to identify its potential to be implemented in property management practice. Several KM strategy models were used to ascertain hypothetical background to

investigate the employment of a KM strategy in property management companies. In consequence, it is vital to know the background of property management companies.

According to Diakoulakis et. al (2004), knowledge management has been gradually established as a strong methodology to support business viability, competitiveness and growth. Grenon (2000), described knowledge management as a tool aimed at providing a framework for anticipating the unknown. Rubenstein *et al.* (2001) defined knowledge management as a conceptual framework for problem-solving that considers problems in their entirety. In addition, knowledge management can be viewed as a conceptually complex, evolving, broad umbrella of issues and viewpoints (Smith, 2004).

In Malaysia, there is no detailed guideline or guidebook on knowledge management strategies in property management practices. However, it is believed under Act 242, BOVEA and The Institution of Surveyors Malaysia will take the initiative to undertake property management practice as a guideline to all practitioners. However, according to Tripartite Committee on the Property Management Industry in Hong Kong, there are four criterion needs to be emphasised in property management practices:

Recruitment and selection – the property management industry encompasses a variety of specialties; thus people engaged in the industry need to possess a variety of expertise and high level of skills. This is to ensure the person is able to effectively manage the properties and facilities to meet the escalating expectation of customers.

Staff training and development – property management industry is always working towards professional development and excellence. Employees in the trade have to equip themselves with knowledge on different aspects, e.g. management, finance, legal matters, information technologies, customers' service, etc.

Employer-employee communication – the property management industry is a service industry. Many employers of this industry understand that in order to provide customers with quality and cost-effective service, apart from recruiting and nurturing talents, it is equally important to retain staff through good communication and proper commendation.

Employment terms- agreeing on the condition of employment is an important procedure in the establishment of an employment relationship. Employers and employees should be mindful of the existing regulation and laws when negotiating and agreeing on their conditions of employment. (Source: Tripartite Committee, Hong Kong)

After examining all relevant KM models and property management practices in the industry, this paper accentuates four major elements in KM to investigate KM strategy implementation in property management. In this paper, the findings are based on the strategies below.

S1: KM ORGANISATION STRATEGY

Roberston (2004) described that every organisation has a unique environment, defined by factors such as:

- i. Purpose and activities of the organisation
- ii. Overall strategic direction
- iii. Organisation culture
- iv. Size of the organisation
- v. Geographic spread
- vi. Staff skills and experience
- vii. Organisational history
- viii. Available resources
- ix. Marketplace factors.

Soliman and Spooner (2000) suggested that a key element in the business case is deciding how to apportion efforts aimed at harnessing tacit knowledge versus explicit knowledge. He recommended companies to use the 80:20 rule, i.e. spending 80 percent of resources one approach and 20 percent on the other. In addition, organisations need to distinguish between data, knowledge and information. According to Bhatt (2001), data, information and knowledge can only be distinguished from a user's perspective. He added data are considered as raw facts, information is regarded as an organised set of data, and knowledge is perceived as meaningful information. For the purpose of this research, KM activities have been identified to stipulate a level of KM organisation activities in property management. Thus ten items have been identified which are as follows (Table 1):

Table 1: Item description for KM organisation strategy (KMO)

Item Code	Item Description
KMO1	Organisation encourages the practice of understanding, documenting, archiving customer requirement.
KMO2	Organisation encourages staff to transfer their working knowledge/ knowledge to new and inexperienced staff.
KMO3	Organisation encourages knowledge sharing among staff that attended training, CPD, conferences and seminar.
KMO4	Brainstorming, team work, work in pairs are well accepted and recognized among staff
KMO5	All responses from customer will be in close attention and dealt prior to the next testing.
KMO6	Customer's queries will be dealt with in prompt manner
KMO7	Organisations provide incentives and acknowledgement to the staff for innovations, new ideas and sharing of experiences.
KMO8	Development of policy and program to boost loyalty and to reduce staff turnover rate.
KMO9	Staff assessments are based on their individual contribution to the knowledge development in organisation.
KMO10	A special task unit being formed to manage knowledge within the organisation.
KMO11	A special task unit being formed to manage knowledge within the organisation

S2: KM TECHNOLOGY AND INFRASTRUCTURE STRATEGY

Infrastructure and technologies could support all KM processes. The level of ICT support and the kind of ICT infrastructure needed by a consulting firm depend on its KM strategy. The core elements of suitable architecture are a central electronic repository of explicit knowledge focusing on knowledge as an object (Zack 1999; Maier & Remus, 2003). At present, the emerging technology in the business world is e-commerce. According to Helms *et al.* (2008), e-commerce includes business-to-consumer (B2C), business to business (B2B) and internal business interaction via an intranet. They added both e-commerce and knowledge management rely on the internet. In real estate, e-commerce is already used widely in retail property. However, in property management, it is still at the foundation level. Thomson (2005) suggested that sophisticated analytical tools have emerged to help companies address optimisation of their supply chain networks. He further added that these tools allow companies to model existing and alternative supply chain networks and identify the trade-offs in cost, service and time that must be made in developing a supply-chain strategy that optimises their competitive position. However, the challenge is to characterise which type of infrastructure and technology KM strategy will

be better suited for property management. Hamilton and Selen (2004) suggested establishing web interfacing using quality function deployment (QFD) to improve service chain network in real estate. From the literature review survey, four items have been identified as test variables in property management. Sub-items are created under each item to specify activities of the KM Infrastructure and Technology strategy (Table 2).

Table 2: KM infrastructure and technology strategy (KT)

Item Code	Item Description
KT0	Sharing Knowledge/Information
KT0-1	Online Messaging
KT0-2	Telephone
KT0-3	Video Conferencing
KT0-4	Document Management System
KT0-5	E-forum
KT0-6	E-mail
KT0-7	Blogs
KT1	Technical Appliances
KT1-1	Website
KT1-2	Wireless Internet Connection
KT1-3	Wired Internet Connection
KT1-4	Mobile Technology
KT1-5	Internet
KT2	Information Dissemination
KT2-1	E-mail
KT2-2	Memo/letters
KT2-3	Bulletin Board
KT2-4	Website
KT2-5	Fax
KT3	Assisting Tools for Recording, Controlling and Tracking
KT3-1	Microsoft Project
KT3-2	Spreadsheet
KT3-3	Physical Document
KT3-4	Facilities Management Software
KT3-5	Property Management Software

S3: KM CULTURE STRATEGY

Culture is the way a group perceives, thinks and feels in relation to problems and is required /acquired for a group to solve problems (Fitzek, 1999). In a knowledge management context, it refers to changing corporate culture and business procedures to make sharing of information possible (Bhatt, 2001). According to Barney (1986), organisations which have a culture that supports and encourages cooperative innovation

should attempt to understand what it is about their culture that gives them a competitive advantage and develop and nurture those cultural attributes. This is further supported by Park *et al.* (2004) who mentioned that cultural change is an extremely difficult, time consuming and frustrating process for organisations. Lopez *et al.* (2004) outlined a collaborative culture that needs to be stressed in a knowledge management culture:

- i. a long term vision and advance management of the change
- ii. communication and dialogue
- iii. trust and respect for all individuals
- iv. teamwork
- v. empowerment
- vi. ambiguity tolerance
- vii. risk assumption
- viii. respect and diversity encouragement.

However, Park *et al.* (2004) stressed that deep assessment of an organisational culture requires more than a questionnaire. He further added that learning about the history of the company, visiting the place, talking to employees and observing behaviours can be more effective. The key to create an organisational learning culture through KM lies in the exchange of mental models and their institutionalisation in a firm's operational structure by transforming the rules of decisions that until then have dominated its behaviour, thus enabling it to carry out more effective actions (Lopez *et al.*, 2004). The term social complexity as asserted by April (2002) refers to KM culture. Social complexity is when the source of advantage is known, but the method of replicating the advantage is unclear (April, 2002). She added social complex responsibility combinations depends upon large numbers of people or teams engaged in co-ordinated action such that few individuals, if any, have sufficient breadth of knowledge to grasp the overall phenomenon. 23 items have been identified under KM Culture activities as variables that were tested among property management companies (Table 3).

Table 3: KM culture strategy (KMC)

KMC1	Sharing information together
KMC2	Working closely with others
KMC3	Team oriented work
KMC4	Trust
KMC5	Fairness
KMC6	Enthusiasm for the job
KMC7	Autonomy
KMC8	Flexibility
KMC9	Supportive of employees
KMC 10	Tolerance of failure
KMC 11	Rule orientation
KMC 12	Praised good performance
KMC 13	Experimentation
KMC 14	Demanding of employees
KMC 15	Take advantage of opportunities
KMC 16	Having a good reputation
KMC 17	Being exact
KMC 18	Decisiveness
KMC 19	Problem solving
KMC 20	Adaptability
KMC 21	Developing friends at work
KMC 22	Being thoughtful
KMC 23	Security of employment

S4: KM HUMAN RESOURCE STRATEGY

Human resource is the most vital component in an organisation. As human character itself is complex, managing humans in an organisation is a difficult task. Traditionally, firms constantly measure performance based on tangible elements such as number of employees and assets. However, as globalisation takes place, intellectual capital has emerged. Organisation should facilitate knowledge sharing among staff. Hislop (2002) found three major elements that may affect a number of attitudes and behaviours:

- i. attitude of workers towards knowledge-sharing activities
- ii. extent to which workers actively participate in KM and knowledge sharing activities
- iii. loyalty of workers to their organisation and the likelihood that they will choose to remain with it.

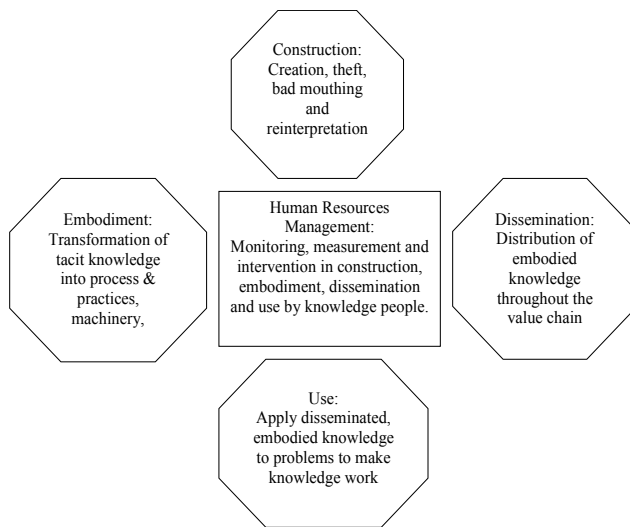
According to Aliaga (2000), the distinguishing characteristics of human capital (for example: ideas, training) is that it is tangible. He added that from an economic perspective, human capital encompasses both knowledge and intellectual capital because

both are intended revenue for the firm. In addition, Soliman *et al.* (1999) recommended the following strategy for managing human resource knowledge:

- i. reviewing the drivers and strategies for human resource knowledge management efforts
- ii. gaining the commitment and understanding from human resource executives
- iii. identifying priorities within the human resource department
- iv. implementing knowledge management support system within the human resource department
- v. managing the expectation of employees.

Clarke and Staunton (1989) outlined a model of knowledge management process that can be used to map human resource knowledge (Figure 1). The model integrates four concepts; construction, embodiment, dissemination and use of knowledge. These concepts are blended together to ensure the success of a KM human resource strategy.

Figure 1: Model of human resource management in knowledge management strategy



Adapted from Clark and Staunton, 1989

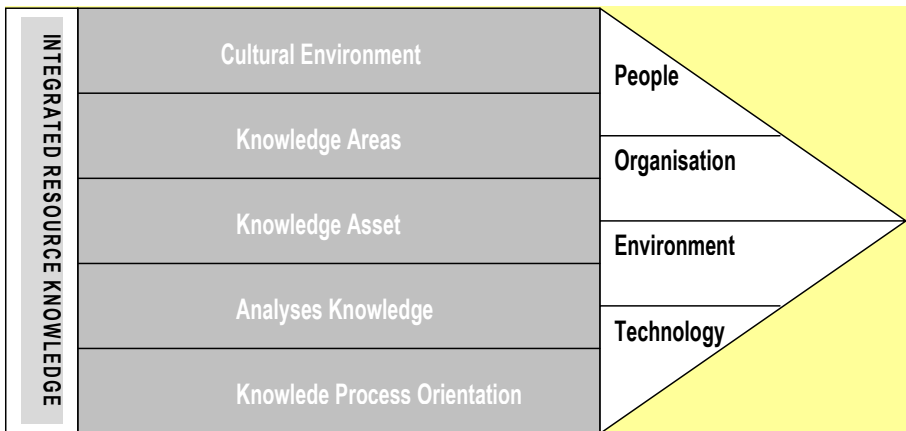
10 variables have been drafted out in order to accomplish KM strategy investigation on property management (Table 4). These variables were tested for property management companies.

Table 4: KM human resources strategy

KMHR1	Staff taking own initiatives to independently upgrade their competency and skills.
KMHR2	Staff encouraged by the organisation to continue their professional course/education.
KMHR3	Peers provide informal training related to knowledge management within the organisation.
KMHR4	Staffs capture and use knowledge obtained from other industry sources.
KMHR5	Staffs capture and use knowledge obtained from other public research institutions and universities.
KMHR6	Staffs use formal mentoring practice including apprenticeship.
KMHR7	Staff regularly updating databases of good work practices, lesson learnt, or listing of experts.
KMHR8	Staffs feel elated by incentive and rewards schemes provided by the organisation.
KMHR9	Staff plans their projects and progress monitoring systematically for self efficient recording.
KMHR10	Staffs have awareness of sharing knowledge among peers as well as within the real estate fraternity.

From the above literature, the conceptual model to be tested on property management companies is conceived. The four elements are based on five key areas adopted to form the basis of the formulation of the KM strategy model. All these elements form one main pillar which is called an integrated resources knowledge concept (Figure 2).

Figure 2: KM strategy conceptual model for property management



RESEARCH METHODOLOGY

In this study, the questionnaires were distributed to 25 property management companies. According to the Board of Valuers, Appraisers and Estate Agent, as of 31st December 2007, only 25 Property Management Companies in Malaysia were registered with the board (refer to www.lppeh.gov.my). Respondents were selected from the companies registered under the Board of Valuers, Appraisers and Estate Agents (BOVEA). According to Act 242 of the Property Management Practice, property management practice comes under valuation practice. Therefore the term valuation practice is synonymous with property management practice (Act 242, Property Management Practice). Thus, only registered valuers can practice property management in Malaysia. Accordingly, the respondents will represent the property management sector in Malaysia.

Questionnaires were sufficiently filled with a response rate of 100%. In addition, semi structured interviews were carried out with 7 different property management companies. It was mainly to disseminate questionnaires and to determine the number of properties managed by the companies, both past and current. Furthermore, it is to observe knowledge management activities in the companies to strengthen the results of the research. It is mainly based on four elements that are designed in the conceptual model. The interviews were conducted in the following manner: the material was hand-delivered to the respondent, where the respondents were asked to verbally explain his/her thoughts while filling out the questionnaire. In this way, the interviewers were able to get quite a good picture of the questions and formulations that caused difficulty, and in the process a number of modifications were made to the phrasing of individual questions. After the questionnaire was filled, respondents were asked about KM implementation within their organisation.

During the interviews, respondents admitted that they would unlikely respond to the questionnaires had they were simply sent by post. One of their reasons for responding was that the questionnaire had 'research value', since they would prefer to answer this type of questionnaire than one of the numerous ones sent by consultancies. Respondents were contacted in advance via telephone before the questionnaires were sent out to them. For the most part, it was the smaller property management companies that declined to participate. In the majority of cases, the reasons given for the decline were lack of time and resources to answer the many questionnaires they receive each week. A small group declared that they had no interest in participating, while a few said that the questionnaire was simply too difficult for them to answer. At the beginning, it was difficult to get access to the respective organisations as most of them were very busy and have no time to attend to the questionnaires given to them. However, after a detailed explanation was given, eventually they cooperated. As a consequence, the response rate for this survey was 100%. This percentage was obtained only with exceptional effort. The possibility of finding other ways of collecting data, for example via telephone interviews rather than written questionnaires, should be considered.

The questionnaire is developed based on four KM strategies of existing KM models in other areas. It consists of five sections comprising of four main elements; KM Organisation Strategy, KM Infrastructure and Technology Strategy, KM Organisation Strategy and KM Human Resource Strategy. In addition, a company profile was added in order to obtain demographic analysis of each company. Most of the questions are objective which means respondents need only choose from three options; not implemented, implemented and highly implemented.

RESEARCH FINDINGS AND DISCUSSIONS

The main focus of the findings are based on a questionnaires distributed to the 25 property management companies (summary in Table 5). It aims to investigate the KM strategy approach in organisations whose main business is property management. Respondents were asked to define knowledge management. The definition of Knowledge Management provided the means for further discussion both during the interviews with respondents and feedback from questionnaires. It is noted that Knowledge Management is not a known concept in property business, and/or is interpreted differently by different people. Moreover, the majority of KM activities were designed with different objectives other than acquiring and sharing knowledge. . This led this paper to examine the knowledge of KM levels in these companies based on the four strategies developed in the conceptual model. The data collected from this survey became a basis for describing the current KM practice in property management companies in Malaysia. The approach of analysis is undertaken in several ways. First, factor analysis was adopted to identify the structure of all the variables constructed in the conceptual model. Factor analysis is an exploratory technique to summarise the structure of a set of variables. Typically, from all variables drafted, it will allow numerous inter-correlated variables to be condensed into fewer dimensions. Thus, the level of KM strategy implementation and the core factors from the list of variables will be identified. Furthermore, it will extract KM Strategies factors that underlying constructs that described from the set of variables. A correlation test was carried out to test whether the correlation among strategies is positive, conditional or observable.

The data from 25 responses were examined using Principal Component Analysis (PCA) and varimax as a method of rotation. According to Hair *et al.* (1992), he suggested that item loadings of >0.30 are considered significant, >0.40 are more important and >0.50 are considered very significant. However, Aladwani and Palvia (2002) highlighted that there are no accepted absolute standards for the cut offs; the choice is based on judgement, purpose of study and prior study. Therefore, as this study is aimed to investigate the level of implementation of KM Strategy, items with factor loadings of less than 0.30 on each factor were deleted to refine the measurements. The results substantiate the existence of 9 factors with eigenvalues greater than 1 and factor loadings greater than 0.30 that cumulatively accounted for 72.1% of the total variance (highlighted in bold in Table 6).

These dimensions reflect the broad KM strategies in organisation that needs to be identified (Table 7). The earlier KM strategies identified only 4 factors to be observed from the literature survey; however, these 9 factors show that these 4 strategies can be categorised further into more general strategies.

Table 5: Respondent firms profile

Size of firms	Number of firms	Number of properties managed	Number of employees
Small	8 (32%)	Less than 100	Less than 10
Medium	11 (44%)	100 to 500	11- 20
Large	3 (12%)	501 to 1000	21- 30
Very Large	3 (12%)	More than 1000	More than 30

Table 6: Factor analysis results: principal component extraction

ITEM CODE	ITEM DESCRIPTION	Factors								
		1	2	3	4	5	6	7	8	9
KMC4	Trust	0.936	0.205	-0.043	-0.032	0.094	0.028	-0.002	0.120	0.050
KMC8	Flexibility	0.905	0.275	-0.045	-0.066	0.173	-0.085	0.023	0.002	0.133
KMC6	Enthusiasm for the job	0.898	0.237	-0.139	-0.068	0.096	0.054	0.068	-0.042	-0.027
KMC2	Working closely with others	0.875	0.206	-0.124	-0.113	0.010	0.141	0.044	0.038	-0.054
KMHR8	Staffs feel elated by incentive and rewards schemes provided by the organisation	0.841	0.149	0.014	-0.273	0.208	-0.144	-0.134	0.121	-0.081
KMHR4	Staffs capture and use knowledge obtained from other industry sources	0.819	0.096	0.042	-0.319	0.061	-0.239	-0.004	0.062	0.030
KMHR6	Staffs use formal mentoring practice including apprenticeship	0.807	0.082	0.105	-0.031	0.161	-0.263	-0.103	0.122	0.083
KMHR10	Staffs have awareness of sharing knowledge among peers as well as within the real estate fraternity.	0.689	-0.040	-0.012	-0.454	0.014	-0.039	-0.059	0.112	0.126
KMHR7	Staff regularly updating databases of good work practices, lesson grant or listing of experts.	-0.636	0.044	-0.254	0.264	0.112	-0.013	0.037	0.323	0.020
KT3_2	Spreadsheet	-0.604	-0.356	0.355	0.184	-0.268	-0.127	-0.061	0.278	-0.032
KMHR9	Staffs plan their projects and progress monitoring systematically for self efficient recording.	-0.550	-0.325	0.140	0.318	-0.200	-0.096	0.003	0.365	0.119
KT1_1	Website	0.353	0.836	-0.110	0.029	0.240	-0.149	0.170	-0.015	0.119
KT1_2	Wireless Internet Connection	0.438	0.831	-0.078	0.167	0.178	-0.042	0.072	0.006	-0.052
KT08	Others	0.351	0.821	-0.241	-0.062	0.239	-0.036	0.071	-0.052	-0.057
KT1_3	Wired Internet Connection	0.357	0.692	-0.254	0.082	0.118	0.109	0.158	-0.126	-0.040
KT3_3	Physical Document	-0.081	-0.659	0.352	0.043	-0.230	-0.013	0.038	0.497	-0.058
KT2_5	Fax	-0.273	-0.550	0.312	-0.049	-0.310	-0.109	0.389	0.153	0.207
KMO5	All responses from customer will be in close attention and dealt prior to the next testing	0.059	-0.042	0.898	-0.031	-0.122	0.062	0.168	-0.028	0.116
KMO6	Customer's queries will be dealt with in prompt manner	-0.046	-0.179	0.897	-0.034	-0.178	-0.038	0.100	-0.031	0.018
KMO4	Brainstorming, team work in pairs are well accepted and recognised among staff	-0.001	-0.105	0.796	-0.180	-0.052	0.102	-0.003	0.132	0.018
KMO1	Organisation encourages the practice of understanding, documenting, archiving customer requirement.	-0.202	-0.216	0.786	-0.062	0.099	0.107	0.025	0.087	-0.077
KT3_1	Microsoft Project	-0.129	-0.084	0.596	-0.124	0.176	0.416	0.042	0.200	0.021
KMC16	Having a good reputation	0.253	0.204	0.528	0.175	0.135	0.427	0.169	-0.030	0.285
KMC22	Being a thoughtful	0.135	0.241	-0.517	-0.064	0.125	0.448	0.049	0.023	0.151
KMC5	Fairness	-0.260	-0.144	0.028	0.886	0.055	-0.018	0.058	-0.075	0.191
KMC9	Supportive of employees	-0.285	0.078	-0.133	0.880	0.037	-0.003	0.065	0.006	-0.092
KMC1	Sharing information together	-0.272	-0.070	-0.111	0.846	0.846	-0.116	0.013	-0.053	-0.233
KMC7	Autonomy	-0.276	0.058	-0.106	0.838	-0.062	0.083	-0.029	0.027	-0.238
KMHR5	Staffs capture and use knowledge obtained from other public research institutions and universities.	-0.532	-0.047	0.081	0.534	-0.069	0.003	-0.151	0.071	0.177

KMO10	A special task unit being formed to manage knowledge within organisation.	0.209	0.300	-0.017	0.065	0.830	0.018	0.026	0.146	0.137
KMHR3	Peers provide informal training related to knowledge management within organisation.	0.068	0.307	0.056	-0.110	0.772	-0.140	-0.001	0.027	0.111
KMO3	Organisation encourages staff to transfer their working knowledge/ knowledge to new and inexperienced staff.	0.197	0.205	-0.079	-0.067	0.757	0.039	0.084	-0.124	-0.036
KMO8	Development of policy and program to boost loyalty and to reduce staff turnover rate.	0.235	0.470	-0.238	-0.066	0.681	0.130	0.035	-0.045	0.023
KMHR1	Staff taking own initiatives to independently upgrade their competency and skills.	0.233	0.412	-0.289	-0.078	0.668	0.150	-0.051	-0.041	-0.288
KT0_6	E-mail	-0.034	0.110	0.234	-0.182	-0.558	-0.087	0.128	-0.073	0.324
Percentage Variation Explained		23.4%	11.7%	9.2%	7.0%	5.9%	5.4%	4.3%	3.6%	1.6%
Cumulative percentage variation explained		23.4%	35.1%	44.3%	51.3%	57.2%	62.6%	66.9%	70.5%	72.1%

Extraction method: principal component analysis; rotation method: varimax with Kaiser Normalisation

Table 7 : KM strategies implementation: PCA dimensions

	Dimensions	Percentage
1.	Attitude among Workers	23.4%
2.	Technology use in Organisation	11.7%
3.	Systematic Working Method	9.2%
4.	Support from Top Management	7.0%
5.	Knowledge Culture in Organisation	5.9%
6.	Thoughtful	5.4%
7.	Knowledge Creation	4.3%
8.	Repository System in Organisation	3.6%
9.	Innovation	1.4%

In this research, PCA is used to determine the underlying strategies of the KM strategies conceptual framework in property management companies. This study developed a theoretical foundation for understanding knowledge management concepts and supported this with empirical analysis of the proposed constructs in the context of KM strategies implementation in the property management industry. The survey results of the dimensions are readily taken as a mean from the KM context. The PCA dimensions on the KM Strategies implementation showed that the dimension of ‘attitude among workers’ and ‘technology use in organisation’ constituted almost half of the variance. The underlying dimensions are tagged as follows:

i. **First dimension.** Attitude among workers. Deal with strategies such as trust, flexibility, enthusiasm for the job, working closely with others, staffs feels elated by incentive and rewards schemes provided by the organisation, staff capture and use

knowledge obtained from other industry resources, staff use formal mentoring practice including apprenticeship and tolerance of failure.

ii. **Second dimension.** Technology use in organisation. Encompasses strategies likes using website, wireless internet connection and bulletin board.

iii. **Third dimension.** Systematic working method. Includes factors that deal with using spreadsheet in daily job, all responses from customer will be in close attention and dealt prior to the next testing, brainstorming, team work, work in pairs are well accepted and recognized among staff, organisation encourages the practice of understanding, documenting, archiving customer requirement and using Microsoft project to supervise property being under manage.

iv. **Fourth dimension.** Support from top management. Consists of strategies related organisational issues such as fairness, supportive of employees sharing information together and autonomy.

v. **Fifth dimension.** Knowledge culture in organisation. Deals with strategies such as special task unit being formed to manage knowledge, staff capture and use knowledge obtained from other public research institutions and universities, organisation encourages knowledge sharing among staff that attended training, CPD, conferences and seminar and staff taking own initiatives to independently upgrade their competency and skills and using email as part of communication culture.

vi. **Sixth dimension.** Thoughtful. Related to the items such as always being thoughtful in organisation and fairness, decisiveness, adaptability, demanding of employees and praise of good performance.

vii. **Seventh dimension.** Knowledge creation. Includes strategies likes staff assessment are based on their individual contribution to the knowledge development in organisation, a special task unit being formed to manage knowledge within organisation, organisation encourage staff to transfer their working knowledge to new and inexperienced staff, organizations provide incentives and acknowledgement to the staff for innovations, new ideas and sharing of experiences and staff encouraged by the organisation to continue their professional courses/education.

viii. **Eighth dimension.** Repository system in organisation. Deals with items such as bulletin board, internet and website.

ix. **Ninth dimension.** Innovation. Encompasses items related to norm behavior among workers such as familiar with experimentation, being exact, and problem solving.

This analysis was also verified by exploring the loading of each item on the nine factors extracted from the PCA. It was verified that the nine observed factors are indistinct, because the items within the range have low correlation while the items across the range have high correlations. This suggests that KM strategies are based on 9 strategies. It also suggests that the connection between each strategy needs to be responsive by property management players to achieve better understanding of KM concepts. At this level, property management companies tend to focus on attitudes among workers and technology, while other aspects such as repository system, innovation and knowledge creation seems less important.

CORRELATION ANALYSIS

Correlation analysis was carried out to examine the strength of the relationship between the KM Strategies of the conceptual framework. The questionnaire was designed to examine the level of Knowledge Management activities in the organisation. This would later form a basis to produce knowledge management strategy framework for property management companies in Malaysia. Level of activity refers to the length of time that a given Knowledge Management activity has been practiced. Thus the statement 'highly implemented' is considered as it is already an acceptable culture in the organisation. Table 8 illustrates each of the KM activities which have strong correlation and significance (bold text) by comparing level of activity per cluster of sub-questions.

Under the KM technology and infrastructure activities, for the sub-question 'tools and technical appliances', none of the activities show a strong correlation. However, for information dissemination, some of the activities show a strong correlation; for example memo and website (KT2-2 and KT1-1), FM software and property management software (KT3-4 and KT3-5), website and wireless internet connection ((KT1-1 and KT1-2 and wired internet connection and mobile technology (KT1-3 and KT1-4).

In KM organisation activities, only question No. 2 and No.1 respectively, No.3 and No. 6 respectively show a strong correlation. (No.2 = Organisation encourages staff to transfer their working knowledge/knowledge to new and inexperienced staff, No.1 = Organisation encourages the practice of standardising, documenting, archiving customer requirements, No. 3 = Organisation encourages knowledge sharing among staffs who attended training, CPD, conferences and seminars, No. 6 = Customer's queries will be dealt with in a prompt manner).

Conversely, for KM culture activities, most of the activities show a strong correlation. The tendency indicated that KM culture has the greatest impact on results. From the results, it is clearly shown that most of the activities in KM strategies have very low correlation except for KM Culture. KM Culture emphasises on internal factors in an organisation and the willingness to endure the changes in organisations. For this reason, property management companies in Malaysia have a strong KM Culture. However, other aspects of

KM strategies, namely Organisation, IT and Infrastructure and Human Resources, need to be strengthened.

Table 8: Correlation table of each of the KM strategies

KM Strategies				
Technology & Infrastructure	KT2-2	KT3-4	KT1-1	KT1-4
KT1-1	0.001			
KT3-5				
KT1-2		0.018		
KT1-5			0.024	
KT1-3			0.110	
				0.026
Organisation	No.2			
KMO1	.026			
KMO3	.048			
KMO6	.026			
3. People and Human Resources	No.7			
KMO4	0.021			
KMO8	0.039			

* Significant correlation ($p < 5\%$)

CONCLUSION

The aim of the paper is to extend knowledge management concepts into the property management industry. There are very little attempts to relate the knowledge management concept to property management. Thus, this paper tries to explore and understand the theoretical basis of KM concepts that can be used in property management companies in Malaysia. In doing so, the KM strategies which were formulated as a conceptual model is applied in examining the 25 registered property management companies. This survey should be useful for property management companies looking to implement knowledge management concept in their organisation. From the PCA, the general KM Strategies for property management companies in Malaysia is clearly identified. Instead of the four strategies observed, nine strategies were developed from the empirical analysis. These strategies in turn will become the KM strategies appropriate for property management. Additionally, in correlation analysis, it showed that KM Culture Strategy has almost all

strong correlations. With other KM strategies, only few activities showed strong correlation. The correlation analysis shows which part of KM strategies is to be emphasised for property management companies in Malaysia. These results have significant implications for property management companies, especially in managerial practice to employ knowledge management concept in the companies. The conceptual framework of KM strategies was developed to catalogue the multiplicity in KM activities. The research findings suggest that KM strategies are increasingly important and some of the activities are being practised by the property management companies. What needs to be done is to enhance and formalise the existing knowledge management strategies in the companies. Ultimately, the property management companies in Malaysia have to move away from their conventional methods and explore new approaches of doing business. For a start, an initial step could be the creation of a chief knowledge officer (CKO) post as part of the managerial team. Furthermore, this model can provide a view of the KM strategies level of the company.

FURTHER RESEARCH

Further investigation needs to be done especially to apply these nine factors directly to property management companies in Malaysia. A case study approach should be done in order to get a better understanding of the link between knowledge management concept and the property management industry.

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