

Knowledge Workers and Knowledge Management: Some Descriptive Evidences on the MSC Status Companies in Malaysia

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ABSTRACT

This paper provides the results of questionnaire survey, which was intended to seek and examine the opinions of respondents about the management of knowledge workers in the Multimedia Super Corridor (MSC) status companies in Malaysia. Out of 40 MSC status companies and 500 questionnaires initially sent out during the fieldwork, some 19 companies' participated and 171 questionnaires were returned from individuals within these companies. The findings presented in this paper focus on two main issues. Firstly, the demographic characteristics of participating knowledge workers are outlined. Secondly, an overview of the current movement towards knowledge management practice in the MSC status companies is also given.

Keywords

Knowledge Workers, Knowledge Management, Human Resource Management, Multimedia Super Corridor (MSC)

1.0 INTRODUCTION

The review of the terms "knowledge", "knowledge work", "knowledge companies", "knowledge workers" and "knowledge management" has many implications. It leads to an understanding that organizations need to look after the valuable asset (i.e. knowledge) that their knowledge workers have. In this view, knowledge management, with the support of human resource management, has been suggested to be the best strategy by which to manage this group of workers. However, a strong link between knowledge management (KM) and human resource management (HRM) is still missing, even though there is currently a great deal of interest in knowledge and knowledge management. Furthermore less research has been undertaken on knowledge workers, knowledge management and human resource management. Therefore, this paper tried to fill this gap by providing evidences collected in the Malaysian context and hoped to contribute more towards the enrichment understanding especially upon knowledge

workers and knowledge management which have now become the crucial issues for many organizations.

2.0 LITERATURE REVIEW

In the local context of Malaysia, the Malaysian Development Corporation defines knowledge workers as follows:

"A knowledge worker is an individual who possesses one of these qualifications: five or more years' professional experience in multimedia/information and communication technology (ICT) business or in a field that is a heavy user of multimedia; a university degree (in any discipline) or a graduate diploma (multimedia/ICT) from a professional experience in multimedia; and a master degree or higher in any discipline." (KEMP, 2002: p. 43)

Accordingly, all Malaysian workers who possess any higher qualification are considered by the government to be knowledge workers, even when they do not continue to work in their own fields. In addition, the Malaysian definition of knowledge workers seems to focus on information technology, though it is known that information technology is only a tool to enable knowledge workers to perform their tasks faster and more efficiently (Davenport & Prusak, 2000; Grayson and O'Dell, 1998; Kermally, 2002). Also, looking at this definition, Malaysia should have more than enough knowledge workers in the future, as there will be many university graduates with diverse backgrounds who will finish their schooling by the year 2020 (Malaysia 2001: pp. 104-106). However, currently Malaysia is still reporting a lower proportion of the required knowledge workers, especially given that its economy needs to be globally competitive in the information age in order to sustain the accomplishments achieved during the industrial phase (Norsaidatul et al., 1999: p. ix) and knowledge based economy (MSC IS 2003). In addition, various authors have come up with different views on the characteristics of knowledge workers. It has been argued that being a new occupational group, knowledge workers are different from production workers (Amar, 2002; Beaumont and Hunter, 2002; Darr, 2003; Drucker, 1988 and 2003; Newell et al., 2002; Tymon and Stumpf, 2003). For instance, according to Amar (2002) and Drucker (1988), knowledge workers are

those who resist the command-and-control practices; they should not be told to complete their tasks. On the other hand, production workers are those who are usually stuck with repetitive tasks, such as on the shop floor of a manufacturing factory. Due to these dissimilarities between knowledge workers and production workers, Tymon and Stumpf (2003) also argued that taking good care of knowledge workers' social capital (i.e. resources including information, ideas, business opportunities, power, emotional support, goodwill, trust, and co-operation) will become a way to achieve an excellent company. They argued that:

"Success in this century for the growing number of knowledge workers will be determined not just by what they know, but by how fast they can learn and share their learning. Success will be characterized not by how much information they can access, but how they can access the most relevant information, and then differentiate it from the exponentially multiplying masses of non-relevant information. Success will be based not on the possession of a set of skills and tools, but by demonstrating a high degree of adaptive problem solving in dealing with technology and people... [] ...success in the twenty-first century will be more social and relational than it has been since clans were the predominant social structure of society." (p. 12)

Bearing this in mind, it could therefore be argued that this group of workers needs to be managed differently from others, i.e. knowledge management is required for managing knowledge flow among knowledge workers (Beijerse, 2000; Davenport & Prusak, 2000; Davenport et al., 1998; Gupta et al., 2000; Hunter et al., 2002; Nonaka, 1994; Nonaka & Takeuchi, 1995; Nonaka & Konno, 1998; Ordóñez de Pablos, 2002; Smith, 2001; Suk Choi, 2000; Wiig, 2002). Basically, these authors defined knowledge management as managing the transfer of knowledge within a company. It is not only about formal systems and up to date technologies. Its focus is on how to help and/or encourage knowledge workers to appreciate and utilise the knowledge that they have for the sake of both self-enhancement and the benefit of the company. The authors concluded that the transformation process of knowledge transfer is crucial for individual workers as well as for the company's success. This is because knowledge has been claimed to be a strategic resource that can lead a company towards competitive advantage (Blackler, 1995; Nonaka & Takeuchi, 1995; Newell et al., 2002). This knowledge can reside everywhere within or outside the company. However, the review of the literature indicates that workers are the focal point wherein the knowledge usually resides. For example, Von Krogh et al. (1998) argued that, "When knowledge becomes the dominant resource, we must face the fact that the worker is the owner of the resource..." (p. 15). In this regard, knowledge is the product of human reflection and experience, and is located mostly in the individual worker rather than the company (Blackler, 1995; Drucker, 2000; Von Krogh, 1998; Davenport, 2001). Therefore, the knowledge and/or understanding of how to utilise workers' knowledge and the effort made to transfer it into explicit knowledge, as emphasised by Nonaka and Takeuchi (1995), could perhaps contribute

towards the company's performance. This is because, according to Nonaka and Takeuchi (1995) and Nonaka and Konno (1998), the failure of explicit knowledge to become practical knowledge will have a negative impact on individual workers in terms of applying their experience and contextual understanding of the meaning of this knowledge, and will limit the action taken to utilise it, i.e. managing knowing. This then places a key emphasis on human resource management (HRM) to support an appropriate organisational context for knowledge workers (Hislop, 2003; Hunter et al., 2002; Newell et al., 2002; Thite, 2004), especially in terms of assuring the smoothness of their social capital needs being well taken care of while they are in the company (Tymon & Stumpf, 2003). In this view, human resource management is known as the utilisation of human resources to achieve a company's objectives via its strategic plans, recruitment, selection, training, compensation, rewards etc. Thus, areas where human resource management can support knowledge management must be explored in order to assure the successful implementation of knowledge management.

In Malaysia, knowledge workers are now becoming the crucial resource for the growth of Multimedia Super Corridor status companies (MSC IS, 2003; Tyndall 2002). Multimedia Super Corridor status companies are those selected companies that are involved in the high tech industry and entrusted to become the growth engine of Malaysia's success. The Sixth Challenge of Vision 2020 is the challenge of establishing a scientific and progressive society, a society that is innovative and forward-looking, and one that is not only a consumer of technology but also a contributor to the scientific and technological civilisation of the future (Vision 2020: p. 3). Therefore, the formation of the Multimedia Super Corridor is seen as the means to make this vision a reality for Malaysia.

Furthermore, as can be seen in Table 1 (*see Appendix 1: Growth Jobs Created and Percentage of Knowledge Workers in the MSC Status Companies*), in the years 2002 and 2003, up to 86 percent of the jobs created within the Multimedia Super Corridor status companies were filled by knowledge workers. This indicates a high demand for this group of workers by the Multimedia Super Corridor status companies. This was confirmed by Tyndall (2002: p. 188), who mentioned that a lack of knowledge workers is a major concern for the current Multimedia Super Corridor status companies. This is because the creation, exchange and diffusion of innovative ideas and the availability of technically competent and talented workers are often pre-conditions demanded by potential investors. There is therefore a greater demand for knowledge workers compared to production workers. In responding to this demand, the education system, and in particular institutions of higher learning (IHLs), have a very important role to play in the training of knowledge workers (Abdul Rahim et al., 2000; Norsaidatul et al., 1999) for the information

technology (IT) sector in general and the Multimedia Super Corridor in particular. Moreover, the government has to create a situation that will motivate knowledge workers to remain in the country rather than going to work abroad. In addition, for companies to attract investors, they must have, among other things, resourceful workers.

Furthermore, much has been written about managing knowledge in a company; but what about managing the collective knowledge and collaboration among these workers? That is, how do we manage and empower the role of the new knowledge workgroup? Above all, the underlying question in this research is how far Malaysia has advanced on the path towards becoming a learning region and whether knowledge management, with support from human resource management, really has a significant role here.

The key contribution of the study is the integrative approach taken to development in Malaysia. With regard to the background of the current study and the review conducted, it is logical to assume that there is an inter-relationship between individual knowledge workers, human resource management, knowledge management and the policy of the Malaysian government, but this has not been the focus of study. To date, there has been little empirical research into the relative influence of perceptions of knowledge management on the views of knowledge workers. For instance, research has only recently started to explore managers' quantitative perceptions of company knowledge resources, which are intellectual capital within the firm (St. Leon, 2002; Yahya & Goh, 2002). Both of these studies demonstrate that the perceptions of intellectual capital vary between different types of manager. Furthermore, many companies have yet to develop suitable policies and strategies that would facilitate its management (St. Leon, 2002: p. 149). Now, the question is how knowledge workers perceive the same matter of managing knowledge effectively (Hunter et al., 2002; Suk Choi, 2000; Thite, 2004).

3.0 RESEARCH METHOD

Selection of respondents began in the Multimedia Super Corridor status listed companies, which were available on the Multimedia Development Corporation web site. Multimedia Super Corridor status companies have been chosen for the purpose of studying knowledge workers from the local context due to several rationales, as presented earlier on. After obtaining a list of companies from the Multimedia Development Corporation web site, the researcher initiated contact with their liaison officers such as human resource executives, public relation executives, human resource managers, business development managers, chief technology officers and knowledge management manager.

There were around 660 Multimedia Super Corridor status companies in existence during the fieldwork period (May 2003-July 2003). At the time of writing, in the year 2004, this figure has been increased to more than 1000 companies with Multimedia Super Corridor status (MSCIS, 2003). The researcher sent a letter requesting permission to send the questionnaire, via facsimile and e-mail, to all Multimedia Super Corridor status companies. At times, she also engaged in telephone contact with them. Those who responded to this request were then chosen to become the participating companies in the research. Of the 660 companies, the researcher received feedback from 40 companies, and the rest did not respond at all. Several of the companies approached no longer exist. When referring this matter to the Multimedia Development Corridor representative during the interview session, the researcher did ask what had happened to the Multimedia Super Corridor status companies who are still listed on the web site but cannot be contacted and no longer exist. The researcher was told that some of the companies had discontinued their business due to poor business performance. In this case, those companies are yet to be excluded, as the Multimedia Development Corridor still hopes that they will continue to survive. These companies are known as inactive.

Out of 40 Multimedia Super Corridor status companies and 500 questionnaires initially sent out during the fieldwork (May-July, 2003), some 19 companies participated and 194 questionnaires were returned from individuals within these companies. This gave an initial response rate of 38.8 percent. However, 23 respondents did not complete parts of the questionnaire and thus had to be removed from the analysis. Subsequent attempts to obtain more responses were unsuccessful. Therefore, the analysis of results in this study is based on 171 responses. Here, a questionnaire survey helped the researcher to explore the knowledge of current issues on managing knowledge workers in the local context.

4.0 RESULTS

4.1 Demographic Information on the respondents to the Questionnaire Survey (n= 171)

As reviewed, research on knowledge workers and knowledge management reveals that knowledge workers have specific characteristics. Therefore, it could be assumed that these characteristics require the management of such workers to be more effective, creative and innovative. In this light, the understanding of their demographic variables, as highlighted in this section, is pertinent to further description of what the characteristics of knowledge workers might be.

Table 4.1(a): Gender of the Respondents

Gender	No. of Respondents (n=171)	
	Percent	
Male	91	(53.2)
Female	80	(46.8)

First of all, Table 4.1(a) shows that 91 of the respondents were male (53.2 percent) and 80 were female (46.8 percent). Furthermore, Table 4.1(b) also displays that more than half of the respondents, i.e. 123 people (71.9 percent), indicated that their roles in the company were as information technology officers such as software engineers, computer programmers, system analysts etc. This was followed by information technology managers (34 respondents; 19.9 percent) such as chief technology officers, knowledge management managers, chief knowledge officers, software managers etc. The decision to categorize the positions of information technology officer and information technology manager separately is made due to the purpose of making a clear distinction between those respondents who have an information technology working background and those who do not within the MSC status companies. At the same time, this distinction specifies the exact positions held by these participants, such as top management, middle management and officers.

Table 4.1(b): Position Hold by the Respondents

Position	No. of Respondents (n=171)	
	Percent	
Top Management (i.e. Managing Director, General Manager, Technical Director etc.)	-	-
Information Technology Manager (i.e. Chief Technology Officer, Knowledge Management Manager, Chief Knowledge Officer, Software Manager etc.)	34	(19.9)
Information Technology Officer (i.e. Software Engineer, Computer Programmer, System Analyst etc.)	123	(71.9)
Non-IT Manager (i.e. HR Manager, Business Development Manager etc.)	6	(3.5)
Non- IT Officer (i.e. HR Personnel, Admin Staff Officer, Account and Admin Officer etc.)	8	(4.7)

and 29 years old, (64.3 percent), followed by those between 30 and 39 years old (30.4 percent). These findings are similar to those of Amar (2002), and show that this group of workers has recently completed their degrees, and are young and energetic.

Table 4.1(c): Years/s of Service of the Respondents

Year/s of Service	No. of Respondents (n=171)	
	Percent	
Between 1- 5 years	160	(93.6)
Between 6-10 years	11	(6.4)

Table 4.1(d): Age of the Respondents

Age	No. of Respondents (n=171)	
	Percent	
Between 20-29 years old	110	(64.3)
Between 30-39 years old	52	(30.4)
Between 40-49 years old	9	(5.3)

Table 4.1(e) reveals that the many of the respondents (49.1 percent) had either bachelors' degrees or certificates/diplomas (38.0 percent). This implies that the respondents fitted the definition of a knowledge worker provided by the Multimedia Development Corporation (MDC) that is "an individual who possesses one of these qualifications such as five or more years' professional experience in multimedia /information and communication technology (ICT) business or in a field that is a heavy user of multimedia; a university degree (in any discipline) or a graduate diploma (multimedia/ICT) from a professional experience in multimedia; and a masters degree or higher in any discipline" (see, for example, MDC, 2003). However, in a few cases, 13 knowledge workers (7.6 percent) just had the "Sijil Pelajaran Malaysia (SPM)" qualification, which is equivalent to the General Certificate of Secondary Education (GCSE) in the United Kingdom. This further shows that these workers could also be considered as knowledge workers due to their working experience. Therefore, there is a need to create new mechanisms by which to refine the definition of knowledge workers from the local context¹.

Furthermore, looking at the years of service as shown in Table 4.1(c), it can be seen that the majority of respondents (160; 93.6 percent) had 1 to 5 years of service with their current companies. In examining the age of the respondents, Table 4.1(d) indicates that the majority of knowledge workers were aged between 20

Table 4.1(e)
Highest Academic Achievement of the Respondent

	No. of Respondents (n=171)
	Percent
Secondary Education (SPM)	13 (7.6)
Certificate/Diploma	65 (38.0)
Bachelor's Degree	84 (49.1)
Post graduate/Professional	9 (5.3)

Finally, in Table 4.1(f) it is apparent also that many of respondents are Malays, (45.6 percent), followed by Chinese, (34.5 percent) and Indians (19.9 percent). This suggests that the study is not biased towards any particular ethnic group and is representative of workers in the wider population of MSC status companies.

Table 4.1(f)
Ethnic Background of the Respondents

	No. of Respondents (n=171)
	Percent
Malay	78 (45.6)
Chinese	59 (34.5)
Indian	34 (19.9)

4.2 Overview of the Current Movement towards Knowledge Management in the MSC Status Companies

In the beginning, it was argued that knowledge management with support from human resource management is the ideal practice for managing knowledge workers effectively. In fact, several knowledge management success factors, which relate to the role of human resource management, have also been highlighted by Allee (1997), Davenport et al. (1998), Greengard (1998), Rao (2002) and Suk Choi (2000). However, as seen in the earlier review, only Yahya and Goh (2002) quantitatively examined the connections between human resource management and knowledge management in the Malaysian context. There is no view concerning the current stage of development of knowledge management practices in Malaysia. Thus, there is a need to examine the perceptions of knowledge workers in the MSC status companies, particularly regarding the extent to which the knowledge management success factors outlined earlier were important to the individual companies and how they were implemented.

In this regard, the questionnaire survey to examine success factors compiled by Suk Choi (2000) would help to explore the current status of knowledge management practices in the Malaysian context, particularly the MSC status companies. Therefore, these findings are useful in terms of allowing human resource management in the MSC status companies to identify which factors are favored most by knowledge workers. Moreover, they may provide human resource management with a suitable mechanism by which to support the successful implementation of knowledge management. Thus, this section next presents the results of the questionnaire survey on the knowledge workers' views of the importance and implementation of knowledge management (as shown in Appendix 1: Table 4.2.1 and Appendix 2: Table 4.2.2).

4.2.1 The Degree of Importance of Knowledge Management

Respondents were invited to indicate the level of importance that their companies attach to each of the knowledge management success factors on a scale ranging from 1 (Not Important), 2 (Slightly Important), 3 (Moderately Important), 4 (Important) and 5 (Very Important). For the purpose of having a clear-cut discussion, the categories of "important" and "very important" are combined as one category - "important". Similarly "slightly important" and "not important" are combined in a second category, "not important", and finally, the third category is known as "moderately important".

The overall analysis shows that the degree of importance held by respondents for all success factors relating to knowledge management ranged from 1 to 5, and all mean ratings were more than 3.50 (see Appendix 1: Table 4.2.1 and Appendix 2: Table 4.2.2). This shows that all factors were perceived as moderately important, important and/or very important for knowledge management. These findings indicated that knowledge workers did realize the importance of the outlined success factors of the implementation of knowledge management in the MSC status companies. Subsequently, it has been found that teamwork (c26, c25 and c13), top management (c3), information system structure (c17 and c1), employee involvement and empowerment (c29 and c24), knowledge structure (c16), and performance measurement (c12) achieved mean scores of more than 4.00, as shown in Table 4.2.1. For example, it appeared that 149 (87.1 percent) and 148 (86.6 percent) of respondents considered teamwork (c26, mean = 4.36, median = 4.00 and c25, mean = 4.36, median = 4.00) to be important for the implementation of knowledge management in their companies respectively. Only 5 (3 percent) and 9 (5.3 percent) indicated that teamwork was not an important factor. This finding is not consistent with the view of Amar (2002) that knowledge workers are very individualistic. Rather, it supports Tampoe's (1992)

argument that knowledge workers primarily value team-based work. Further clarification of this dissimilarity has been carried out during the in-depth semi-structured interviewsⁱⁱ.

Another noteworthy finding is that for the top management factor (*c3*), 148 (86.6 percent) of respondents reported its importance to the company, with a mean score of 4.33 (median = 5.00). It was also highlighted by 146 respondents (85.4 percent) that an information system (*c17*) is an important factor for the implementation of knowledge management (*mean* = 4.28, *median* = 4.00). Also, it was indicated by 139 respondents (81.3 percent) that reward and recognition (*c12*) are pertinent for the successful implementation of knowledge management (*mean* = 4.13, *median* = 4.00). This supports the argument put forward by Despres and Hiltrop (1995) and Hunter et al. (2002) that reward and compensation are the crucial elements in managing knowledge workers. The conclusion of these findings could be that in order to encourage knowledge management practices, the company should start by encouraging teamwork among knowledge workers. This teamwork must then be supported by encouragement and involvement on the part of top management. In this regard, top management should provide a suitable information system structure and an appropriate company working culture. Further discussion linking this issue with the SECI Model is presented in the following section.

4.2.2 The Degree of Implementation of Knowledge Management

The aim of this section is to discover knowledge workers' views regarding the extent to which factors that contribute to successful knowledge management are being implemented in the individual MSC status companies. As in Table 4.2.2 (see Appendix 2), the respondents were asked to indicate the level of implementation of the knowledge management success factors on a scale ranging from 1 (Not Implemented), 2 (Little Implemented), 3 (Moderately Implemented), 4 (Implemented) and 5 (Extensively Implemented). In discussing these findings further, the categories of "implemented" and "extensively implemented" are combined as one category - "implemented". Similarly "little implemented" and "not implemented" are combined in a second category, namely "little implemented" and finally the third category is known as "moderately implemented".

The overall analysis shows that the degree of implementation reported by respondents for all success factors of knowledge management ranged from 1 to 5, with a mean rating of less than 3.50. This shows that on average, all factors were perceived as having been moderately implemented or little implemented. These findings indicate that the level of implementation of the knowledge management success factors in the

participating MSC status companies is still low. This could be due to a lack of understanding of what knowledge management actually is, which may not provide the respondents with the appropriate responses to the outlined factors. Another possibility is that most of the participants are from small companies, suggesting a possible bias, with knowledge management only being practiced in the big companiesⁱⁱⁱ. Table 4.2.2 further provides the 10 highest mean score of factors that are being moderately implemented, such as teamwork (*c25*, *c13*, *c26* and *c14*), minimization of bureaucracy (*c7*), information systems (*c17*), top management (*c4*), employees' empowerment (*c28*), job performance (*c9*), and knowledge structure (*c16*). This potentially means that all ten of these attributes are now moderately implemented, while the rest, such as training, benchmarking, equal culture and employee involvement, are less so. Furthermore, out of these mean values, there are three factors whose scores are greater than 3.00 (*c26*, *c13* and *c25*). For example, it was found that 83 respondents (48.0 percent) reported little implementation and 6 (3.5 percent) reported moderate implementation of a spirit of co-operation and teamwork (*c25*) in the participating MSC companies (*mean* = 3.20; *median* = 3.00). This implies that teamwork is currently favored by knowledge workers and is now moderately or little implemented in the MSC status companies. The understanding here is that in high technology companies such as the MSC status companies, teamwork may be the best platform for knowledge workers to leverage their knowledge effectively.

However, in relating to the SECI Model by Nonaka and Konno (1998), it is now the challenge of the current study to identify which spiral of knowledge activities is preferred by knowledge workers who are involved in teamwork (i.e. socialization, externalization, combination and internalization). Therefore, further investigation on this issue need to be carried out especially during the in-depth semi-structured interviews, as what has been suggested by the authors in the section of summarization (see for example Section 5.0). Furthermore, even though this finding indicates that these strategies are still only moderately implemented, it does provide useful guidance for improving and implementing knowledge management in the future. In other words, if teamwork really is the most effective factor for the implementation of knowledge management, this could be the new focus of the current human resource management approach.

In addition, in the case of minimization of hierarchical and bureaucratic procedures (*c7*), 95 respondents (55.6 percent) revealed that these measures are little implemented (*mean* = 2.83, *median* = 2.00). This implies that efforts are being made to reduce bureaucracy in the MSC status companies. This might not be easy, but being able to do so may contribute towards the successful implementation of knowledge management.

It could be also predicted here that top management have to play an effective role in supporting knowledge management. Table 4.2.2 reveals that support from the top management (c4) is still little implemented (90 responses; 52.7 percent) or moderately implemented (27 responses; 15.8 percent) with a mean score of 2.81 and a median of 2.00.

Overall, it could be summarized that in terms of both importance and implementation factors, teamwork, support from top management, employees' involvement and empowerment, being less hierarchical and bureaucratic, effective information systems and competitive reward systems are the most important factors for the success of knowledge management implementation. Meanwhile, all these factors are seen to be very much related to human resource management, as it usually deals with employees, especially in a supporting role, as well as providing all the above factors within the company (Anthony et al., 2002; Boxall and Purcell, 2002; Despress and Hiltrop, 1995; Fisher et al., 2003; Greengard, 1998; Holbeche, 2002; Jackson and Schuler, 2000; Maund, 2001; Mondy and Noe, 1993; Redman and Wilkinson, 2000). In this view, it is vital for human resource management to look at these factors in more depth.

In this regard, human resource management should first look at the importance of encouraging team-based work. This will then encourage knowledge sharing among knowledge workers in the companies, which later leads to socialization as well as externalization activities as mentioned in Nonaka and Konno's (1998) SECI Model. This is because according to Dixon (2000) and Greengard (1998), teamwork is the most important element for the success of knowledge management. It encourages workers to share and learn new knowledge. Becoming members of a small team allows workers to become more responsible for their tasks and to complete them within their deadlines. Thus, the attitude of sharing with others needs to be developed in the workers' minds and personalities.

Next, human resource management must play a crucial role in suggesting the involvement of top management in knowledge management practices. Top management should give their utmost support to sharing activities, especially via effective information systems, and encourage a knowledge-friendly culture (Davenport et al., 1998). Having said this, top management should also play an important role in introducing knowledge management benefits to their staff. In fact, the importance of top management involvement was supported by one respondent, who noted in the Section E (the open-ended questions) of the questionnaire that:

"In order for an organisation to manage and acquire knowledge workers, the top management must first be 'knowledgeable' themselves. They must also change their traditional mind-set and be more open-minded and approachable to their staff."

Another comment made by a Systems Engineer also revealed that:

"Top management requires meeting their staff and looking into possibilities of problems facing them."

Finally, the overall understanding is that there are high scores for the importance of knowledge management success factors within MSC status companies, but lower scores for their actual implementation. Furthermore, this section can be concluded by stating that it seems that human resource management plays a very important role in supporting the importance and implementation of successful knowledge management factors. This is because team-working, providing good information systems and performance measurement are within the scope of human resource management. Thus, human resource management may face a challenge in differentiating its existing roles from the current requirements and supporting the success of knowledge management practice. Therefore, one needs to ask whether the company really needs to implement knowledge management, or whether it can just make a further adjustment of human resource management practices in order to suit its current needs^{iv}.

5.0 SUMMARY

This paper provides questionnaire survey findings on the following issues. Firstly, the demographic characteristics of participating knowledge workers are outlined. Secondly, knowledge workers' perceptions of the factors affecting the importance and implementation of knowledge management in Malaysia are discussed. In describing these findings, several conclusions have been made. The survey summarizes the demographic characteristics of the respondents. A small majority of the respondents were male knowledge workers. However, the study found that the characteristics of the male and female knowledge workers who participated in the study were fairly similar. More than half of the respondents were aged between 20 to 29 years old. Many of them indicated their roles in the company as Information Technology (IT) Executives with less than 5 years of working experience in the current MSC status company. This provides evidence that most of the respondents are young executives. This also gives some indication of their need to secure their jobs and to develop their careers. Therefore, understanding this issue within the context of human resource management would help to ensure the smoothness of knowledge management practices. The survey also reveals that the knowledge workers' level of perception of the factors of importance and the extent to which they have been implemented varied widely. The degree of perception of importance of the need for knowledge management is relatively high, but there is lower perception of its actual implementation. This indicates that knowledge management practices in Malaysia may be still in their infancy or at an exploratory stage, even though MSC status companies are considered as highly knowledge-

structured companies. In this regard, human resource management is seen as the best supporting and/or implementing body to ensure the smoothness of the practice of knowledge management, especially in handling issues such as the tasks preferred by most knowledge workers, what encourages them to share more, what is an appropriate personal development plan for them, and what is the most effective performance appraisal and reward system. In this view, understanding the knowledge workers' experiences is beneficial when investigating what role can be best played by the human resource personnel and professionals in a company.

Finally, despite the wide range of different opinions on the issues of return for what knowledge workers have done, the qualitative findings were indeed very useful to cross-check these matters in a more detailed manner. This is because statistical analysis of the combination of opinions given by the knowledge workers shows the limitation of this type of data collection. Furthermore, several drawbacks to the questionnaire approach are acknowledged, as outlined in methodology section. Thus, an in-depth semi-structured interview is needed to uncover the ideas that arose during the questionnaire survey, and is presented in the authors future papers.

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¹ Effort on writing this issue further has been made and now waiting for acceptance of publication. Paper Titled- "The New Brand of Knowledge Workers".

ⁱⁱ Same as above.

ⁱⁱⁱ However, this view has also been highlighted during the in-depth semi structured interviews, and further results are provided in the authors' forthcoming qualitative papers.

^{iv} A further discussion of this matter is provided in the forthcoming paper, in the overview of human resource management issues as perceived by knowledge workers in the MSC status companies.