Knowledge Management in Real Estate Consultancy Firms: Breaking through the Barriers

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Abstract

Corporate knowledge is well accepted as a decisive asset in most countries worldwide. The know-how and expertise of the workforce is an important factor for the success of companies and strongly influences the effectiveness and efficiency of the business processes and their outcome. In real estate consultancy firms, knowledge management (KM) is specifically relevant due to the knowledge intensive character of delivering the services to be rendered to clients, which can demand innovative and non-repetitive processes. However, there are barriers that need to be overcome so that the potentials of KM are capitalized.

Key Words: Knowledge Management, Barriers, Approaches, Real Estate Consultancy Firms

Introduction

Knowledge management can be summarised as the processes and tools that allow an organization to efficiently capture, maintain, and utilize its information. By organizing information and keeping it current, an organization significantly decreases time lost on the dreaded “reinvention of the wheel”. Organisations are now viewed as bodies of knowledge thus creating a new perspective on organizations (Nahapiet & Ghoshal, 1998). It has been recognized that the economic prosperity of an organisation depends on the effective exploitation and retaining of this organisational knowledge. Teece (1998) suggests that knowledge assets underpin competences and competences in turn underpin the firm’s product and service offering to the market.

This paper examines the barriers of KM, which can be said to mean the obstacles in applying the individual and collective knowledge and abilities of the entire workforce to achieve specific organizational objectives. But before barriers can be identified, the concept and principles of KM must first be understood. KM depends on both the cultural and technological processes of creation, storage, sharing and transfer. The goal of KM is not to manage all knowledge; rather it is to manage the knowledge that is most important to the organisation. Efficiencies occur when the right knowledge gets to the right people at the right time. Bell (2001) indicated that KM is crucial because it points the way to comprehensive and clearly understandable management initiatives and procedures. It is believed that success in today’s competitive marketplace depends on the quality of the knowledge and knowledge processes those organisations apply to key business activities. Therefore it is significant to identify the barriers that may hinder the success or slower the success rate in organisations, particularly real estate property consultancy firms which has been identified in this study.

Objectives of the Study
It has been recognized that professional service businesses, such as property consultancy and valuation surveying industry, differ significantly from traditional manufacturing organizations. Despite the acknowledged difference, much of the derived from traditional industrialised organisations can be of questionable pertinence. By applying the emerging knowledge-based view of these firms and investigating the current status and the practices of knowledge management in PCVS (Property Consultancy, Valuation and Surveying) firms, the study will have the practical implications for the future directions of this management approach in this sector.

In addition, as knowledge management has three basic elements: people, technology and the process (UNFPA, 2002; 2003), by looking into the characteristics of the professional identities of the people and the progressive use of information technology in these firms, this study helps to explain the heterogeneity of the process of knowledge management. The objectives covered in the study are as follows:

- To ascertain the awareness of knowledge management in Property Consultancy and Valuation Surveying (PCVS) firms in selected towns/cities in Peninsular Malaysia
- To investigate the current practices used and barriers faced in managing knowledge in these firms

**Principles of Knowledge Management**

Knowledge management (KM) first established itself as a distinct area of management science in the early 1990s (Prussak, 2001). KM is an amalgam of concepts borrowed from the artificial intelligence/knowledge-based systems, software engineering, business process reengineering, human resource management and organisational behaviour fields. Knowledge can be broadly grouped into two types: tacit knowledge and codified knowledge. Tacit knowledge is usually unwritten and embodied in individual. It is accumulated through education, training and general working experience involving, say apprenticeship and how market works. Codified knowledge unlike tacit knowledge is written down. Scientific formulae and software programmes are examples of codified knowledge. Codified knowledge is more easily diffused and transferred (ISIS, 2002). Codified knowledge is also termed as explicit knowledge (Kermally, 2002). According to Alavi and Leidner (1999), information becomes knowledge once it is processed in the mind of the individual. This knowledge then becomes information again once it is articulated or communicated to others in the form of text, computer output, spoken or written words or other means. In moving towards Knowledge-based economy, Organisation for Economic Cooperation and Development (OECD) has considered the K-based industries within the medium-high technology industries include professional, scientific, measuring and controlling equipment. Thus the professional services rendered by PCVS firms falls within the K based industries identified by OECD.

Marketplaces are increasingly competitive and the rate of innovation is rising, and organisations compete on the basis of knowledge. KM is also said to be an important source for competitive advantage for organisations (Ginsburg and Kambil, 1999). Knowledge embedded in the organisations’ business processes and the employee’s skills provide the organization with unique capabilities to deliver customers with a product or service.
Knowledge is an appreciating asset. The more it is used, the more effective its application. Technology is the enabler but the winning companies are those who learn to harness and use knowledge and become best practice leaders. Knowledge must be distinguished from data and information. Kerzmailly, 2002. has distinguished data as raw material for information whilst information is organized and categorised data put into context. It has meaning and organizations can use it to create knowledge about their customers. Knowledge is said to be the use of information and if the staff of an organisation has use the information (including their training and experience), knowledge is created. If the knowledge is codified and captured, an appreciating, intangible asset when used will enhance business performance.

The movements of knowledge along the tacit-explicit spiral are essentially events of knowledge sharing. The problem of knowledge is therefore a crucial one: where there is no knowledge sharing, there is no knowledge creation, because knowledge resides in the minds of the people of the organisation and does not move or grow. To share knowledge people got to communicate, either orally or through written means. Ramphele M (2002) describes knowledge sharing as to have four elements: i) fostering policy, regulatory network readiness, by supporting the development of an adequate enabling environment for efficiency, competition and innovation in knowledge sharing and development of information and communication technologies ii) human capacity for the knowledge economy iii) continued efforts to expand basic connectivity and access and invest in information technology applications and lastly iv) promotion on the generation and sharing of global knowledge through support for knowledge networking, global research and communities of practice. According to UNFPA, (2002; 2003) three components are essential to knowledge sharing: people, processes, and technology. In order to share, UNFPA promotes a culture connected by a "shared belief" in the value of sharing and learning. Processes that promote sharing must be transparently introduced into the day-to-day activities of staff members and technology must be in place to facilitate and enable sharing across time and space (http://www.unfpa.org/knowledgesharing/strategy.htm).

Nonaka and Takeuchi (1995) presented a model on how organisation can create knowledge. Knowledge creation and transfer are achieved by interaction among individuals. In such interaction four models of knowledge conversion take place: socialisation, externalisation, combination and internalisation. Examples of the KM initiatives taken by some organisation include the following: i) Socialisation – brainstorming, informal meetings, discussions, dialogues, on the job training, customer interaction, coaching, mentoring, ii) Externalisation – meetings, building hypotheses and models, after-action reviews, workshops, iii) Combination – virtual library, publication, conferences and iv) Internalisation – Facilitation skills, knowledge zone, client/customer feedback review, development counseling. As stated by Robertson (2004); Wenger (2004), an intranet can play a valuable role in supporting the establishment and ongoing activities of a community of practice for knowledge sharing.

In capturing the knowledge from the employees within an organisation, Samuell (2001) has highlighted the effective KM programmes can dramatically impact the organisation efficiency of knowledge intensive organisations such as real estate organisations. This would include tools, systems and processes, which are technology, based systems and databases.
The concept of coding and transmitting knowledge in organisations is not new. Training and employee development programmes, organisational policies, routines, procedures, reports and manuals have served this function for many years. What is new and exciting in the knowledge management area is the potential of using modern information technology to systematise, facilitate and expedite organisation-wide knowledge management (Alavi and Leidner, 1999). In the case of law firms as mentioned by Gottschalk (1999), it was said that the use of advanced technologies enables firms to take advantage of the most appropriate tools to improve efficiency, increase effectiveness, streamline communication and reduce costs for clients. Turillo (2004) says that knowledge management cannot be done without technology. Bell (2001) has highlighted that the electronic marketplace is changing rapidly and executives need to ensure that their employees and executives and systems have access to the knowledge that is critical for supporting and sustaining their vision for success. However knowledge management is in danger of being perceived as so seamlessly entwined with technology that it’s true critical success factors. Information technologies can store human intelligence and experience by the use of technologies such as databases and groupware applications. The same assemblage of data can evoke different responses from different people. The reason this is important is that many information textbooks say that while people come and go their experience can be stored. The extent of KM technologies is both broad and difficult to define (Egbu, 2000). Information infrastructure technologies that are useful in facilitating knowledge management include video-conferencing, telephone, intranet, and portals. Although it is arguable whether technologies capture or distribute knowledge, many contend that they are useful at enabling people to transfer tacit knowledge.

In making similar comparison with practices of law firms, PCVS firms which are heavily service intensive, It has been said by Terret, 1998 that significant hurdles have to be overcome in order to embed successful knowledge management. In the law firm context, all these may be categorised under the heading of firm culture: individuality, time, success and lack of incentives. In a survey of 431 US and European organisations, culture was found to be the biggest impediment to knowledge transfer (Ruggles, 1998). The second impediment was top management failures to signal importance, and third was the lack of shared understanding of strategy of business model.

**Barriers of Knowledge Management**

Along with the processes of knowledge management many barriers exist, thus turning the management of knowledge into a very challenging task as illustrated in Figure 2. A barrier is said to be as everything related to human, organisational and/or technological issues that obstructs the intra- and inter-organisational management of knowledge (Wunram et al., 2000). Therefore according to Brandt and Hartmann (1999), these barriers can basically categorised as the TOP (Technology, Organisation, People) categories of socio technical systems classification.
Barriers related to Technology that relates to software systems. The possibilities to overcome this barrier are either the identification of a system that satisfies the needs of the organisation.

Barriers related to Organisation which relates to the lack of awareness of knowledge management strategies and instruments, high investments in relation to the requirement of significant amounts of time and money, Unavailability of getting the right individuals at the right time, Different working times,

Barriers related to People which relates to Different languages, Fear of penalty/fear of losing profile, Idea robbery which can implies the need for the protection of proprietary knowledge among employees, establishment of communication channels and good relationships amongst staff.

Pragmatic Approaches in Breaking through the Barriers

Malhotra (1998) reports about different studies in which no direct correlation between IT investments and business performance or knowledge management were identified. He emphasises that the organisational processes and the way the employees communicate and operate through the social processes of collaborating need more attention. Davenport and Prusak (1998) report that some Japanese companies have installed so called “Talk Rooms” in which scientists come together to have a cup of tea and talk to each other for about half an hour. There is neither an agenda nor schedule and the only target is to bring these people together to evoke a discussion about their current work and to exchange ideas, thus leaving the generation of new ideas up to chance.
Characterising Pragmatic Approaches

Extending this experience, the authors would like to take the position that small pragmatic solutions are often as effective as high IT investments (Pareto, 1897). Therefore the aim is to exploit the already existing systems as far as their functionality allows. In addition, the complexity of problems has to be reduced.

The underlying philosophy of so-called pragmatic approaches can be characterised by following phrases which can be seen as guidelines as well:

- “A bird in the hand is worth two in the bush!”
- “Stop talking, start walking!”
- “To make a mistake is better than to make no experience!”

According to this phrases, pragmatic solutions are aiming at a 80-90% solution for an identified problem instead of a 100% solution. The remaining 10%-20% are either postponed for future activities or are not solved at all, because of the undue efforts which are necessary to achieve the needed results.

Based on a number of projects in the field of KM in engineering design the authors are convinced that a “controlled neglect” of certain aspects of a problem is reasonable for many industrial applications (Klaus and Frinthjof, 2001). This controlled neglect is implicitly embedded in the Pareto-principle (better known as the “80/20-Principle”). This principle was recognized by the Italian economist Vilfredo Pareto at the end of the 19th century and first published in 1897 (Pareto, 1897). It basically says that, out of a given group of elements, already 20% of them will yield 80% of the results.

Figure 3: Pareto principle: Performing 20 % of the effort will lead to 80% of the results
A well known application of this principle is the ABC-Analysis which is often used as a time/task-management tool. Various examples on how the 80/20-Principle can be applied are given in (Koch, 1998).

The most relevant characteristics of pragmatic approaches can be summarised as follows.

- intuitively applicable by the user
- fast and easy to implement
- active participation of the users in the definition phase
- common added value to be achieved in the short term
- application of a stepwise (evolving) approach
- are self promoting due to the short term benefit and thus can pave the way for larger follow-up solutions (if felt necessary)
- low costs

**Applying these Approaches to Real Estate Organisations**

The surveying industry has a long history and is knowledge-intensive in nature. The challenge of managing knowledge has always been the key issue underpinning the existence, growth and further development of surveying firms. New challenges and opportunities in a highly competitive environment have provided further incentives for surveying firms to acquire and maintain a unique base of knowledge, both explicit and tacit, gathered from their employees and associates.

General practice surveying firms display the typical characteristics of professional services firms (PSFs). PSFs are frequently classified as ‘knowledge-intensive’ firms, the latter being defined as ‘companies where most work can be said to be of an intellectual nature and where well-educated, qualified employees form the major part of the workforce’ (Alvesson, 2000: 1101). In Malaysia, the surveying sector has a strong and unifying identity reflecting the status of the main professional body, and the resulting high level of professionalisation’, which may sometimes act as a barrier to KM (Matzdorf & Price, 2000). In addition, as it stated by Dawson (2000), technology is a critical factor in the effective delivery of professional service. Similar to the situation in other industries, the existence of an advanced information technology infrastructure has helped surveying firms to collaborate internally and externally much more efficiently. Below are common problems identified and pragmatic approach is suggested for each of the following problems. Perhaps this can be applied to real estate organisations as well.

**Table 1: Summary of Case 1: Managing knowledge within a process chain**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Pragmatic Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient communication and coordination along the process chain, caused by the application of the so-called “Throw it over the wall”- approach.</td>
<td>Specification of rough but commonly agreed documentation forms. Incremental Approach: From an early implemented paper based solution to a database application. Forms were made accessible for all employees involved in the process chain by an Intranet application.</td>
</tr>
</tbody>
</table>
Table 2: Summary of Case 2: Management of design knowledge between design and assembly

<table>
<thead>
<tr>
<th>Problem</th>
<th>Pragmatic Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient feedback of problems and experiences identified in the</td>
<td>Easy to use technologies (digital cameras and Intranet) for a quick documentation</td>
</tr>
<tr>
<td>assembly area to design department</td>
<td>of problems and failures.</td>
</tr>
</tbody>
</table>

Table 3: Summary of Case 3: Approaches to KM in a R&D department

<table>
<thead>
<tr>
<th>Problem</th>
<th>Pragmatic Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat learning curve of novices</td>
<td>Personnel coaches</td>
</tr>
<tr>
<td>Lack of communication of non project specific information and knowledge</td>
<td>Programmers Round Table</td>
</tr>
<tr>
<td>Identification of knowledge “hidden” in other projects</td>
<td>Specification of identical directory structures up to the fourth level for all</td>
</tr>
<tr>
<td></td>
<td>types of projects. Further detailing of the structure would have generated to high</td>
</tr>
<tr>
<td></td>
<td>efforts</td>
</tr>
<tr>
<td>Time consuming no value adding tasks related to project management</td>
<td>Documentation and provision of &quot;How to’s&quot; on t</td>
</tr>
<tr>
<td>activities. Frequent disturbance of experts related to tips and tricks</td>
<td></td>
</tr>
<tr>
<td>requested by colleagues</td>
<td></td>
</tr>
</tbody>
</table>

2.0 Research Methodology and Data Collection

In the initial stage, a literature review was carried out to identify secondary sources and data in order to provide a broad and indicative account of the KM field and to establish a linkage between KM and PCVS firms. The firms identified was gathered through a list of PCVS firms registered with the Board of Valuers, Appraisers and Estate Agents. Given the geographical distance, it was decided that a mixture of hand delivered and mail delivered questionnaires was utilized to source respondents. Hundred (100) questionnaires were distributed to various valuations and estate agents firms throughout Malaysia, but only 34 responded to the questionnaire. As the initial intention was to interview the respective respondents in order to gather more accurate responses, the study focuses on the firms in major cities in Peninsular Malaysia namely, firms in Kuala Lumpur & Selangor, Johor Bahru, Penang, Ipoh, Kuantan, Terengganu and Kota Bahru. The response rate of 34% is considered appropriate based on Ellhag & Boussabaine (1999) and Idrus & Newman (2002). Weightages are given for questions that require respondents to rate the answer numerically. The weightage used are: 1= very important; 2= moderately important; 3= important; 4= least important and 5= not important.

The data collected are then analysed using SPSS. These data however, may however embrace several weaknesses that need careful treatments for further analysis and interpretation.

3.0 Analysis and Discussion of Research Findings
• **Awareness of Knowledge Management (KM)**

Table 2 and Chart 5, show the general ranking of the awareness towards KM.

The most important aspect of awareness of KM is ‘major new strategic imperative for staying competitive’ as it received the lowest mean of 1.66 from the total score of survey. Prusak, (2001) claimed that, knowledge management is not just a consultants’ invention but also a practitioner-based, substantive response to real social and economic trends. However, no evidence is produced to support this contention, so we must assume that it is little more than management consultancy rhetoric. Marketplaces are increasingly competitive and the rate of innovation is rising, and organizations compete on the basis of knowledge.

The second most important aspect of KM with rating of 1.69 is valuable way to organize and use corporate information. New spin and technology, and other aspects, even though received considerably least ranking in survey, it still considered as important due to the fact that each aspect need to be treated for further understanding of KM implementation.

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Awareness of KM</th>
<th>Total Score</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Valuable way to organize and use corporate information</td>
<td>56</td>
<td>1.69</td>
</tr>
<tr>
<td>2</td>
<td>Major new strategic imperative for staying competitive</td>
<td>55</td>
<td>1.66</td>
</tr>
<tr>
<td>3</td>
<td>Latest management fad</td>
<td>49</td>
<td>1.75</td>
</tr>
<tr>
<td>4</td>
<td>New spin and technology</td>
<td>63</td>
<td>2.33</td>
</tr>
<tr>
<td>5</td>
<td>Others</td>
<td>89</td>
<td>4.45</td>
</tr>
</tbody>
</table>

Source: Field Survey, 2005

• **Goals of KM**

Table 3 and Chart 6: Goals of KM – the main motivator for implementing KM
As shown in Table 3 and Chart 6, respondents opinioned that the main motivator for implementing KM is to improve work efficiency. It also indicated that, to improve knowledge sharing horizontally is the 2nd rank of importance, followed by increasing customer satisfaction and reducing cost. The results of the survey did not show the mean score more than 3.0. This means that the respondents are not dispute that all the motivator factors given are important.

### Barriers to Implementation of KM

As shown in Table 4 and Chart 7, the main barriers to implementing KM are:

1. Time consuming
2. Lack of funding
3. Dilution of responsibility
4. Lack of IT skills
5. Lack of senior management support
6. KM and benefits unknown
7. No incentives to share

The results of the survey did not show the mean score more than 3.0. This means that the respondents are not dispute that all the barrier factors given are important.
Table 4 illustrates the 9 listed barriers to implementation of KM in organization to be determined by the respondents. The respondents agreed it, the main barrier of KM as being time consuming. Lack of funding; dilution of responsibility; lack of IT skills; lack of senior management support are ranked 2\textsuperscript{nd} to 5\textsuperscript{th} respectively. KM and benefits unknown; no incentives to share; and possible downsizing factors are at lower rank. However, the least influential to KM’s implementation is problem associated with other matters which are not described by the respondents.

- **Source of Knowledge**

Table 5 and Chart 9: Sources of Knowledge

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Sources of Knowledge</th>
<th>Total Score</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personal experience</td>
<td>31</td>
<td>1.93</td>
</tr>
<tr>
<td>2</td>
<td>Research and development dept.</td>
<td>31</td>
<td>2.06</td>
</tr>
<tr>
<td>3</td>
<td>Colleagues’ experience</td>
<td>36</td>
<td>2.11</td>
</tr>
<tr>
<td>4</td>
<td>Other resources, incl. internet, journal, books</td>
<td>32</td>
<td>2.13</td>
</tr>
<tr>
<td>5</td>
<td>External courses</td>
<td>36</td>
<td>2.25</td>
</tr>
<tr>
<td>6</td>
<td>Interaction with outside party</td>
<td>43</td>
<td>2.38</td>
</tr>
<tr>
<td>7</td>
<td>Internal courses</td>
<td>29</td>
<td>2.41</td>
</tr>
<tr>
<td>8</td>
<td>Company library</td>
<td>32</td>
<td>2.91</td>
</tr>
<tr>
<td>9</td>
<td>Others</td>
<td>8</td>
<td>4.0</td>
</tr>
</tbody>
</table>
As shown in Table 5 and Chart 9; majority of the respondents agreed that personal experience is the main source of knowledge for KM. This was evidenced by mean score of 1.93. While, “others” source achieved 4.0 mean score, which can be considered as least important, others listed sources achieved mean scores less than 3.0. This means that all sources available are important.

Based on the above data, most of them agree that listed sources of knowledge for KM is based on human, meaning that the staff need to acquire knowledge through their personal experience, linkages with others, and interaction.

5.1 Further Discussion on Findings

Through the study, it is noted that PCVS firms has acknowledged that they viewed the most important aspect of KM as to be the major new strategic imperative for staying competitive. Therefore these firms have acknowledged the importance of KM and organization must compete on the basis of knowledge.

The main motivator for implementing KM amongst PCVS firms is to improve work efficiency, followed by improving knowledge sharing. It is interesting to note that the respondents did not dispute that the motivator factors used to be of significant importance revealing the awareness of the importance of implementation of KM. However, in the implementation of KM, PCVS firms have viewed that time factor as in time consuming to be the main barrier. Lack of funds and dilution of responsibility that posed as the other important barriers may place the use of IT as KM tools, which perceived to be the ones that threaten the current practice of generating and sharing knowledge.

As no direct correlation between investments of time and money in new technologies on the one hand and an increase of productivity of a company on the other hand can be identified according to Malhotra (1998), investing time and money solely in technology has to be considered to be short sighted, especially when aiming to overcome the barriers in knowledge management. According to Picot et al. (2000) this so called “productivity paradox” can be explained by various arguments of which two shall be
discussed here for the purpose of supporting the concept of pragmatic approaches proposed by the authors:

*Insufficient reorganisation of company processes:* the implementation of new technologies in companies for the mere sake of modernism will probably lead to high investments without making use of the full potential of such technologies. Therefore, companies should tend to better exploit available resources. Further, the application of technology, independent from being new or old should always be considered together with human and organisational aspects.

*Resistance against renewal:* Employees usually tend to have a natural resistance against changes [11]. If too many aspects in their environment are changed at the same time they feel insecure and will probably not co-operate with the change inducing power. In the case of the productivity paradox the resistance will arise when new technologies are introduced and along with it organisational changes. Thus, the authors conclude that instead of solely looking on the introduction of new technologies to solve problems in knowledge management, companies should also focus on simple organisational or methodical measures. Probably a smooth approach to KM is the key for the introduction of further KM measures. In order to accustom the employees to the philosophy of KM managers should prefer 80% solutions for the sake of acceptance and the willingness to introduce further measures.

In investigating the sources of knowledge available in these PCVS firms, majority of the respondents agreed that personal experience is the main source of knowledge. It is also agreed that knowledge is shared through face to face/informal communication. The respondents have indicated that a proper support mechanism is needed to promote knowledge sharing and individual performance review is the main incentive given for sharing of knowledge.

Generally, this study shows that the main challenge regarding KM implementation in PCVS firms stems from employees’ lack of understanding of KM and the benefits it offers. Firms can address this challenge by making training, changing management and processes and redesigning primary components of the KM initiatives through the support of the top management and allocation of fund. Working with rather than against the barriers is an art required.

Another problem is associated with knowledge sharing. To facilitate or smooth the process, firms could develop organisational trust using sanctions or policies and strong culture; alternatively, they could promote interpersonal trust such as knowledge-based trust, identification-based trust and relational trust (Das & Teng, 1998).

Firms should strike a balance between people and technology elements of KM. A good technology-based KM system need not be complicated or capital-intensive, in so far as it could serve the core business by providing internal information within a group and sharing customer-specific information with clients. The surveying sector is characterized by a wide variety of different types of consultancy services. Careful attention needs to be paid to the selection of tools that are appropriate for different sectors, particularly those with severe resource constraints. It should be further being noted that the best tools and processes alone cannot achieve a KM strategy. Ultimately, KM aims to free up professional’ valuable time to focus on creating thoughtful and innovative approaches, rather than on data capture from disparate sources.
The results of this study should be considered as indicators of the current awareness and practices of KM in PCVS firms, rather as definitive findings. The convenience sample from which the data were derived is too small for hard statements in this regard. Results are also subject to limitations arising from the time frame, use of questionnaire and its different delivery mode. It was possible to control the settings in which the questionnaires were completed, nor to identify potential factors that may have had an impact on the results. However, these results do suggest certain number of practices in PCVS firms in selected towns/cities in Malaysia with regard to KM and they serve as a foundation for more refined investigation in the future.

4.0 Conclusion

Describing several barriers in knowledge management, the authors identify that the relevance of barriers related to human aspects prevail. In contrast to usual approaches to knowledge management in which the implementation of ICT infrastructures play a central role, the authors have applied the concept of pragmatic approaches for KM. As described, pragmatic approaches are based on a philosophy which prefers to implement 80-90% solutions in the short term instead of a 100% solution in the long term.

It can be concluded that a highly participative approach (i.e. direct involvement of concerned employees) is of utmost importance for the acceptance of any solution in this particular area. However, pragmatic approaches in general also bear a strong risk. People may be tempted to implement the first solution they see without carefully reasoning about its appropriateness and usability. If KM solutions aiming to support a better cooperation between design and manufacturing fail, it gets more difficult to motivate the users to participate in a second approach. Thus – in contrast to trial and error solutions – the potential error must be avoided as far as possible. Accordingly incremental approaches are far more promising than large and not controllable steps. The authors assume that a sound conviction about the appropriateness of a solution is a critical success factor for the successful implementation of pragmatic approaches in engineering design. In order to exploit pragmatic approaches with a reduced risk, future research should aim to develop methods and tools for KM which allow for the identification of the most relevant aspects to be addressed by pragmatic solutions.

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