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**The Role of Human Resource Management in Knowledge Management:
A Study of Managing Knowledge Workers in the Multimedia Super
Corridor (MSC) Status Companies, Malaysia**

NORZANAH MAT NOR

**A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy of the University of Wales**

**Department of Human Resource Management
Cardiff Business School**

August 2005

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In memory of my beloved late sister,
NORAZUHA MAT NOR...

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TERIMA KASIHKU BUAT DOA IBU AYAH

Di kala tiada siapa yang percaya
Akan kesungguhan diri ini mengapai cita nan murni
Di kala itu juga kedengaran
Akan suara mencabar diri untuk kotakan janji....
Di kala itulah juga hati ini berfirasat
“Tak mengapa, jika HANYA ibu dan ayah yang mempercayainya....”

Di kala diri ini tidak lagi punya
Kekuatan, walaupun sebesar biji sawi....
Di kala itulah segala resah dan gelisah menyelubungi diri....
Di kala itulah jua hadirnya hembusan suara yang mendamalkan
Seraya berkata “Doa ibu dan ayah sentiasa bersamamu, anakku”

Di saat diri hampir rebah ke bumi
Di saat diri hampir kecewa lantaran tidak lagi berdaya....
Doa ibu dan ayah seolah-olah berbisik ke telinga sambil menyeru
“Bangun anakku, semua ini kebesaran Allah s.w.t, redha kami bersama mu”

Lalu ku bangun dan gagahkan diri untuk terus melangkah...
Langkah yang ku pasti tidak lagi perlu menoleh ke belakang
Langkah yang satu ingin ku gapai
“Kejayaan di dunia dan akhirat bersama doa restu ibu ayah...”

ABSTRACT

This thesis pays particular attention to the management of knowledge workers in the local context. Using a survey questionnaire and an in-depth semi-structured interview, an investigation of knowledge workers was carried out based on three main perspectives, namely knowledge management, human resource management and the government development agency. The empirical focus is the Multimedia Super Corridor (MSC) status companies in Malaysia. By examining 171 usable responses to self-administered questionnaires and in-depth semi-structured interviews with 78 knowledge workers, the findings from the study are analysed to answer the following research questions: *How do knowledge workers perceive the current definition of “knowledge workers” by the Multimedia Development Corporation (MDC) and what are their opinions on being classified as knowledge workers? How do knowledge workers perceive the current practices and the movement towards the importance and actual implementation of knowledge management in Malaysia? What are the factors affecting the successful implementation of knowledge management in Malaysia? What is the role of human resource management in managing knowledge workers and helping knowledge management to meet its objectives to achieve competitive advantage? Finally, what is the role of the government development agency in ensuring the successful implementation of knowledge management in Malaysia?* Several key findings are derived from this study, including opinions of agreement and disagreement with the definition of “knowledge workers”. This then leads to the development of several alternative definitions of knowledge workers, which may further assist the Malaysian government in providing the real picture of the current needs of knowledge workers. It has also been found that knowledge workers have distinctive characteristics. They look for challenges, prefer freedom, like flexible hours, dislike hierarchical structures and are in great demand, frequently being “head-hunted”. This information is very useful in producing competitive programmes and upgrading and supporting policy plans for human resource management, as well as for successful knowledge management implementation. Furthermore, even though MSC companies are considered to be high tech and knowledge-based, knowledge management is still in its infancy or in some cases non-existent. However, there are positive attitudes towards the importance of having knowledge management within companies to enable them to leverage their knowledge effectively. Most significantly, this study also indicates the relationship between knowledge management and human resource management. It has been revealed that the techniques of knowledge management are not sufficient without the support of appropriate human resource management practices. For example, it supports processes of knowledge transfer by creating a supportive organisational context and helps companies to retain staff and avoid high labour turnover. Finally, this thesis concludes that the current practice of human resource management could be improved and/or adjusted in order to become more compatible with the expectations of the current Malaysian high-tech industry.

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List of Abbreviations

7MP	Seventh Malaysian Plan
8MP	Eighth Malaysian Plan
HRM	Human Resource Management
KEMP	Knowledge Based Economy Master Plan
KM	Knowledge Management
KW	Knowledge Worker
MDC	Multimedia Development Corporation
MSC	Multimedia Super Corridor
NEP	New Economy Policy
NITC	National Information Technology Council
NVP	National Vision Policy
OPP1	The First Outline Perspective Plan
OPP2	The Second Outline Perspective Plan
OPP3	The Third Outline Perspective Plan
SHRM	Strategic Human Resource Management

CHAPTER ONE

Introduction

1.0 Introduction

In a knowledge-based economy, knowledge workers play a major role in the success of a company (Amar, 2002; Drucker, 1998; Hunter et al., 2002; Newell et al., 2002). The management of knowledge has therefore, it is argued, become as important as the management of physical assets (Amar, 2002; Mills and Frisen, 1992; Nonaka and Takeuchi, 1995). However, while key workers within companies have been recognised as knowledge workers, there is still very little known about managing this group of workers (Amar, 2002; Drucker, 1988 and 1998; Hunter et al., 2002). In this view, knowledge management, together with the support of human resource management, has been argued to be the best strategy for creating a situation that will motivate knowledge workers to remain in the company in particular and in the country in general (Greengard, 1998; Hislop, 2003; Newell et al., 2002; Soliman and Spooner, 2000; Yahya and Goh, 2002). However, realistically, there is a challenge in linking knowledge workers, knowledge management and human resource management, as affirmed by Newell et al. (2002), who stated that:

“Studies of HRM’s impact have highlighted two major problems for management. One is the need to align policies with the distinctive characteristics of knowledge workers, and the other is the need to link HRM to Knowledge Management in order to enhance organisational performance.” (p. 85)

Therefore, more empirical evidence is required in order to examine the nature of the relationship between the above issues. The findings will be useful for giving further suggestions to any related authorities in order to enable them to understand and manage knowledge workers well. In fact, there is a great deal of literature on this subject in developed countries such as the United Kingdom, Germany, Australia and the United State of

America. However, less work has been done in developing economies, and in Malaysia in particular, on the issue of human resource practices that support knowledge management and knowledge workers. This is confirmed by Syed Ikhsan and Rowland (2004: p. 238), who stated that, “there is relatively very little information on knowledge management in the public sector, and even less in developing countries...” The current research aims to fill this gap and to provide an appropriate understanding, which will inform further research (see Chapter 10, Section 10.3).

In this regard, Figure 1.0 further explains the direction of the current research. The research focus is on knowledge workers in the Multimedia Super Corridor (MSC) status companies. Using a survey questionnaire and an in-depth semi-structured interview, an investigation of knowledge workers was carried out based on three main perspectives, namely knowledge management, human resource management and the government development agency. Each of these is evaluated in the review conducted in Chapter 2, 3 and 4, which discusses the importance of these three elements in leading knowledge workers and companies towards sustainable competitive advantage. In this regard, sustainable competitive advantage requires the Multimedia Super Corridor Status companies to strategically utilise their advantages by minimising their operating costs, retaining the ability to expand their assets and keeping one step ahead of their rivals. In other words, sustainable competitive advantage urges the Multimedia Super Corridor status companies to differentiate themselves from their competitors.

Furthermore, given that knowledge workers are the most important resource of the Multimedia Super Corridor status companies, the researcher is interested to investigate what knowledge workers actually do. Do knowledge workers act differently than the review suggests? If so, is knowledge management really an effective mechanism for managing

knowledge among knowledge workers? And how can human resource management best support them in fulfilling this need? Other than that, this thesis will investigate matters raised by the government development agency, particularly the Multimedia Development Corporation (MDC), with regard to the issues of planning for learning regions, provision of skills and training expectancy of companies.

In the sections that follow, this chapter offers an overview of the current research. This includes the background of the study, its justification and purpose, the research objectives and questions, the methodology used and the organisation of the thesis.

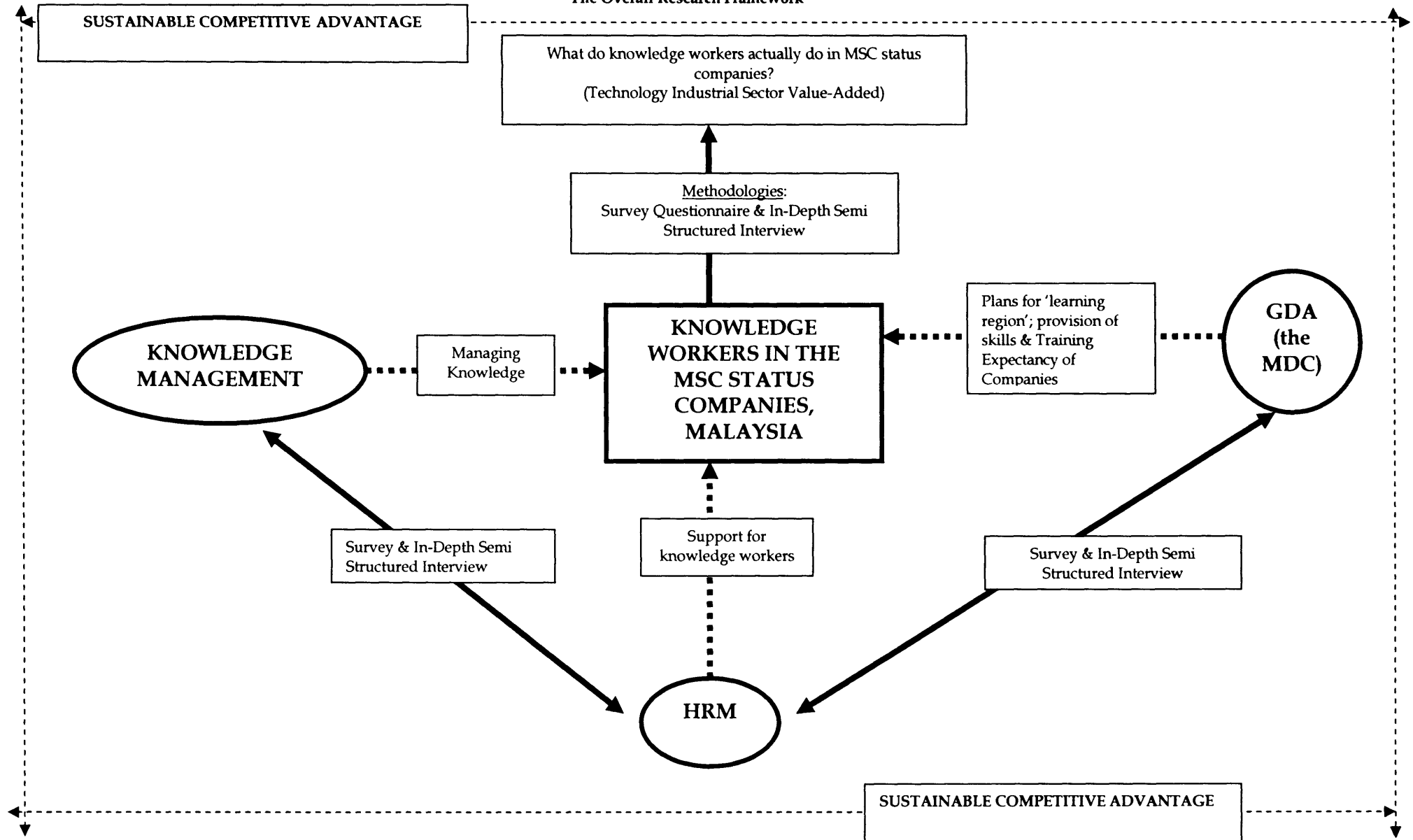
1.1 Background of the Study

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 and Prusak, 2000; Grayson and O’Dell, 1998; Kermally, 2002; Solimon and Spooner 2000). 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).

Figure 1.0
The Overall Research Framework



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). The intention of this study is also to examine and investigate how much this definition of knowledge workers applies to the Malaysian working culture and portray an accurate picture of the current needs of knowledge workers.

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 and Prusak, 2000; Davenport et al., 1998; Gupta et. al, 2000; Hunter et al., 2002; Nonaka, 1994, Nonaka and Takeuchi, 1995; Nonaka and 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 and Takeuchi, 1995; Newell et al., 2002). This knowledge can reside everywhere within or outside the company. However, the review of the literature in Chapter 2 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 Brown and Duguid (2000), 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 (Tyman and 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, as discussed in the following section and presented in more detail in Chapter 3.

1.2 Justification and Purpose of this Study

The alignment of knowledge management (KM) policies to support the success of companies and their sustainable competitive advantage has been noted by many authors (Allee, 1997; Beijerse, 2000; Bollinger and Smith, 2001; Bontis, 1999; Davenport and Klahr, 1998; Davenport et al., 1998; Demarest, 1997; Gamble and Blackwell, 2001; Gupta et al., 2000; Gurteen, 1998; Nonaka and Takeuchi, 1995; Spender and Grant, 1996; Sveiby, 1997; Wiig, 2002), but less emphasis has been placed on the idea of matching human resource strategies with knowledge management practices, especially in the case of managing and/or supporting knowledge workers to remain competitive (Boxall and Steeneveld, 1999; Hislop, 2003; Hunter

et al., 2002; Raich, 2002; Solimon and Spooner, 2000; Thite, 2004; Yahya and Goh, 2002).

To a certain extent, knowledge management is still in its infancy. Nevertheless, without further understanding of the contribution that human resource management makes towards effective knowledge management practices, the current understanding of knowledge management could be considered to be limited. In essence, the Socialisation, Externalisation, Combination and Interaction (SECI) model put forward by Nonaka and Konno (1998) has argued that knowledge workers should share their knowledge with others during the socialisation, externalisation, combination and internalisation processes. Within this context, human resource management should be committed to assisting and/or supporting knowledge management to achieve the goal of unleashing the power of knowledge that the knowledge workers have, in order to attain competitive advantage and superior business results (Hislop, 2003; Thite, 2004). This is because, in the light of the resource-based theory, knowledge workers are seen as the most important group involved in utilising knowledge resources within the firm (Hunter et al., 2002; Ordóñez de Pablos, 2002).

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 (see Chapter 4, Section 4.3 for more details). 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 1.2, 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.

Table 1.2
Growth in Jobs Created and Percentage of Knowledge Workers in the MSC Status Companies

	2002	2003 (filled)	2003 (includes vacancies)	2004
Growth in Jobs Created	17,000	17,854	21,270	22,398
Percentage of Knowledge Workers	86	86	86	88

Source: MSC IS (2003: p. 3)

There is therefore a greater demand for knowledge workers compared to production workers (see Chapter 4, Section 4.4 on Human Resource Management in Malaysia). 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 and 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).

1.3 Research Objectives and Research Questions

For the purpose of this study, the researcher would like:

- (1) To explore the overall perceptions and opinions of knowledge workers regarding the current definition of knowledge workers provided by the Multimedia Development Corporation, and also to understand their characteristics from the local point of view.
- (2) To explore the overall perceptions and opinions of knowledge workers on the current practices of knowledge management and future development in Malaysia (i.e. the importance and implementation of knowledge management).
- (3) To identify the critical factors, influences or forces that contribute to the successful implementation of knowledge management in Malaysia.
- (4) To see where human resource management could fit into the knowledge management processes and help it to meet the end objective of leveraging knowledge effectively.
- (5) To explore the role of the Malaysian Government Development Agency (the MDC) in ensuring that knowledge management succeeds and meets company objectives.

1.4 Methodology

In fulfilling the aims of this study, the researcher has undertaken two main phases to accomplish the research objectives. Firstly, a literature review on knowledge, knowledge work, knowledge workers, knowledge management and human resource management was conducted. Furthermore, an analysis of the Malaysian economic framework was also carried out during the early stages of this study. Later, the research framework, as shown in Figure 1.0, and research questions were developed (see for example Chapter 4, Section 4.4).

Secondly, a questionnaire survey and in-depth semi-structured interviews were used as methods of data collection. Out of 40 Multimedia Super Corridor status companies and 500 questionnaires initially sent out during the fieldwork (May-July, 2003), some 19 companies participated (for further details, see the breakdown of 40 participating Multimedia Super Corridor status companies in Chapter 5, Section 5.4.1.1) 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 (see the difficulties faced by the researcher while collecting data using the questionnaire survey in Chapter 5, Section 5.4.1.6). Therefore, the analysis of results in this study is based on 171 responses. Similar to the questionnaire survey, the respondents to the in-depth interviews were selected and arranged from the volunteering Multimedia Super Corridor status companies, as shown in Chapter 5 (see for example Table 5.4.2.1). Altogether, 78 respondents participated in the in-depth semi-structured interview. Here, a questionnaire survey helped the researcher to explore the knowledge of current issues on managing knowledge workers in the local context, while in-depth semi-structured interviews helped to provide detailed accounts of behaviour. This facilitated the researcher towards the acquisition of detailed information on emerging issues that needed to be addressed and also ensured that adequate information was collected.

1.5 Organisation of the Thesis

This thesis is organised into 10 chapters. Following the introduction in **Chapter 1**, **Chapters 2** and **3** present a comprehensive review of the literature on knowledge, knowledge work, knowledge workers, knowledge management and human resource management. This discussion also includes a review of theoretical aspects applied to the current research, including resource-based theory, knowledge-based theory, human capital

theory and motivation theory. A detailed description of the Malaysian economic policy framework is then provided in **Chapter 4**, with special reference to the development of Multimedia Super Corridor status companies. This chapter summarises the three economic transformation processes faced by Malaysia during its transition from an agricultural based economy to the current knowledge based economy.

Chapter 5 describes the methodology adopted for data collection, including the questionnaire survey and in-depth semi-structured interviews. In this chapter, a discussion of the research philosophy of realism is also provided. In addition, a detailed description of the sampling issues, preparation and administration of research instruments and the methods of data analysis is also presented.

The next four chapters are devoted to the presentation of the findings from the questionnaire survey and the in-depth semi-structured interviews. **Chapter 6** provides analysis and discussion of the descriptive findings collected from knowledge workers in 19 Multimedia Super Corridor status companies, and **Chapters 7, 8 and 9** present the results of qualitative data analysis, collected from knowledge workers in 30 Multimedia Super Corridor status companies.

Finally, **Chapter 10** provides a summary and conclusion to this thesis by looking specifically at the earlier research questions and their contributions to the new body of knowledge. This chapter also acknowledges the limitations of this study and provides suggestions for further research.

CHAPTER TWO

Understanding the Concept of Managing Knowledge Workers

2.0 Introduction

This chapter develops an understanding of the concept of managing knowledge workers. This is done by first examining the theoretical overview applied to knowledge, knowledge workers, companies and the new economy. Further understanding of the meaning of “knowledge” is also provided in Section 2.2. This is then followed by a discussion of knowledge workers and their characteristics as provided by several authors, including Amar (2002), Drucker (2000, 1999, 1998 and 1988), Hunter et al. (2002), Horribe (1999), Newell et al. (2002), Tampoe (1992) and Thite (2004). These understandings are pertinent to the current study, as they are linked to the theories discussed earlier, such as resource-based theory, knowledge-based theory, human capital theory and motivation theory. The remainder of this chapter focuses on knowledge management in companies. Following a detailed explanation of what knowledge management is and the elements of its processes, the chapter also provides evidence on the successful factors for knowledge management practice. The final section offers a brief summary of this chapter.

2.1 Knowledge, Workers, Companies and the New Economy - A Theoretical Overview

Resource-based theory seeks to explain how and why companies achieve a sustained competitive advantage. Based on this theory, it has been argued that knowledge is considered as one of the important resources that lead companies towards a sustainable competitive advantage. According to Leonard-Barton (1995), Ordóñez de Pablos (2002) and Shariq (1997), companies’ attention and decision-making should focus primarily on

knowledge and the competitive capabilities derived from it. In the case of managing knowledge workers in the Multimedia Super Corridor status companies, the theory helps to further our understanding of how these companies develop their knowledge capabilities and resources in pursuit of the better performance of knowledge workers and progress towards a sustainable competitive advantage in Malaysia.

Essentially, it has been agreed that the development of resource-based theory began at least forty years ago (see, for example, Pringle and Kroll, 1997). In that time, there have been many other publications on this theory, including the works of Penrose (1959), Wernerfelt (1984), Barney (1986a; 1986b; 1991), Aaker (1989), Amit and Shoemaker (1993); leading to recent papers by Kor and Mahoney (2000) and McWilliams et al. (2002). Edith Tilton Penrose, Professor of Economics at the University of London, conceptualised her understanding of resource-based theory in a book entitled *"The Theory of the Growth of the Firm"* (1959). In her book, she described the company as an administrative entity and a collection of productive resources. She also distinguished between "physical" and "human" resources, the latter including the knowledge and experience of the management team (pp. 24-78). According to her, companies are "heterogeneous", and by exploiting the differences between companies, they can make profits.

By defining companies as unique bundles of resources, a "company" or "rent seeker" has strong links with a company's superior resources in addition to its performance (Barney, 1991; Bontis, 1999; Hitt et al., 2001; Hunter et al., 2002; Kor and Mahoney, 2000; McWilliams et al., 2002; Olavarrietta and Ellinger, 1997; Oliver, 1997; Ordóñez de Pablos, 2002; Smith and Rupp, 2002; Spanos and Liokas, 2001; Wernerfelt, 1984). Therefore, managing these resources in an effective manner will produce positive outcomes and contribute to higher performance and effectiveness,

which again may lead to a sustained competitive advantage (Kor and Mahoney, 2000; Rouse and Daellenbach, 1999). Here, resource-based theory suggests that companies should “secure their right resources”, be they human, financial or high-technological resources (Kor and Mahoney, 2000). This can be done by developing and enhancing those resources that are scarce, hard-to-imitate and valuable to customers as well as to the company. This, it is argued, will ensure the success of the company.

On account of this understanding, the resource-based theory of companies has also been identified as an effective strategic management theory that seeks to identify the resources that may provide companies with a sustainable competitive advantage (Boxall, 1996; Kor and Mahoney, 2000; Lieberman and Montgomery, 1998; Maijoor and Witteloostuijin, 1996; Olavarrieta and Ellinger, 1997; Pringle and Kroll, 1997). The theory allows investigation of the sources of sustainable competitive advantage to be carried out *within* companies (Rouse and Daellenbach, 1999). This will indeed involve the process of human resource management, knowledge workers and knowledge management, especially in managing knowing within the companies. The effectiveness of the management of these elements will steer the companies’ ability towards a competitive advantage.

Therefore, again, there is a need to recognise the significance of the views of knowledge. This will be discussed further in the next section. In the same way, as with other important resources, knowledge workers are significantly involved in the process of knowledge transfer within the companies (Bontis, 1999; Hunter et al., 2002; Newell et al., 2002; Nonaka, 1994; Nonaka and Takeuchi, 1995; Ordóñez de Pabloz, 2002; Suk Choi, 2000). In this view, resource-based theory explains how and why companies achieve a sustained competitive advantage through knowledge management. This theory encourages knowledge management, with

support from human resource management, to improve the strategic position of companies in competitive markets by managing knowledge transfer and/or sharing it effectively, especially among knowledge workers.

Overall, the resource-based theory considers companies as being rent-seekers rather than profit-maximisers (Amit and Schoemaker, 1993; Teece et al., 1994). This rent-seeking behaviour emphasises the role of entrepreneurship and innovation in companies. Companies continuously seek new opportunities to generate rent rather than being content with their normal avenues of profit (Olavarrieta and Ellinger, 1997: p. 564). In other words, companies should take advantage of the distinctive capabilities of their resources, such as knowledge workers, towards adding value to what companies earn over and above the cost of the capital employed in their business. Thus, it has been suggested that companies' attention and decision-making should focus primarily on renting and utilising knowledge creation within the company.

In relation to knowledge creation activities, Nonaka (1994: p. 20) suggested a knowledge management framework in terms of four kinds of knowledge conversion: (1) *socialisation* – the process of creating knowledge based on tacit knowledge; (2) *externalisation* – transforming tacit knowledge into explicit knowledge; (3) *combination* – creating a process of explicit knowledge based on existing explicit knowledge; (4) *internalisation* – transforming explicit knowledge into tacit knowledge. Through these four conversion interactions and processes, and through the transfer of knowledge from individual, group, and company levels, companies can create knowledge. Having said this, there is a further need for an efficient system and/or enabling tool to ensure the smoothness of the above activities. In this regard, the knowledge-based theory (Grant, 1996; Liebeskind, 1996; Spender, 1996) has been argued to provide an efficient

system for integrating and coordinating individual knowledge workers' knowledge. In fact, this theory would be very useful in describing further how "combination" and "internalisation" could be carried out more effectively (see, for example, Section 2.4 on the SECI Model by Nonaka and Konno, 1998).

Furthermore, knowledge-based theory, as well as applying the work done by Grant (1996), asserts that four assumptions are made in the current study. These are: firstly, that the Multimedia Super Corridor status companies are considered as high tech companies that utilise knowledge in the production of goods and services; secondly, as the Multimedia Super Corridor status companies are involved in research and development (R&D) activities, knowledge is seen to be the most strategically important resources of a firm in producing new products; thirdly, knowledge is created and held by knowledge workers, who become the main asset for the Multimedia Super Corridor status companies; and finally, the existence of the Multimedia Super Corridor status companies is due to the available market development, through coordinating the knowledge of their knowledge workers.

Apart from the above, in relation to human resource management, knowledge-based theory could help human resource departments to become part of their companies and their business strategies by taking more significant and proactive roles in information technology-based initiatives (Martinsons (1995: p. 35). However, it has been argued that there is still a lack of a knowledge-based theory in today's companies, as pointed out by Von Krogh (1999):

“I haven’t really seen a good knowledge-based theory of the firm yet. It seems to me that the resource-based perspective is a manufacturing-oriented perspective...but what is the source of rent for the knowledge-based firm? Is it speed because they’re faster? Is it diligence because they’re more precise? Where does it come from? I’m not sure. This is where some people might think that we have a knowledge-based theory of the firm, [that] it’s all set now. But perhaps it is not...” (p. 4)

In agreement with Von Krogh (1999), Spender (2003) identified uncertainty as one of the elements that have been left out in knowledge-based theory of a firm. He argued that although knowledge is a definite asset for companies, it is still not an end objective. Knowledge can sometimes become problematic, when people misuse and misunderstand the information they receive. As knowledge workers are dealing with more complex scenarios nowadays, they would have to be serious and careful before being willing to leverage their knowledge to others or when receiving knowledge (Spender, 2003). Thus, from the human resource management perspective, which will be discussed further in Chapter 3, there is a need to examine factors that would neutralise this feeling. As a result, the challenges for the current study are to explore factors that would contribute to the successful implementation of knowledge management.

In the light of the resource-based theory, knowledge based theory and the encouragement for knowledge workers to develop a learning society, it has also been suggested by human capital theory that education and training raise the productivity of workers by imparting useful knowledge and skills (Becker, 1964). In fact, Harris (2001: p. 25) has pointed out that:

“...a lot of modern growth theory uses human capital as a proxy for knowledge. Human capital as a proxy for knowledge makes some sense because humans created and transferred most knowledge. More human capital in the form of higher levels of education and skills of a given labour force would certainly be correlated with more knowledge...Most economists would agree that human capital is an essential complementary factor to both the creation of new knowledge and the application of knowledge”.

With this understanding, it has been further argued that the importance of human capital i.e. knowledge workers, for company performance is indeed undeniable (Amar, 2002; Drucker, 1988 and 1998; Hitt et al., 2001). In agreement with this, Tymon and Stumpf (2003) identified that pursuing knowledge workers' education, training and work practices will encourage the continuity of transferability, controllability, fungibility, and entropic and synergistic activities within the company. In other words, the knowledge workers' personal career development and/or human resource development allows the growth and leverage of knowledge to a greater extent and more efficiently.

In addition, there will be another important element in terms of how these knowledge workers can be pushed to fit the current needs of the companies and the economy, as mentioned above. In this case, motivation plays an important role for knowledge workers' development and their contribution to the companies. Motivation theory acts as a driving force, which initiates and sustains the voluntary behaviour of an individual knowledge worker in a given cultural setting towards the attainment of chosen goals or rewards (Tampoe, 1992: p. 26). Authors like Maslow, McGregor, Herzberg, McClelland and Argyris have written a great deal about human motivation in the workplace. However, this thesis will not discuss all these theories in detail, as the main purpose of this section is to explore the relationship between the motivational theories and the management of knowledge workers in the knowledge-based environment, i.e. the Multimedia Super Corridor status companies.

With this regard, the understanding of Theory X and Y by McGregor appears to be compatible with the current study on knowledge workers. For example, McGregor (1960), in his book *"The Human Side of Enterprise"*, sees Theory X as an old system of rewards and threats, but still widely practised, especially in the factory industries. Theory Y, on the other hand,

is found to be very useful for managing knowledge workers. He realised that the knowledge workers will only contribute to the company if they are treated as responsible and valued employees (i.e. involved in participative problem solving). Furthermore, in agreement with Theory Y, Erven and Milligan (2001) in their work on *"Making Employee Motivation a Partnership"* claimed that the employee's motivation works best in a partnership. They said that the: "...employee brings his or her self-motivation, experience, good intentions and training to the job. Employer brings his insight about employee's needs and rewards..." (p. 3). In this case, both employee and employer are urged to work as a team (i.e. in synergy), solve the problem and share the responsibility together. In doing so, the employer needs to ensure that the job design matches the workers' needs. For example, knowledge work encourages knowledge workers to use a variety of skills and creativity, especially in completing challenging tasks, allowing them to make their own decision with little guidance, telling them what would be the significant results of those tasks and making them feel proud of being part of the team. Further discussion on knowledge and knowledge work is presented in Section 2.2.

2.2 Knowledge and Knowledge Work

The discussion of understanding knowledge and knowledge work is based on three main phases, namely the early 1960s, 1970s and 1980s (1st Phase), during the 1990s (2nd Phase) and the current information revolution in the 2000s (3rd Phase). In the 1960s, 1970s and 1980s, authors like Michael Polanyi, Daniel Bell and Alvin Toffler made an effort to start explaining what knowledge is all about. During this time, these authors outlined the concept of knowledge, but did not provide the pre-eminent way to utilise it. There were some views on "knowledge" as "information" and "information" as "knowledge". There was little description of what knowledge work actually looked like. Perhaps this is because of the active scientific management practice among workers at that time, where there

was a belief that only managers should do the “thinking” and workers were only there to “do” their part (see for example Newell et al. 2002, pp. 8-12). Following Taylorism, Newell et al. (2002) argued that there was no such thing as “knowledge work” at that time. Workers as machines did not need to know anything except how to complete their routine tasks.

In the second phase of the 1990s, authors like Bell, Blackler, Nonaka and colleagues, Grayson and O’Dell, Sveiby, Davenport and Prusak, Drucker, Spender, Gurteen etc. discussed knowledge and emphasised the importance of retaining knowledge for the success of company. This is because the world experienced several economic crises as well as the failure of reengineering mechanisms at that time. Because of this, knowledge started to be considered as a crucial asset for personal, company and national success. For example, in relation to resource based theory and knowledge based theory, Nonaka (1994), Nonaka and Takeuchi (1995), Nonaka and Konno (1998), and Nonaka and Reinmoeller (2000) introduced the concept of a knowledge-creating company as being concerned with making individual insight available for testing and use by the company as a whole. Knowledge-creating companies constantly encourage the process whereby personal knowledge is made available to others (articulation) to extend their own tacit knowledge base (internalisation). In this view, Nonaka and Takeuchi (1995) divided knowledge into “tacit knowledge”, the expertise and experience of individuals and groups, and “explicit knowledge”, the company’s rules, routines and procedures. They further argued that the ability of the company to be latent (i.e. retain its memory and the potential to use it) is the key to competitive advantage. Therefore, the role of the management could be to provide a conceptual framework that helps employees to make sense of information, which they believe to be different from knowledge.

In expanding the above work, Blackler (1995) categorised the knowledge that resides in the individual or in a group of workers into five types, as outlined here: embrained - brain oriented (i.e. thinking and/or cognitive abilities); embodied - action oriented (i.e. documents; partially explicit); encultured - company culture oriented (i.e. collective sharing culture); embedded - routine oriented (i.e. company system of technologies); encoded - interpretation oriented (i.e. understanding of signs and symbols). He further argued that the utilisation of each of these types of knowledge depends largely on the type of company. They are not considered to be split, but are assumed to be working together. For example, in developing new software, as most of the MSC status companies are doing right now, knowledge workers would normally start with cognitive abilities, in terms of what computer programme should be used. This is then followed by documenting to-do lists, and the sharing of knowledge within a small group in order to complete the task. Once the task is done, its knowledge will become routine and interpretation-oriented. However, there is still a challenge for the researcher to explore exactly how these companies manage and/or utilise these types of knowledge effectively. Further discussions on findings related to this issue are presented in Chapters 6 and 7.

Ultimately, knowledge is definitely a driving force for the growth of business activities and of the nation (Blackler, 1995; Davenport and Prusak, 1998; Grayson and O'Dell, 1998; Nonaka, 1994; Spender, 1996; Sveiby, 1997). For example, knowledge has been proved to be a source of business success, as in the McKinsey Consultants' Company, Microsoft and Kodak (Sveiby, 1997). These companies encourage and provide incentives for those who share knowledge and perform more, no matter what background the workers have (i.e. clerk, officers, middle management and top management). These examples analysed knowledge as the basic force for strengthening competitiveness and a survival factor for the twenty-first

century. In this regard, the accumulation of knowledge is important for later use and therefore the real essence of knowledge should be filtered within a company.

To disseminate this knowledge, based on the same review as above, knowledge management is seen as the most crucial task contributing towards maximising knowledge within the company. Hence, the understanding of knowledge work as a strategic resource is pertinent for the concept of managing knowledge workers. Knowledge work during this time was known as “work which used more brain than hands” (Horribe, 1999). This knowledge work was very different from production work such as that done in a factory (Drucker, 1998). In relation to this, Sveiby (1997) highlighted that knowledge work would normally start from the knowledge companies who use different principles, such as supporting or not supporting knowledge sharing activities, and have a knowledge-focused strategy, compared with the industrial paradigm. For instance, from knowledge-based perspective, people, knowledge and customers are considered as revenue generators and therefore as the focus of the business (see for example Table 2.2).

Table 2.2
The Principles of the Knowledge Organisation

Item	Seen within an industrial paradigm, or from an industrial perspective	Seen within a knowledge paradigm, or from a knowledge perspective
People	Cost generators or resources	Revenue generators
Manager's power base	Relative level in organisation's hierarchy	Relative level of knowledge
Power struggle	Physical labourers versus capitalists	Knowledge workers versus managers
Main task of management	Supervising subordinates	Supporting colleagues
Information	Control instrument	Tool for communication, resource
Production	Physical labourers processing physical resources to create tangible products	Knowledge workers converting knowledge into intangible structures
Information flow	Via organizational hierarchy	Via collegial networks
Primary form of revenues	Tangible (money)	Intangible (learning, new ideas, new customers, R&D)
Production bottlenecks	Financial capital and human skills	Time and knowledge
Manifestation of production	Tangible products (hardware)	Intangible structures (concepts and software)
Production flow	Machine-driven, sequential	Idea-driven, chaotic
Effect of size	Economy of scale in production process	Economy of scope of networks
Customer relations	One way via markets	Interactive via personal networks
Knowledge	A tool or resource among others	The focus of business
Purpose of learning	Application of new tools	Creation of new assets
Stock market values	Driven by tangible assets	Driven by intangible assets
Economy	Of diminishing returns	Of both increasing and diminishing returns

Source: Sveiby, K.E. (1997: p. 27)

Furthermore, by having a knowledge-focused strategy, a company has a different way of practising its knowledge work. McKinsey Consultants' company, according to Sveiby (1997), provides a good example of how knowledge work can operate well. Such companies appreciate their knowledge workers and allow them to produce whatever they think is good for the company. At the same time, they appreciate team-based work more than individual efforts. In fact, according to Sveiby (1997), knowledge work is argued to be more effective and efficient in small companies, like most of the MSC status companies, than in larger companies. Being a small "tightly-knit family", everyone knows what is going on, and who is responsible for what, when working as a team. This environment discourages any unhealthy competition among workers, as the performance evaluation is done based on the whole team rather than on an individual worker.

In the current information age of the 3rd phase, the critical evaluation and the need to retain knowledge and leverage it for the success of company in achieving a sustainable competitive advantage in the knowledge-based economy has become the main concern, and has been studied extensively by many researchers. By differentiating between data and information, Davenport and Prusak (2000: p. 5) defined knowledge as originally coming from data, which on analysis becomes information and hence becomes knowledge. Knowledge consists of a fluid mix of framed experience, values, contextual information and experts' insight that provides a continuous framework for evaluating and incorporating new experiences and information.

In addition, Davenport and Prusak (2000) also emphasised that knowledge originates from and is applied to the minds of those "in the know" (i.e. workers in the company). However, they further argued that in a company, knowledge is not only embedded in human minds, documents or repositories, but also in the company's routines, processes, practices, and norms. Further to this work, Beijerse (2000) pointed out that knowledge is the factor with which entrepreneurs can distinguish themselves from their competitors. This knowledge is characterised by the amount of information, the capacity and attitude required to function, achieve, and to be accessible within a company. In agreement with this, Probst et al. (2000) argued that knowledge is the whole body of cognitions and skills that individuals use to solve problems. It includes theories and practices as well as everyday rules and instruction for action. Knowledge is based on data and information, but unlike these, it is always bound to individuals. It is constructed by individuals, and represents their beliefs about causal relationships.

Following the same concept, Bollinger and Smith (2001) tried to describe knowledge as the understanding, awareness, or familiarity of the individual acquired through study, investigation, observation or experience over a course of time. Similar to Sveiby (1997) and Grayson and O'Dell (1998), Tsoukas and Vladimirou (2001) indicate that knowledge is definitely influenced by actions, to "learn new things" and "unlearn old things". It is an individual's own interpretation of information based on personal experience, skills, and competencies. This means that when somebody needs to finish his or her thesis using a computer, the person needs to learn how to use Microsoft Word effectively and must be prepared to forget (i.e. unlearn) some techniques and/or knowledge about using a typewriter.

One of the other important contributions to the understanding of knowledge during this phase comes from Newell et al. (2002). Using the structural and processual perspectives on the work done by Nonaka (1994), Spender (1996) and Blackler (1995), they agreed that knowledge can be divided into two categories. Firstly, knowledge is an "object" and/or a "thing" that is static and requires the individual's personal initiative to work for it in order to possess it. Secondly, knowledge is known as a "process" and occurs via daily activities and just happens without anyone noticing, such as during friendly conversation, reading, watching television, walking etc. Both types of knowledge are considered valuable for the company's success. The first meaning urges knowledge workers to appreciate their life-long learning activities, and could be related, to a great extent, to the organisational learning theory (Senge, 1995). The second meaning, alerting the company to value its tacit knowledge more, has become the most important direction for the conduct of the current study.

In this direction, further efforts are needed to encourage the process of transition from tacit to explicit and finally useful knowledge for the company's benefits, as described by Nonaka (1994) and Nonaka and Takeuchi (1995). With regard to the knowledge work of this type, Newell et al. (2002: p. 98) pointed out that "...knowledge work is best conducted in 'organic' and informal settings, with egalitarian cultures and where horizontal, as opposed to vertical, communication dominates". This shows that knowledge work in this era is different from traditional work (i.e. operating work) as discussed during the 1960s, 1970s and 1980s. It has been criticised that knowledge work no longer complies with all the static procedures, as in a factory (Amar, 2002). Knowledge work, however, usually involves intellectual work and does not have exact procedures to follow. In keeping with this view, Amar (2002: p. 66) says that:

"Managers should accept that not all knowledge work is the same, equally meaningful, challenging, rewarding, or interesting. Sometimes, it can become very abstract and confusing. Depending on the type of knowledge work, it can either draw the doer to it and make him engage in it or drive him away."

Based on this, knowledge work should, if possible, first be appealing and interesting to the knowledge workers. To do this, the concepts of autonomy and workers' freedom have become synonymous with the current view of knowledge work. This is asserted by Newell et al. (2002: p. 18) who further said:

"...those engaged in these types of works [i.e. knowledge works] need to be left to make their own decisions about what and how to do their work. The nature of the work they conduct demands autonomy over the major work process..."

In so doing, the company should involve its knowledge workers in the company system, policies, vision and mission, i.e. participative management (see for example Heller et al., 1998). Further discussion of the relationship between knowledge work and knowledge workers is presented in Section 2.3.

The overall description of knowledge has seen some tremendous changes during the transition from the first phase to the second phase and now the third phase. In the first phase, the realisation of knowledge was seen. The second phase has seen an effort to explore the importance of knowledge and also the creation and suggestion of suitable mechanisms for how knowledge can contribute to the success of a company. In the present day, more serious efforts have been made to effectively manage knowledge by implementing and/or re-inventing the management of knowledge in accordance with fulfilling the current needs of business activities. This is now known as “knowledge management”. Recently, in the third phase, more dedicated work has emerged on how to support the practical implementation of knowledge management in order to contribute to the success of workers in particular and the company as a whole, as well as the nation in general. In this regard, understanding who knowledge workers are may help to further the understanding of knowledge management and later to analyse the needs of human resource management in supporting these two crucial elements within a company.

2.3 Managing Knowledge workers: Who are they?

2.3.1 Historical Development

The early 1990s witnessed a great deal of discussion about knowledge workers. Peter Drucker (1988 and 1998) has raised this issue due to the need for a knowledge-based economy. In his works on *“The Coming of the New Company”* and *“The Effective Executive”*, Drucker (1998 and 1988) described the changes needed for this group of workers, who he considered as professionals working with the information-based company. It has also been noted by Eisenberg (1997) that as the economy has changed from industrial to information-based, the focus nowadays is on intellectual capital and knowledge workers. This is consistent with other authors, such as Scarbrough et al. (1999). They commented on the economic changes as follows:

“Numerous studies have indicated the extent of such changes in advanced economies. There have been important occupational shifts with the emergence of knowledge workers and the decline of manual trades...These changes have been characterized by a variety of terms - the ‘post-industrial era’, the ‘information age’, the ‘knowledge society’ - which focus on the importance of knowledge as the defining characteristics of this new age.” (p. 4)

The management of knowledge workers is an important area not only because of the existence of knowledge workers in the workforce, but more importantly because of the impact these knowledge workers have on companies’ performance (Amar, 2002; Drucker, 1988 and 1998; Hitt et al., 2001; Newell et al. 2002; Nilmini and Michael, 2001; Nonaka and Takeuchi, 1995). This is because, as mentioned in the SECI Model, the creation of knowledge normally begins during the social process and occurs through interaction between workers within the companies. In this regard, knowledge workers are becoming an increasingly important segment of the workforce. They are present in many industries including law, accounting, academia, health care, consulting, advertising, public relations and information technology. So who exactly are these knowledge workers?

An overview of the discussion of the development of the term “knowledge worker” has been provided by Darr (2003) in his work on Testronic’s sales engineers, who were working in various places in clients’ offices. Beginning with the theories of the new middle class in the late 1970s and 1980s, Darr (2003: p. 31) wrote that the conservative and radical groups acknowledged the rising of a new middle class i.e. professionals and technical workers, in the twentieth century. He emphasised that this new class of workers, who were working at a variety of client offices, was under market control rather than Testronic’s control. This meant that the client’s manager and engineers became their (i.e. sales engineers’) supervisors. In addition to that, Amar (2002) regarded knowledge workers as Generation X and Y (Nexters), who were born after 1977 and are now joining the

workforce. He wrote:

“The biggest challenge that management of knowledge organisations confronted during the 1990s, and will continue to face in the future, came from changes in work behaviour of the new generations of workers. These employees, even though young, have superior knowledge and skills, more so than the managers who are supervising them and who have responsibility to create the environment in which they work. If management is willing to work with them, it can make them the super smart employees it dreams of, but if it does not understand them, then it can in turn turn them into sloth.” (p. 24)

In this case, before dealing with the issues concerning the management of knowledge workers, it is worth mentioning that there is an abundance of synonyms for the term knowledge workers. The definition of knowledge worker is indeed different from one author to another. For instance, Helton (1988) and Kelly (1990) defined the knowledge worker as somebody doing non-repetitive, non-routine work, which entails substantial levels of cognitive activity. They possess specialised skills and training, which they have acquired by investing significant resources (time and money) towards their education. Knowledge workers are also classified as “problem solvers” for the research and development companies, “problem identifiers” and “problem brokers” for advertising companies (Reich, 1991).

Furthermore, Tampoe (1992: p. 16) described knowledge workers as “those who have traditionally been referred to as professionals, e.g. practising lawyers, accountants, the technologists and scientists of today, provided they work within a company context...”. Several studies viewed knowledge workers as being related to knowledge work that is challenging and non-routine; it can be further described as being related to the solving of unstructured tasks and problems (see for example Section 2.3 on Knowledge Work). Sveiby (1997) considered knowledge workers as those who are highly qualified and highly educated professionals. Their work consists largely of converting information to knowledge, using their own

competencies for the most part, sometimes with the assistance of suppliers of information or specialised knowledge. In agreement with this view, Frances Horribe (1999: p. xi), in her book entitled *"Managing Knowledge workers: New Skills and Attitudes to Unlock the Intellectual Capital in Your Company"*, defined this group of workers as those who use their brains more than others do. She said:

"... knowledge workers are people who use their heads more than their hands to produce value. They add value through their ideas, their analyses, their judgment, their syntheses, and their designs. They still use their hands, of course, but it's more likely to be putting into a computer than lifting a 50-pound sack ..."

According to Reed (1996), knowledge workers are "information technology analysts". He further argued that these workers live an "informal way of life" and are not tied to any particular company. Thus, they are mostly self-employed and have a high degree of work autonomy. Looking at the earlier discussions, the common thread through the 1990s definitions of knowledge workers is that they are highly educated, well skilled and are differentiated in information technology criteria.

However, more recently, the definitions of knowledge workers have seen some dissimilar points of view emerge. For example, most importantly, knowledge workers are empowered and have the autonomy to make decisions that have far-reaching consequences for the company for which they work (Hunter, et al., 2002; Newell, et al., 2002; Rowley, 2000). In fact, Dominique Goupil (2002), the president of FileMaker Inc., described knowledge workers as being any of the following: "employees, partners, contractors, freelancers and consultants. Some are mobile and may work in hotels, airports or even on the road. Others are stationary, working from home, in office buildings or manufacturing facilities. They populate all industries and have job descriptions ranging from assembly line workers to doctors and scientists. The one common thread running through this mosaic of knowledge workers is a connection to information..." (p. 2).

In another case, Beaumont and Hunter (2002: p. 4) used three different approaches for defining knowledge workers, which are quite similar to the view of Newell et al. (2002). Firstly, knowledge workers are usually created by the situation of high demand occupations, such as computer engineers and system analysts. Secondly, knowledge workers are seen to have a high involvement in knowledge work such as research and development, advertising, education and professional services such as law, accountancy and consultancy. Thirdly, according to the Organisation for Economic Cooperation and Development (OECD), those knowledge workers are well known for working with high-tech industries like aerospace, computer and office equipment, communications equipment, pharmaceuticals and knowledge-based services (telecommunications, computer and information services, finance and insurance, education and health). From here, Beaumont and Hunter (2002) categorised knowledge workers into two groups: technical or content experts (e.g. law companies) and creative employees (e.g. advertising agencies). In the Malaysian context, looking for an appropriate definition of knowledge workers in order to provide the true picture of the current business scenario has been considered as one of the current study's main objectives (see, for example, Chapter 4, Section 4.4).

The overall view of these definitions consists of two main perspectives. The first perspective is focused on the professional and information technology viewpoint. This view was especially evident during the 1990s. The second perspective seems to focus primarily on the professional and the view that everybody has the potential to become a knowledge worker. This opinion has emerged during the 2000s. However, we shall refer to the Multimedia Development Corporation's current definition of knowledge workers in the rest of the thesis, with the understanding that this term reflects the concept of knowledge workers as human resources in the context of the resource-based theory of the company.

The definition of knowledge workers by the Malaysian government shows some dissimilarity from those used in countries such as the USA, UK, Australia and Germany etc. For example, looking specifically at Tampoe's (1992) definition of knowledge workers, not all university graduates or diploma holders can be regarded as knowledge workers unless they actually practice what they have learned. Accordingly, all Malaysian workers who possess any higher qualification are considered as knowledge workers even though they may not necessarily continue to work in their field of study. Furthermore, the Malaysian definition of knowledge workers shows that information technology is the main requirement for being classed as such.

In addition, as will be seen in Chapter 4 (see for example Section 4.2), Malaysia does not have any problems with a shortage of knowledge workers because it has a large number of university graduates without permanent jobs (see for example Online Bernama Newspaper, 22nd December 2004). Therefore, further clarification of this definition is needed in order to portray the true picture of the current situation in Malaysia regarding knowledge workers. It is hoped that a clearer understanding of the characteristics of knowledge workers may allow us to better identify them and to know who these workers actually are.

2.3.2 Characteristics of Knowledge Workers

In relation to the earlier definitions of knowledge workers, various authors have stated different views on the characteristics of knowledge workers. However, not many of them have been supported by empirical data, as were Tampoe (1992), David (1997), Hunter et al. (2002), Kubo and Saka (2002). Thus, the current study attempts to fill this gap by identifying the characteristics of knowledge workers from the perspective of the local context of Malaysia, as presented in Chapter 7 (see for example Section 7.2).

Being a new occupational group, knowledge workers are considered to be different from others in four key areas (Tampoe, 1992). Firstly, their relationship with managers should be based on “operational autonomy” (i.e. the freedom, once a problem has been set, to attack it by self-determined means, within the given company’s resource constraints), rather than “strategic autonomy” (i.e. freedom to set one’s own research agenda). Secondly, knowledge workers provide highly valued teamwork, especially when it comes to the need to finish complicated projects. Thus, they will normally work as a team rather than as individuals. However, this team could become isolated when they have to finish the project. Thirdly, knowledge workers act as information users and providers within the companies, and thus ensure good communication among themselves and across departments. Finally, knowledge workers are also known as creative and innovative employees, especially when it comes to solving problems and decision-making.

Inconsistent with the above, David (1997: pp. 63-84) applied the use and relationship of knowledge within the company as the main criterion for differentiating knowledge workers from ordinary workers. In this regard, knowledge workers are those who use and form knowledge, bring benefit to the company, have self-control over their work, possess efficient working experience, accept knowledge as a resource and a product, and finally are usually creative. In this case, in order for the continuity of excellent production, knowledge workers should be creative, even though they may not have the work experience; training and development programmes could provide assistance in this regard. It is also believed that knowledge workers should only be those who have the freedom to make use of their knowledge without any distraction from the company, i.e. are working within a “free autonomy relationship” (Amar, 2002). In this case, as knowledge workers, they are committed to lifelong and self-directed learning, as they need to catch up with the fast movement of knowledge

and to remain creative as well as competitive (Senge, 1995). Failure to do so will make knowledge workers leave the company for a better opportunity and working environment.

Therefore, again this is in agreement with Sveiby (1997: p. 25) who said: "Yesterday's managers could rely on their workers' loyalty, which was born of necessity. Not so in the future..." The knowledge workers no longer stick to one company for a long time, unless they are fond of the working environment and the freedom offered to them (Drucker, 1999). It has also been pointed out by Horribe (1999: p. x) that, "...if you are looking for a change, the time has never been better to sharpen up the old resume. But if you are a manager trying to attract or retain good people, you are in trouble..." This is because of knowledge workers' capability to access information and keep themselves up-to-date with the current trends or methods of contact with customers and vendors in looking for better opportunities.

Furthermore, in the case of retaining information technology (IT) professionals, Lock (2003) found that employees in British Columbia's public services are attracted to workplaces that include work challenges, respect and a balanced work-life, as shown in the Table 2.3.2. Employers who can provide all these factors are potentially able to retain their knowledge workers for longer.

Table 2.3.2
Key Companies Cultural Factor

Employer of Choice Factor	CSTB (2001) CIO Council (2001)	Kanter (2001) Keller (2001a)	PSERC (2001a, b)	Others
Having challenging and interesting work ("challenging work").	√	√	√	ISTA (2001a) Rao (2001) Wynford Group (2000) PWC (2001)
Having supportive managers and colleagues, mentors and coaches ("holistic company support").		√	√	PWC (2001)
Rewarding and recognising individuals for their contributions ("reward and recognition").	√	√	√	ISTA (2001a)
Company leadership that sets company goals and pathways for employees to achieve these goals ("effective leadership").		√	√	
Having a work environment that fosters creativity, innovation and risk taking ("creative risk taking").	√	√	√	NAPA (2001)
Companies that have a common vision and internal belief system ("community identity").		√		

Source: Lock (2003: p. 153)

The review conducted by Lock (2003) on the above examples and surveys has suggested two common threads that are interwoven throughout the model of employers. The first is the recognition of the need to change "old ways" such as managing employees as "servants" and "working machines". Next is the development and implementation of strategies that address the changes needed, as indicated in the "employer of choice" factors shown above. In this view, the knowledge-intensive companies are required to become more strategic in managing their workers, as suggested by Amar (2002 and 2004), Drucker (1988, 1999 and 2000), Horribe (1999), Lock (2003) and Thite (2004).

In agreement with this, it has also been suggested that knowledge workers are not only different but are unique, are focused on individual goals rather than company goals, are self-centred and believe in freedom of opportunity

for all (Amar, 2002). Even though all these characteristics are considered as containing negative aspects, knowledge workers are positive assets in that they are “very technologically smart”. In the information technology era, this is the generation that we might need to help a country like Malaysia meet its sustainable competitive advantage via technological knowledge. Other than that, Amar (2002) also highlighted the importance of peers in knowledge workers’ lives. This is because the ignorance of home and family value development has actually increased their interest in understanding and learning normative behaviour and values by seeking answers from others, i.e. peers. In this view, peers could be their main reference, compared to their parents. Findings in Chapter 6 and 7 support this statement, as it was also revealed that knowledge workers favour more team-based work (see for more details, Chapter 6, Section 6.3 and Chapter 7, Section 7.2)

Having said that, perhaps it is now time for the knowledge-based company to know how to keep these bright young minds occupied effectively. Perhaps knowledge management, with the support of human resource management, would be very helpful in identifying the potential and capabilities of these workers. Subsequently, they should be invited and/or encouraged to participate in knowledge-sharing activities, such as handling projects across departments, and provided with good incentives to do so.

2.3.3 Technology and the Knowledge Workers

With regard to the earlier understandings on knowledge, knowledge work, knowledge-based companies, knowledge workers and their characteristics, there is still some confusion about the defining characteristics of knowledge workers. Due to the fruits of technological growth, many people are of the opinion that all knowledge workers must be high-tech workers or perhaps at least have some information technology

background. To them, knowledge of computers must be the main requirement. Based on the literature review, it appears that information technology is not the main requirement for being a knowledge worker, although some people have suggested that this is the case (Newell et al. 2002; Davenport and Prusak 1998 and Soliman and Spooner, 2000). Therefore, this section aims to reduce the ambiguity surrounding this matter. A clarification of the difference between knowledge workers and high tech workers needs to be made before we proceed further with a discussion of knowledge management in the next section.

The confusion arises when people admit that information technology is a “must” in knowledge management (Davenport and Prusak, 2000). This was asserted by Grayson and O’Dell (1998: p. 85) who said:

“It is no coincidence that information technology (IT) has blossomed at the same time that knowledge is becoming recognized as the most valuable of a company’s assets. There is a powerful synergistic relationship between knowledge management and technology; that relationship drives increasing returns and increasing sophistication on both fronts. As information technology has become our personal desktop tool and our link to each other, we have grown to covet even more access to information and other people’s knowledge. In turn, we demand ever better and more effective IT tools, ones that become part of the way we work...”

This quotation illustrates the important role of information technology in knowledge management practice, in that knowledge management is considered as the formal system that links to others and encourages knowledge explanation. Hence, another query arises that relates to the undertaken research. Could it be concluded that since the MSC status companies are all high-tech companies (see for further details on MSC companies’ background in Chapter 4, Section 4) then their workers are really knowledge workers? This scenario could be understood better by looking at the work carried out by Rogers (2001: p. 40), who stated that:

“High-tech companies are noted for their high level of intellectual work (Kelley and Caplan, 1993). The nature of the work is often cutting edge or a ‘fresh from the lab’ approach. High-tech employees are highly educated, many with advanced degrees in science, engineering, or computers. High-tech companies have a large proportion of their assets tied up in intellectual human assets, i.e., they often do not own much in the way of equipment or property.”

The above illustrates that high-tech workers perform many intellectual jobs, which is similar to the situation of knowledge workers, as described in the earlier discussions. It also suits the definition of knowledge workers provided by the Multimedia Development Corporation in Malaysia that all knowledge workers must be highly educated and possess knowledge of high technology.

Here, Amar (2002), Davenport and Prusak (2000), Drucker (1988 and 1998) and Sveiby (1997) emphasised that knowledge work carried out by knowledge workers in knowledge-based companies is indeed influenced by information technology. Thus, these workers may not discriminate themselves from high technology. It is the tool and/or system that enables knowledge workers to leverage their knowledge and complete their tasks faster and in the most efficient manner. Returning to the argument of whether knowledge workers should possess high-tech knowledge or not, the answer should be “yes and no”. This is because looking back at the earlier definitions of knowledge workers, high technology should not be the main requirement for being one. The overall understanding shows that all high tech workers are knowledge workers, but on the other hand, and from a broader point of view, not all knowledge workers must have high technology knowledge. Finally, having an overview of the theoretical aspects that underpin this study, the concepts of knowledge and knowledge workers have been introduced. This then leads to the next crucial issue of managing knowledge, also known as knowledge management.

2.4 Exploring the Concept of Knowledge Management

"Knowledge management is much more than technology, but 'technology' is clearly a part of knowledge management."
(Davenport and Prusak, 2000: p. 123)

The understanding of what exactly knowledge is encourages workers in particular and the company in general to value knowledge work. As mentioned earlier, knowledge work contributes towards company success. Furthermore, as knowledge workers perform knowledge work, the meaning of this new group of workers has been explored constructively. Now, there is a challenge to further explain how this utilisation of knowledge by knowledge workers and companies takes place in the simplest sense of "knowledge management". Therefore, this section will explore the concept of knowledge management as applied to the current study.

2.4.1 Knowledge Management: A Definition

Karl Wiig (1999a), in his work on *"Introducing Knowledge Management into Enterprise"*, states that:

"The successful enterprise's objectives for pursuing knowledge management (KM) are quite clear: It wishes to manage knowledge effectively to make people - and the whole enterprise - act intelligently to sustain its long-term viability by developing building, and deploying highly competitive knowledge assets (KAs) - in people and in other manifestations. It expects that intelligent behaviour will lead to proper and effortless handling of routine and simple tasks and that non-routine, complex, and unexpected tasks will be handled timely, competently, and in the best interest of all concerned with suitable balances between long-term and short-term objectives." (cited in Liebowitz, 1999: p. 3)

This quotation introduces knowledge management as one way of managing the knowledge possessed by intelligent workers. It is believed that the effectiveness of this management could lead to the success of the company. However, when exactly did this knowledge management begin? According to Gamble and Blackwell (2001), it is not easy to trace back the origin of knowledge management practice. Some say knowledge

management is “an old wine in a new bottle” (see Gamble and Blackwell, 2001, p. 2) and some say it is “...a new wine in an old bottle” (Davenport and Cronin, 2000). Practically, it does not matter when it began, but it is important to have our own working definition, as agreed by Bafhtiar (2000: p. 16) and Gamble and Blackwell (2001: p. 3). This will ensure the smoothness of understanding of the purpose of current study.

Looking back at the earlier quotation by Karl Wiig (1999), knowledge management is argued to become a crucial process in managing the transfer of knowledge within a company. Indeed, this involves knowledge workers as important resources within the company, especially in terms of transmitting tacit (subjective) knowledge and transforming it into explicit (documented) knowledge. From here, the company may utilise new, creative and innovative knowledge, which helps the company towards a better performance and higher productivity (Beijerse, 2000; Davenport and Prusak, 2000; Gupta et al., 2000; Hunter et al., 2002; Nonaka, 1994, 1995, 1998 and 2000; Ordóñez de Pabloz, 2002; Smith, 2001; Suk Choi, 2000; Wiig, 2002). This is achieved by steering the company’s strategy, structure, culture and systems, and the capacities and attitudes of people with regard to their knowledge (Beijerse, 2000). In other words, it is about the achievement of a company’s goals by making the knowledge factor more productive and effective.

In supporting the above argument, it is now becoming increasingly important that a company can find a way to tap into this knowledge base in order to preserve and expand the core asset possessed by knowledge workers. Thus, accessing existing knowledge and creating new knowledge is as important as the core competencies, skills and experience of the people who do the work (Davenport, 1999; Manville and Foote, 1996). In fact, similar to Quinn et al. (1996), Miller (1999) stressed that knowledge

management is usually concerned with capturing a company's know-how and know-what through creation, collection, storage, distribution, and application.

Similarly, Malhotra (1998) argued that knowledge management caters for the critical issues of company adoption, survival and competence in the face of increasingly discontinuous environmental changes. In other words, it is the combination processes of data, information, creative and innovative capacity of knowledge workers, which later upgrade the company's performance. In this regard, knowledge management helps the company to become more competitive by using new knowledge to reduce costs, increase speed and meet customer needs (Grayson and O'Dell, 1998).

Furthermore, knowledge management works with the use of high technology tools and/or networks such as Lotus Notes, File Maker, Intranet etc. and thus allows workers to interact among themselves without any obstacles or boundaries, which under some conditions may limit their creative thinking. However, as explained earlier in this chapter, high technology should not be regarded as the main feature of knowledge management. As many authors agree, it is only an enabling tool for the implementation of knowledge management. Davenport et al. (1998) further outlined four strands of knowledge management. Firstly, it is about the creation of knowledge repositories, followed by the improvement of knowledge access and then, thirdly, the enhancement of the knowledge environment. Finally, it is about the management of knowledge as an asset (see, for example, the discussion on the elements of knowledge management in the next section).

In particular, the concept behind knowledge management is all about succeeding in business. It is not about the recent technological advancements, but is more about how knowledge workers and the

company appreciate and utilise the knowledge that they have. It is also about enabling companies to meet their corporate objectives such as profit making and about how to achieve a competitive advantage. This is because since knowledge management devises business strategies, it may encourage companies to rely on their knowledge workers working together effectively and creatively, and on their ability to innovate and respond to the market. Indeed, knowledge management has become the next phase in the continuous process of improving business performance.

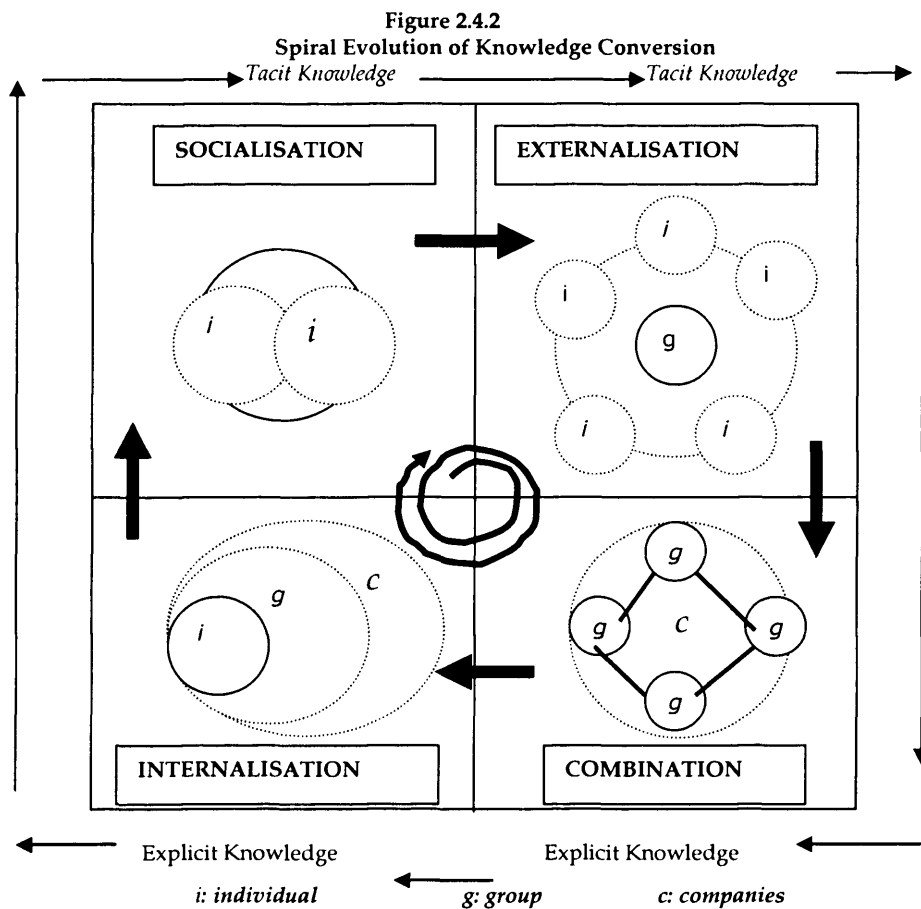
Above all, knowledge management is concerned with the exploitation and development of the knowledge assets of a company with a view to furthering the company's objectives. The knowledge to be managed includes both explicit (documented) and tacit (subjective) knowledge. Knowledge management entails all of those processes associated with the identification, sharing and creation of knowledge. This requires systems for the creation and maintenance of knowledge repositories, and ways to cultivate and facilitate the sharing of knowledge and company learning, which will indeed involve knowledge workers.

2.4.2 Knowledge Management: Understanding the Process of Some Elements (SECI Model)

Having understood the above definitions of knowledge management, the next question relates to how knowledge management implementation takes place. With this regard, the literature on the knowledge management process is considered fragmented, even though there is a large amount of literature on knowledge. Therefore, as mentioned a little earlier on, more consistent analysis of the SECI Model by Nonaka and Konno (1998) as shown in Figure 2.4.2 is the most appropriate way to explain the elements of socialisation, externalisation, combination and internalisation of knowledge management. However, others may use terms like acquiring, selecting, using, externalising, internalising (Joshi and Holsapple, 1999); or

coordinating, protecting, acquiring reasoned applications (Gold, 2001); or identification, acquisition, development, distribution and knowledge retention (Probst et al., 2000) and acquisition, domination, knowledge transfer, knowledge creation and knowledge application (Yahya and Goh, 2002).

This section will provide a detailed discussion of how knowledge management is practiced in the company. This understanding will then be linked to the current study on exploring how exactly Multimedia Super Corridor status companies manage their knowledge by applying the SECI Model of Nonaka and Konno (1998), which was built on the earlier works by Nonaka (1994) and Nonaka and Takeuchi (1995). This model involves socialisation, externalisation, combination and internalisation.



Source: Nonaka and Konno (1998: p. 43)

2.4.2.1 Socialisation

A great deal of tacit knowledge may be created during workers' socialisation. In fact, it may happen without being noticed. This tacit knowledge will further lead towards knowledge creation activities, continuous innovation and finally competitive advantage (Meng Li and Fei Gao, 2003). This is why Nonaka and colleagues emphasised the need to tap this knowledge while workers are socialising among themselves within and outside the company. Kermally (2002) provides examples like brainstorming, informal meetings, discussions, dialogues, observation, on-the-job training, customer interaction, coaching, mentoring and learning groups that can serve the purpose of socialisation. From the "*ba*" (i.e. space) concept by Nonaka and Konno (1998), the earlier examples by Kermally (2002: p. 46) are also known as "*originating ba*". In this view, feelings, emotions, experiences and mental models are involved during face-to-face interaction, which later develops into a sense of empathy, trust, commitment and sympathy to others. This is acknowledged by Bennet (2001: p. 191) who stated that:

"Socialising in a cafeteria is, they allege, an effective and important knowledge transfer device: some conversation will focus on weather and other mundane matters, but mostly it will focus on work (especially current projects). Such informal exchanges enable people to ask each other '*who knows that*' without feeling embarrassed, to test the reliability of information, to find out what other people think, to swap stories and to draw comparisons and jointly assess consequences."

In the light of the resource-based theory, it has been proved that knowledge in this case is vital, in order for the knowledge workers to express and leverage it to others. Also, in agreement with human capital theory, education and training will support socialisation activities by encouraging learning enthusiasm among knowledge workers. However, there is still doubt as to whether knowledge workers really want to share their tacit knowledge or not. Meng Li and Fei Goa (2003: p. 8) critically pointed out that:

“Following the nature of the logic, it may not be promising for an organisation to organise activities for sharing the tacit knowledge possessed by each individual; on the other hand, for implicitness, it would be very effective to arrange organisational activities through suitable incentive schemes to make the implicitness within a certain group explicit for the purpose of reusing the knowledge by larger groups of people within or across the organisation.”

Therefore, the above quotation introduces the further assumption that there could be a role for motivational theory in understanding how we can encourage knowledge workers to participate in social activities and to develop the ability to select and identify the most suitable and/or appropriate knowledge for the current needs of the company and the self. Perhaps it could be suggested that it is the role of human resource management to look further into this gap, as discussed further in Chapter 3.

2.4.2.2 Externalisation

This is the stage where the conversion of tacit knowledge into explicit knowledge takes place. This is normally done by questioning and reconstructing the available knowledge with the purpose of creating new knowledge (Nonaka, 1994). The process of converting knowledge is argued to be classified as “using” the knowledge of the company by first generating and then externalising it for the company and others alike (Nonaka and Konno, 1998).

Meetings, building hypotheses and models, communicating by cartoons, after-reaction reviews, workshops, master classes, assignments and best practice exchange are the suggested platforms for realising this basic process (Kermally, 2002). All these examples are linked to the “interacting *ba*” (Nonaka and Konno, 1998) with the purpose of transforming the earlier tacit knowledge into an explicit form through interactions. This then builds the understanding that if the socialisation activities are commonly conducted in informal settings, externalisation is more formal.

In relation to organisational learning, it has been considered that “double-loop organisational learning” is an active process at this stage (Marra, 2004). In this regard, knowledge workers are encouraged to participate formally in any of the above activities and to involve themselves in continuous learning. Similar to the socialisation activities and the human capital theory, again human resource management should play an important role in providing a conducive environment in which socialisation and externalisation can take place.

2.4.2.3 Combination

Combination of knowledge involves the integration of all the existent knowledge, i.e. making explicit knowledge more explicit. Knowledge workers normally do this during phone conversations, e-mail exchange, meetings, conferences and through any written documents. In a “cyber *ba*” (Nonaka and Konno, 1998), the combination process will indeed utilise information technology through groupware, databases and similar devices. Further examples, as proposed by Bennet (2001), include the “company yellow pages” and/or a “company encyclopaedia”. These then store the explicit knowledge in a more systematic way.

This is consistent with the knowledge-based theory of the company in which technology devices can become enabling tools for the effective transfer and utilisation of knowledge (Davenport, 1996). For instance, the use of the above information will ensure the smoothness of the company’s introduction to the new policy, producing new products, implementing new corporate objectives and finally compiling the related information for sales and marketing purposes. In this regard, the knowledge-based theory of the company is responsible for supporting the need for a suitable technology system in order to smooth these combination activities.

2.4.2.4 Internalisation

As the spiral of knowledge activities continues, internalisation pushes the explicit knowledge to become tacit and then starts the process all over again (Nonaka and Takeuchi, 1995). This stage is crucial in terms of allowing knowledge workers to understand whether they really have gained from the previous knowledge. If they have, they may generate further ideas by having others to inspire them and emulate the process for further benefits. If they have not, then the facilitation skills, feedback reviews from knowledge clients, development counselling and new ideas (i.e. learning by doing), as suggested by Kermally (2002), might be needed in order for them to explore the knowledge further, until they gain something from it and generate another new spiral of knowledge activities (Nonaka and Takeuchi, 1995). From the “*exercising ba*” perspective (Nonaka and Konno, 1998) this element is also known as space, and mostly focuses on the role of the top management to provide mentoring programmes, support exchange of experiences among workers, provide on-the-job training and encourage self-directed learning.

In linking this model to the current study, *socialisation* describes the implicit sharing of tacit knowledge among knowledge workers that involves capturing knowledge through physical distance, as in talking, discussion, meetings, presentations etc. Meanwhile, *externalisation* converts the knowledge workers’ tacit knowledge to an explicit form and translates it into greater detail, so that their peers can understand it easily. This is normally done by preparing reports, working papers or written documents, i.e. memos, notes, etc. At the same time, the conversion of explicit knowledge into more complex sets of explicit knowledge occurs in the *combination* stage. Here, the communication and diffusion processes occur, and thus the systematisation of knowledge is required to ensure that the knowledge is imparted correctly. During this time, the help of information, communication and technology (ICT) facilitates and increases

the efficiency of the process. Finally, at the *internalisation* stage, knowledge is transferred back to a tacit form. Here, the activities of transmitting and interpreting knowledge by knowledge workers within the Multimedia Super Corridor status companies should continuously be based on “learning by doing”.

The overall analysis of these elements of the knowledge management process reveals that human resource management plays an important role in ensuring that all these elements are conducted effectively. Further discussion on this matter is presented in Chapter 3 (see Section 3.4 on Human Resource Management and Knowledge Management). However, without a proper assessment of the effectiveness of knowledge management implementation, the end objective of the company, i.e. to achieve competitive advantage, could be doomed to fail. This issue gave rise to the subsequent understanding of a measurement paradigm for knowledge management effectiveness, as presented in the following section. The main objective of the next section is to introduce the eleven success factors as suggested by Suk Choi (2000).

2.4.3 The Measurement Paradigm for Effective Knowledge Management

A number of authors have provided lists of possible success factors in knowledge management practice. For example, Rao’s (2002) work on eight keys to successful knowledge management practice suggested connectivity, content, community, culture, cooperation, capacity, commerce and capital, and knowledge as the critical factors that have to be considered. However, in the current study, the main interest is to explore the most appropriate scenario of knowledge management implementation in Malaysia as well as the best form of support by human resource management. For this purpose, the work of Rao (2002) seems to be brief and not sufficiently wide in its scope.

As a result, work by Davenport et al. (1998) has been considered. Their study on a small sample size ($n=31$) revealed the most comprehensive list of success factors, which consists of the following eight categories of knowledge management project success: technology infrastructure, including desktop computing and communications; company infrastructure, including the development of roles of people and groups acting as resources; balance of flexibility; evolution and easy accessibility to knowledge; shared knowledge, knowledge management that supports culture, workers who are motivated to develop, share, and use knowledge; knowledge transfer through means such as the Internet, Lotus Notes, global communications systems, and face-to-face communication; and finally support and commitment from senior management. However, all these factors emphasise the assumption that knowledge is a “thing” and knowledge management is a “formal system”, which is in contrast to the direction of the current study. Therefore, it is highly likely that these factors will not be fully and sufficiently able to convey a sense of what this study in the Malaysian context needs to examine.

Subsequently, the work of Allee (1997) and Suk Choi (2000) has produced a set of eleven success factors, which are applied in this study. This is because the critical success factors identified seem to have advantages over the work done by Rao (2002) and Davenport et al. (1998). This is due to the holistic and comprehensive nature of these studies, which suits the Malaysian working context, since Malaysia consists of three main races and has gone through three main periods of economic transformation, which will be discussed further in Chapter 4 (Section 4.2).

Furthermore, as Malaysia is yet to become a developed nation, this is usually very much related to the most recent technologies. Thus, there is a need to explore knowledge workers’ perceptions of the practice of knowledge management as a process rather than a formal based system. In

this view, knowledge management, with the support of human resource management, has been highlighted as crucial for managing knowledge workers in the knowledge-based economy. A questionnaire survey comprising these comprehensive factors would help to explore the current status of knowledge management practices in the local context, and a follow-up in the form of an in-depth semi-structured interview would complement the earlier findings. Apart from that, according to Suk Choi (2000: p. 22), these factors are not merely specified as the principles of knowledge management, but summarised and categorised from many knowledge principles suggested by researchers, practitioners and consultants. This unique analysis of the knowledge management success factors by Suk Choi (2000) implies its potential to suit the real situation as seen in the MSC status companies' working environment. The selected success factors are as follows:

2.4.3.1 Employee Training

In relation to the human capital theory, knowledge workers are encouraged to continually update their knowledge. As mentioned earlier, this is usually done by seeking new knowledge via education and training. In fact, knowledge creation and sharing, as described in the SECI Model, will not become successful without appropriate training. For instance, the case study conducted by Ramsden et al. (2001) on managing an intranet (whereby knowledge management is understood to be a formal system) recognises the need for a good training programme in order to ensure that the establishment of the intranet meets its objective (i.e. to support easy maintenance and consistency, and locate information through metadata and full text retrieval as well as creating knowledge sharing by using the intranet).

Similarly, when the company takes on a new concept or policy, training is needed. This means that training is not only used to learn how to apply the

new technologies (when knowledge management is understood as a formal system) but also how to adapt to the changes in the company, such as problem solving or creating new policies and visions (when knowledge management is understood as a process). This is because it has been argued that the process of successful knowledge creation and sharing can be done through three stages of training (Cohen and Backer, 1999). Firstly, after the problem is recognised (i.e. after the “inquire and infer” stage), a trainer must research those needs or problems and interpret the information. Secondly, the trainer will then develop training solutions based on the earlier information gathered and inferred (i.e. the “invent and inspire” stage). Finally, training solutions developed in stage two must be implemented and assessed for appropriateness (i.e. the “install and inspect” stage).

In expanding this, work done by Cohen and Backer (1999) and Rossett (1999) provides several more ways in which training may influence the successful practice of knowledge management. The first is that it may create ongoing joint efforts and collaboration with other companies involved in knowledge management initiatives. This then brings back the shared knowledge to the company, where further adjustment of the existing knowledge and training materials can be carried out accordingly. In doing so, training suggests the use of strategies to support people at work while at the same time conducting pilot research aimed at seeking opportunities to use the knowledge management perspective and system. Finally, training will increase the meaningfulness of the knowledge management system, especially when it comes to the new technologies, and help workers to understand as well as implement new policies effectively.

However, there will be another challenge in terms of how to nurture a company's members to enhance their own learning capabilities and contribute to other people's learning (Sook Hwang, 2003). In this view, perhaps encouraging the reflection process of each of the knowledge management elements, as discussed earlier, to come into alignment with structural, cultural, and managerial leadership issues of that company will further assist learning capabilities and enthusiasm. The above scenario then shows the current challenge of the role of training as one of the knowledge management success factors that is a key strategy in the company.

2.4.3.2 Employee Involvement

By understanding employee training, it can be further argued that without proper participation and/or involvement of knowledge workers in all these training activities, knowledge management implementation will go nowhere. It has been found that the improvement process for generating new forms of interaction at work is one of the crucial intermediary variables contributing to the employees' commitment towards performance improvement (Heller et al., 1998; Hislop, 2003; O'Brien, 1995). Thus, from the viewpoint of knowledge creation and interaction activities, knowledge workers are indeed the most crucial participants where the knowledge normally resides (see for example Nonaka and Takeuchi, 1995). In this regard, we may consider that knowledge management activities are unacceptable without employees' involvement (Hislop 2003; McLagan, 1999; O'Brien and Crause, 1995; Silos, 1999; Thite, 2004; Wilson and Asay, 1999).

Furthermore, due to the changes in knowledge work, employees' involvement provides a better position from which to support and encourage knowledge workers to bargain more with their knowledge (McLagan, 1999). For example, in addition to the advantages of problem-solving and total quality management (TQM) improvement, Silos (1999)

emphasised that employees' involvement in knowledge sharing activities and/or processes allows them to have control over their work. This is also crucial for creating a more innovative working environment that provides workers with more environmental freedom in order for them to produce better and higher quality products and/or services. This is supported by Gibb (2003), who initially argued that there should be limits to workers' involvement in learning and development at work, but finally realised (due to the era of predominant knowledge management) that employees' involvement is indeed the most important factor for re-aligning work towards meeting the company's agenda.

2.4.3.3 Employee Empowerment

With regard to employee involvement, it has also been seen by authors like Amar (2002), Duval (1999), Miller (1999) and Newell et al. (2002) that what knowledge workers really want in their involvement is the permission to delegate tasks and have power over their own decisions (i.e. self-control in their work). In this case, bureaucracy may not be healthy in knowledge-creating companies. This is because it has been argued that empowerment would allow employers to tap into their knowledge workers' knowledge (Martinez, 1998, Nonaka and Takeuchi, 1995; Nonaka and Konno, 1998) and encourage them to leverage to others via appropriate mechanisms like providing a checklist of work priorities, having self-control over their own work, supporting team-work, effective information system networks, good time management, current technologies together with appropriate training, and finally involvement in decision making (Ulrich, 1998).

In agreement with this view, Barry (1993) provided evidence for a United State of America and European view of the significant impact of empowerment on competitiveness. According to him, using a satisfaction and performance perspective, empowerment can lead to better workforce and products. Though the meanings are all about giving workers more

power in the decision-making processes, there is little empirical data to support the reality of this practice in companies. The common thread in the early 1990s saw the need to practice empowerment for the sake of the company's success. For instance, Ripley and Ripley (1993) found empowerment management to be a new responsibility for worldwide renewal competitiveness by involving workers in the whole process of the company, i.e. customer focus, quality process and products, continuous improvements, self-managing teams, quality measurement, and utilisation of the total workforce abilities. In this view, Ripley and Ripley (1993; p. 1) pointed out that, "...self-managing teams are one of the major keys in the innovative company to solve complex problems, increase productivity and heighten creativity".

2.4.3.4 Teamwork

In order to ensure the effectiveness of training, involvement and empowerment in knowledge management activities, teamwork is recognised to be the fourth significant factor for the successful implementation of knowledge management. This is because, in the knowledge-based economy, no-one should be isolated from the reality of workplace activities (Sharp et al., 2003; Wiig, 1999). This requires peer-to-peer collaboration (i.e. teamwork), which allows companies to apply diverse skills and experiences towards encouraging workers to become more innovative and creative. Chaharbaghi et al. (1995: 6) endorsed this by saying "creativity is best achieved in open climates where there is interaction with small barriers; a large number of stimuli; freedom to experiment and the possibility of building on earlier idea".

In the current climate, teamwork is widely known as "...a way to face today's turbulent environment and to create a flexible high performance organisation" (Sharp et al., 2003: p. 149). Consistent with the "externalisation" element provided by Nonaka and Konno (1998), Dixon

(2000) stated that matching the right type of knowledge to the proper method of transfer helps companies to be more successful at sharing knowledge within the company. In order to achieve this, companies need to determine the types of knowledge that they wish to transfer, the nature of the knowledge, and how the team originating the knowledge differs from those receiving it (Nonaka and Konno, 1998). It has also been claimed that one of the most important tasks in successful knowledge management is to organise cross-function groups to seize the right knowledge and present it in an accessible format.

2.4.3.5 Company Constraints

In reality, removing red tape in any company might not be an easy task. Though it might be almost impossible to achieve, an effort to reduce it may be worthwhile (Brynard, 1995). This is because it has been claimed by Bonaventura (1997) that rigid regulations, lack of creativity incentives and lack of commitment in budgeting and funding would be problems in knowledge management implementation. In this case, successful implementation of knowledge management may not be achievable if a company cannot shift from using systematic processes to systems that hold people accountable for results. In other words, one of the most important priorities for knowledge management success depends on the elimination of company constraints, which can negatively affect perceptions and attitudes impacting on its success.

Demarest (1997) further argued that companies should get rid of constraints involving hidden consequence performance appraisal, top-down management systems and inadequate annual budgeting systems in order to successfully implement knowledge management. However, they have to provide a more balanced working environment between organisation systems with formality and discipline (Graham and Pizzo, 1996). Becoming flatter organisations, according to Powell (2002), will

encourage more teamwork, less bureaucracy, more opportunities for professional development, better communications and greater job satisfaction among knowledge workers.

In this case, the flexibility, freedom and work-life balance required by the knowledge workers does not imply that permission has been given to them to do their work in their own ways. There is numerical and functional flexibility to assist employees to balance work and family responsibility, i.e. “family-friendly” working (Sheridan and Conway, 2001) and a “balance approach” (Hacker and Doolen, 2003). In other words, the meanings of flexibility, freedom and work-life balance are more objective. It is the break given to the knowledge workers to finish their tasks by utilising their own knowledge, idea and creativity. The company should not tell them what to do, except in terms of setting deadlines. What the workers need, according to Sheridan and Conway (2001), is mutual flexibility in terms of both numerical flexibility and work-life balance.

2.4.3.6 Information Systems Infrastructure

A good infrastructure, such as databases, computer networks and software, is vital for smooth knowledge management implementation (Davenport et al., 1998; Newell et al., 2002; Sang and Songoo, 2002; Savary, 1999;). From the knowledge management system perspective, advanced information technology was found to have a close link with knowledge capture, knowledge development, knowledge sharing, and knowledge utilisation (Sang and Songoo, 2002).

As an enabling tool, the establishment of a broad information system infrastructure based on desktop computing and communications as well as the utilisation of the network technology infrastructure such as the Internet, Lotus Notes and global communications systems can provide an effective transfer of knowledge (Davenport et al., 1998). In this regard, due

to the borderless global economy, an appropriate information system such as the Internet, Intranet, Lotus notes etc. can help knowledge workers with tracking and building the company's collective knowledge. Apart from that, it is also a key strategy for the company to manage and leverage their knowledge systematically and actively.

2.4.3.7 Performance Measurement System

A performance measurement system has been identified as one of the success factors for knowledge management, due to its distinctiveness in appreciating knowledge workers, unlike the traditional financial measures (Suk Choi, 2000). In managing knowledge, the performance measurement system should be based more on the causal relationship between investments in the company's intellectual assets, i.e. knowledge workers' know-how, business processes and customer knowledge (Bassi and Van Buren, 1999). In this regard, it is not only the utilisation of employees' intellectual capital that is important. The businesses should also try to develop a system that can measure the return on investment in intellectual capital. This is because knowledge workers who know they are valuable to their employers (because of their expertise and their ability to communicate knowledge) show their value more when the management helps them to share the knowledge they possess (Martinez, 1998; Pearson, 1999). In expanding the work done by Bassi and Van Burren (1999), Martinez (1998) and Paerson (1999), it is suggested that the current performance systems, namely activity-based management and the balanced scorecard, should be re-aligned, to be more focused on the uncertainty of the knowledge product (see for example, Palmer and Parker, 2001).

2.4.3.8 Equal and/or Egalitarian Climate

The essence of success for knowledge management is to create a company culture that encourages the effective utilisation and sharing of knowledge (Suk Choi, 2000). It is important to first consider the company's cultural environment before implementing knowledge management (Larson, 1999). This is because if companies wish to capture the knowledge of their knowledge workers, they must first cultivate a culture that encourages teamwork and knowledge sharing.

In this case, according to Greengard (1998), having a "friendly culture" will lead knowledge workers to share and borrow ideas from each other within the company, as it provides less opportunity for those who do not operate as members of a team. Apart from that, these sharing activities by knowledge workers need to be rewarded and reengineered accordingly (Greengard, 1998; Hunter et al., 2002; Hiltrop and Despress, 1995) and at the same time utilise employee evaluations to encourage participation (Greengard, 1998; Heller et al., 1998; Marra, 2004).

To summarise, knowledge management seems fundamentally to be a cultural phenomenon. The co-operation, co-ordination, and empowered teamwork of employees should be supported as the standard attitudes in the knowledge management environment (Suk Choi, 2000). In this regard, according to Leary (1995), an egalitarian culture consisting of shared vision and/or information, open communication, leadership style, and employee participation in decision-making will support the above-mentioned attitudes towards successful knowledge management implementation.

2.4.3.9 Benchmarking

The purpose of benchmarking is to identify performance gaps and potential areas of improvement at the strategic or business process levels (Kermally, 2002). Based on the significance of the gaps for competitive success, the management of a company can initiate properly targeted efforts to improve performance indicators, (i.e. quality, cost, delivery time, or customer service and satisfaction) that impact on the company's competitive advantage (Kostas, 2000). This is supported by Day and Wendler's (1998) study, which provides practical implications for a wider view of knowledge management benchmarking. According to them, benchmarking is one of the knowledge strategies that could capture, share, and manage a company's knowledge correctly.

In this case, internal benchmarking can be an effective means by which to improve knowledge management practice (Grayson and O'Dell, 1998). However, benchmarking could be influenced by a lack of resources and a culture of ignorance that values team effort less than personal expertise. With this understanding, there are some benefits and drawbacks to benchmarking, as highlighted by Drew (1997). Firstly, benchmarking is likely to be most effective when integrated with other systems such as strategic planning, budgeting, and human resource management. Secondly, a company must know the facts about competitors rather than relying on anecdotes. Thirdly, employees must also be educated in benchmarking best practice, and finally, companies that have thoroughly planned their approach to strategic position, competencies, and market objectives accumulate the greatest benefits from benchmarking. Therefore, managing knowledge work effectively is a necessity for functional area heads and department managers, who can manipulate several methods to achieve the desired effectiveness. Once a company has benchmarked the best practices, it is easier to apply this useful knowledge around the company (Davis, 1996).

2.4.3.10 Knowledge Structure

In agreement with the information system factor (see 2.4.3.6), the knowledge structure of the company is also vital for knowledge management success. Apart from providing a suitable system for the practice of knowledge sharing, a new form of company, called “communities of practice”, has now emerged (Davenport, 2001; Wenger et al., 2002). It has been identified to play an important role in enhancing knowledge exchange in the Inter-American Development Bank (see for example Moreno, 2001) as well as in three British online companies (see for example Davenport, 2001). Community of practice involves team members who share expertise not only within the company but also outside the company, with suppliers and customers (Suk Choi, 2000). Wenger et al., (2002) further described communities of practice as “...groups of people who share a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (p. 4). In relation to the SECI Model (Nonaka and Takeuchi, 1998), communities of practice could exist during the “socialisation”, “externalisation”, “combination” and “internalisation” activities within and outside the company.

In fact, it has been argued that the management of customer support knowledge is increasingly important to companies in terms of meeting the rapid product changes and the growing need for service-based orientation (Davenport and Klahr, 1998). However, a recent study has revealed that knowledge does not flow as easily as we thought, especially when it is related to the interests of organisations and their communities (Archivili et al., 2003). In this case, fear of criticism and misinterpretation by other members of the community are likely to become part of the reason for restricted knowledge flow. In order to overcome this, Archivili et al. (2003) further argued that companies with a “trust” knowledge structure could survive competitively in today’s economy.

2.4.3.11 Top Management Leadership and Commitment

The eleventh factor that is argued to contribute to successful knowledge management implementation is top management leadership and commitment. Being the most important group in the company, top management personnel are responsible for the presence, smoothness and effectiveness of the earlier mentioned factors (Davenport, et al., 1998; Dess and Picken, 2000; Van Buren, 1999, Nonaka et al., 2000). This is because without their support, knowledge management will indeed become just an “illusion”, a “whim” or a “fad”. In managing the process in which tangible resources are transformed into company knowledge, top management need to consider several leadership roles, as suggested by Dess and Picken (2000). Firstly, by applying the company’s strategic vision, they should empower knowledge workers at all levels to explore and create new knowledge. Secondly, top management should proceed with accumulating that knowledge through internal sharing. Thirdly, top management should utilise the gathered knowledge and then integrate it into the external information without failing to keep up with the challenges that their knowledge workers are working on and/or with being creative.

In fact, Nonaka et al. (2000: p. 5) stated that, “the role of top management in articulating the organisation’s knowledge vision is emphasised as is the important role of middle management (‘knowledge producer’) in energising *ba*”. This implies that the effectiveness of knowledge creation and its transition into company knowledge would not be possible without empowering the knowledge workers. Apart from that, top management need also to show strong commitment to the company by providing an up-to-date information system, a conducive knowledge structure environment, minimising company constraints, providing a suitable performance measurement system, creating a friendly company culture, encouraging benchmarking best-practice and finally providing good training programmes.

At this point, an overall understanding of all these factors such as employee training, employee involvement, employee empowerment, teamwork etc. shows that they are obviously linked to human resource management. This is due to the general functions of human resource management in dealing with employees within the company, especially in terms of staffing, training, compensation, performance appraisal etc. (see for further understanding on human resource management in Chapter 3, Section 3.4). Therefore, this relationship illustrates the potential significance of understanding the relationship between knowledge management and human resource management.

2.5 Summary

This chapter has discussed and reviewed literature on previous studies of knowledge, knowledge work, knowledge workers and knowledge management. Complementing these discussions, resource-based theory, human capital theory, motivation theory and knowledge-based theory act as a framework for further links with the end objective of the current study, i.e. managing knowledge workers in the Multimedia Super Corridor status companies in Malaysia. It has to be emphasised that as knowledge is the crucial product of data and information, it is now considered as the most important resource in the company. Therefore, the capability and ability to manage knowledge effectively has now become the main challenge for all companies.

In meeting this challenge, differentiating knowledge work from ordinary work helps companies to appreciate their knowledge workers more as the main contributors in terms of adding value to the company. The understanding of who exactly knowledge workers are and their characteristics will help to further clarify the most suitable definition of knowledge workers in the locale of Malaysia. The new working generation has shown that this group of workers needs a different and more effective

management strategy. In this regard, knowledge management is no longer a fad. It is all about how to manage the knowledge that resides in the individual worker and the company. Specifically, it focuses on how to share, utilise and leverage this knowledge. Using the SECI Model put forward by Nonaka and Konno (1998), the four important elements of the knowledge management process, i.e. “socialisation”, “externalisation”, “combination” and “internalisation”, have been highlighted as the most appropriate elements in providing a true picture of how knowledge management is practiced. The belief is that these activities could help the transfer of tacit knowledge into an explicit form that then becomes practical and useful to the company.

Furthermore, the review of the previous literature has also revealed that the success factors for knowledge management practice are many and varied. However, the work carried out by Allee (1997) and Suk Choi (2000) was adapted for this study due to its comprehensive nature and its applicability to the Malaysian working culture. In addition, further modifications were made in accordance with recent publications that are related to any of those factors, in the hope that this will provide the most up-to-date set of factors for successful knowledge management.

The overall view suggests that these factors are seen to be very much related to the roles of human resource management, such as employee training, performance measurement systems, knowledge structure, egalitarian culture, employee empowerment, teamwork etc. In fact, Yahya and Goh (2002) explored the relationship of the elements of knowledge management with human resource management. Interestingly, it has been shown that these elements, i.e. knowledge acquisition, knowledge documentation, knowledge transfer, knowledge creation and knowledge application, are linked to training, decision-making, performance appraisal,

compensation and reward. This provides early evidence that knowledge management techniques could not be sufficient without the support of an appropriate human resource management practice. In this view, further evidence is required in order to support and/or prove the role of human resource management in terms of encouraging the participation of knowledge workers in knowledge management activities, as described by the SECI Model. An extensive review of the roles of human resource management in supporting knowledge management is presented in Chapter 3.

CHAPTER THREE

Understanding the Contribution of Human Resource Management in the Knowledge-Based Economy

3.0 Introduction

The review of the terms “knowledge”, “knowledge work”, “knowledge companies”, “knowledge workers” and “knowledge management” in Chapter 2 has many implications. It leads to an understanding that companies 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 and human resource management is still missing, even though there is currently a great deal of interest in knowledge and knowledge management. On the other hand, less research has been undertaken on knowledge workers, knowledge management and human resource management. Therefore, this chapter critically reviews some of the human resource management literature, providing insight for the current study into managing knowledge workers in the Malaysian context. This chapter begins with an exploration of human resource management as a service provider. Subsequently, it discusses human resource management as a strategic business partner and examines its relationship with knowledge management. The discussion of the linkage between human resource management and knowledge management is the main focus of this section. In this view, the discussion will be focused more on the role of human resource management as a strategic business partner in supporting socialisation, externalisation, combination and internalisation activities within the company.

3.1 Changing Processes in Human Resource Management

Due to changes in the nature of business, it can be inferred that the nature of management is now making adjustments in line with the current needs of business activities. An understanding of these changes and efforts made towards them is crucial for survival in the current business environment. Therefore, this section will underline those changes, especially in the field of human resource management and how exactly it links to knowledge management. In the field of human resource management, the characteristics of the so-called new economy are forcing companies to modify both the role and the status of the human resource function (Newell et al., 2002).

In this regard, we witnessed the transformation of personnel management to human resource management during the 1980s (Budhwar, 1996). The three main differences between personnel management and human resource management, as outlined by Legge (1989) are as follows: firstly, personnel management is an activity aimed primarily at non-managers, whereas human resource management is less clearly focused but is certainly also concerned with managerial staff; secondly, human resource management is much more of an integrated line management activity whereas personnel management seeks to influence line management; and thirdly, human resource management emphasises the importance of senior management's culture management, while personnel management was always suspicious of companies and related unitarist, social-psychologically oriented ideas (see, for example, Budhwar, 1996: p. 309).

Therefore, looking at this issue, personnel management is closely associated with a compliance-based system of control. On the other hand, human resource management is typically concerned with commitment-based systems of control, more centralised and senior management driven strategic activities (Aaker, 1989; Amit and Schoemaker, 1993; Budhwar,

1996). In this case, human resource management means taking a leadership role in managing this cultural change process.

However, in the broadest terms, beginning in the 1990s, human resource management's new goal was to shift from the old "entitlement" culture to a new culture that focuses on individual accountability and results (Barbara, 1997; Boxall and Purcell, 2002). In relation to these changes, there is currently another new paradigm to face, which is the knowledge society. This further leads to the knowledge-based economy, which affects companies in general and businesses in particular. As discussed in Chapter 2, since knowledge has been identified to be crucial for the success of companies, human resource management is now faced with the challenge of managing knowledge. Therefore, the main part of this chapter is dedicated to breaking the tradition of "how we manage human resources" especially in this knowledge-based scenario. This is due to the new generation of workers (i.e. knowledge workers) who work in knowledge-intensive companies and the fact that a better way of managing them is required.

Looking back at the knowledge management success factors outlined in the previous chapter (see for example Chapter 2, Section 2.4.3), it has been seen that the involvement of human resource management in supporting these factors is crucial for companies. In the related literature review entitled "*To what extent is HRM prepared to involve in knowledge-age management and companies?*" a discussion was initiated by Despres and Hiltrop in 1995. They concentrated primarily on the compensation and rewards systems in research and development (R&D) settings and concluded that the knowledge-age compensation programme should address the full range of factors that affect the individual's performance, rather than only financial considerations and extrinsic sources of motivation such as cash and cash equivalents.

In the knowledge age, these monetary incentives have been criticised for serving only as a starting-point; the focus has to be on alternative ways to encourage intrinsic human achievement motivation (Delbridge and Lowe, 1997; Despres and Hiltrop, 1995). Thus, there will be other challenges, such as how human resource management foresees other functions such as planning, training, performance appraisal, health and safety in the workplace. With regard to that, an in-depth understanding of human resource management as a service provider and strategic business partner is particularly crucial if we are to establish the most appropriate method of supporting knowledge management implementation or the movement towards it.

3.2 Human Resource Management: Definition and General Functions

A recent understanding of human resource management was highlighted by Fisher et al. (2003). They described how human resource management involves all management decisions and practices that directly affect or influence the people or the human resources who work for the companies (p. 7). Several major functional areas are involved. These are planning for the company, jobs and people, acquiring human resources, building individual and company performance, rewarding employees, maintaining human resources and multinational human resource management. In addition, Armstrong (1999) in his work *"Handbook on Human Resource Management"* argued that "human resource management is a strategic and coherent approach to the management of a company's most invaluable assets i.e. people working there, who individually and collectively contribute to the achievement of its goal..." (p. 3). He divided the human resource functions into employee resourcing (planning, recruitment, interviewing etc.), performance management, human resource development, reward management, employees' relations, health, safety and welfare, employment and human services.

In line with this, Mondy et al. (2002) provided a widely used definition of human resource management, that is, the utilisation of human resources to achieve a company's objectives. Consequently, managers at all levels must concern themselves with human resource management activities to at least some extent. Seven main functions have been described, namely human resource planning, recruitment and selection; human resource development; compensation and benefits; safety and health; employees and labour relations; human resource research and the interrelationships between human resource management functions. In the same way, according to Schuler (1984), the main purpose of human resource management activities and/or practices has traditionally been to attract, retain and motivate employees, while the key practices are human resource planning; staffing, including recruitment, selection, and socialisation; appraising; compensation; training and development and union-management relationships. Overall, it can be summarised that different authors have looked into these descriptions of human resource management differently. However, there are still some patterns within the functions of human resource management, as presented below. The key issues are:

3.2.1 *Planning*

One of the most important purposes of human resource planning is to determine and control companies' current and prospective personnel requirements. Company development objectives, market conjuncture forecasting and general labour force trends cause these requirements. They involve planning and forecasting of both long and short-term human resource requirements within the company. This, of course, will dictate the type of workers needed, where to recruit them and what type of training has to be provided for new staff development. Being the most pertinent factor in providing the right workers for the right position and at the right time, planning is vital for all human resource practitioners. Neglecting this function will affect the company as a whole.

3.2.2 *Staffing*

The staffing activities will include recruiting candidates and selecting the most appropriate job applicants for the available positions. Professionalism is required in staff recruitment, as it requires fair practice and equal opportunities.

3.2.3 *Training and Development*

The HR department must decide whether new staff need to take part in a training programme for self-development purposes, in order for the workers to be part of the company. This does not necessarily have to be done on starting employment; training needs analysis may be used at any time during the workers' employment period to determine whether a new working experience is required. Ignoring training will have a negative effect on the company as, despite their hard work, the workers may feel that they are being neglected and that they make no contribution to the company.

3.2.4 *Compensation and/or Remuneration*

In compensation activities, the human resource department must not deny the fact that people will work only if they have to and/or like to. Thus, based on the earlier motivation theories mentioned in Chapter 2, such as Maslow's Five Hierarchies of Needs, people work because they need to fulfil basic needs of self-actualisation or self-realisation (Tampoe, 1992). However, one should remember that money may not be the main reason for working, and understanding what exactly drives workers is pertinent to ensure that workers remain in the company instead of seeking alternative employment elsewhere.

3.2.5 *Performance Appraisal*

At the same time, the human resource management department is responsible for regular staff appraisal systems. The reason for doing this is that workers should be informed when they are not performing appropriately and offered help to improve themselves. It can also be useful in identifying training needs and determining employees' compensation and reward schemes, e.g. increments.

3.2.6 *Industrial Relations/Safety and Health*

The human resource department is also responsible for establishing and maintaining effective working relationships. This usually involves respecting employee rights and providing a safe and healthy workplace, as failure to improve conditions for health and safety can be illegal and very costly. Other responsibilities include understanding the reasons and methods used by employees when negotiating and settling grievances with employees.

3.2.7 *Research*

In order to be up-to-date, the human resource department must also be involved in conducting research. Companies are currently facing a wide range of new developments in this knowledge-based era, such as e-business, e-generation, e-banking and so on, which need thorough investigation in order to utilise them efficiently.

With regard to the above notion, it has been claimed that the effect of managing human resources such as knowledge workers effectively is an enhanced ability to attract and retain qualified employees who are motivated to perform. This is due to the current employment trends, which indicate that knowledge workers will represent an important proportion of the workforce in the future (Amar, 2002 and 2004; Drucker, 1998; Hunter et al, 2002; Newell et al., 2002). It is reasonable to assume that their

importance to a company will exceed that of other types of employees to a great extent (Amar, 2002; DiGioranni, 2004; Drucker, 1988 and 1998; Horribe, 1999; Kubo and Saka, 2002). Furthermore, the benefits of having the right employees, motivated to perform efficiently, are numerous (Thite, 2004; Tynan, 1999; Yuri and David, 2004). They include greater profitability, low employee turnover, high product quality, lower production costs, and more rapid acceptance and implementation of corporate strategy. In this view, human resource managers in the company will need to develop competitive ways of attracting, retaining and motivating such employees.

For this reason, in this knowledge era and in agreement with the resource-based theory and knowledge-based theory, human resource management plays a vital role in supporting the earlier success factors of the implementation of knowledge management such as training, equal pay and a good working environment wherein workers can interact freely among themselves. Later, the interaction process that human resource management promotes may contribute to the smoothness of the process of knowledge transfer as required by the companies. Finally, it helps individual workers and companies to use the output from that knowledge transfer. Therefore, again, human resource management is now in an excellent position to promote a culture that supports knowledge management, not only by designing compensation and rewards systems that nurture and encourage knowledge sharing (Despres and Hiltrop, 1995; Hunter et al., 2002), but also by strategically educating employees about knowledge management and its benefits for achieving competitive advantage (Greengard, 1998) as well as providing a setting in an organisational context for knowledge creation and collective action (Newell et al., 2002).

3.3 Human Resource Management: Strategic Points of View

"...much research shows that the take-up of HRM-type initiative and this strategic quality is not always new, nor proved." (Rowley, 2003: p. 262)

As flexibility and freedom for career development and empowerment have become the main themes and issues for knowledge workers in recent years (Amar, 2002 and 2004; Mueller, 1996; Redman and Wilkinson, 2001; Ripley and Ripley, 1993; Sheridan and Conway, 2001), we may see the role of human resource management changing from that of an ordinary services provider to a more strategic business alignment (Anthony et. al, 2002; Boxall and Purcell, 2002; Holbeche, 2002; Jackson and Schuler, 2000; Newell et al., 2002). The main difference between human resource management and strategic human resource management is that human resource management is dominated by routine administrative tasks (Rowley, 2003); whereas nowadays companies seem to increasingly want human resource staff to play a more strategic role in business, i.e. strategic human resource management. Here, senior executives, working closely in partnership with a talented human resource team, can have a considerable influence on the success of companies. Together, they can initiate a source of sustainable competitive advantage in companies whose design, customs, and people are aligned with strategy and values. This in turn expands the roles and priorities of human resource management to develop appropriate human resource strategies, policies and programmes that are in alignment with the company's strategy (Anthony et al., 2002).

In addition, Ulrich (1997), considered workers' participation and influence on the formulation strategy within the company and called it "*Strategic Human Resource Management (SHRM)*". In this view, Khatri and Budhwar (2002: p. 175) in their research on "*Strategic HR issues in an Asian Context*" found that, with recent changes in the business environment and an increased decline in their companies' competitive advantage (due to the recent Asian economic crisis), there was a strong need for greater

in the firm (Boxall and Purcell, 2002; Lado and Wilson, 1994; Oliver, 1997). Here, strategic human resource management could be defined as “a co-ordinated set of actions aimed at integrating an organisation’s culture, organisation, people and system” (Thomas, 1996: p. 6). In this regard, in order to ensure continuous return to the companies, it is also pertinent to obtain a prime mover advantage in strategic human resource management and to retain high-performing workers (Kamoche, 1996; Wright et al., 1994). From the viewpoint of resource-based thinking, strategic human resource management is argued to be valued not only for its role in implementing a given competitive scenario, but also for its role in generating strategic capability and for its potential to create companies which are more intelligent and flexible than their competitors over the long term (Boxall and Purcell, 2002).

Thus, strategic human resource management and resource-based theory have received a great deal of attention in the literature (Boxall, 1999 and 1996; Coff, 1997; Farjoun, 1998; Kamoche, 1996; Kor and Mahoney, 2000; Lado and Wilson, 1994; Mueller, 1996). In short, as outlined in Chapter 2, the resource-based theory of companies provides a conceptual basis for asserting that key human resources are sources of high-value knowledge for competitive advantage (Kor and Mahoney, 2000; Lado and Wilson, 1994). The resource-based theorists stress the value-added factor of the complex interrelationships between a company’s human resources and its other resources e.g. physical, financial, legal, informational and so on. Boxall and Steeneveld (1999: p. 445) argued,

“...the role that human resource practices may play is that of building the human capital pool and stimulating the kinds of human behaviour that actually constitute an advantage. Other companies may copy the practices but if they lack the quality of employee talent, they will not compete with the advantage.”

Human process advantage may be understood as a function of causally ambiguous, socially complex, historically evolved processes such as

integration of strategic planning and human resource activities. The general manager of operations of one of the companies included in their research noted:

“...even if they [i.e HR manager] are not involved in strategic planning, they still need to find an opportunity to be involved because they are human resource managers. If they don't know the business, then their direction won't be aligned with the business direction. HR managers have to be in strategic planning meetings, so that they could give their perspectives and contributions from an HR point of view...”

Here, the company has realised the crucial role of human resource manager in assisting company to succeed. At present, human resources are being treated as the “key” resource in the companies, and the situation is no longer a “Cinderella Story” as described by Schuler (1989) in his article on “*Strategic Human Resource Management and Industrial Relations*”. He further argued that the development of human resources is a direct concern of top management. Apart from the strategic planning processes, the focus of the debate has changed dramatically. Currently, it is examining the integration of human resource management strategies into business strategies, and the extent to which strategic human resource management acts as a key means in achieving competitive advantage in companies (Barney, 1991; Khatri and Budhwar, 2002). This is in agreement with the points emphasised by Thomas (1996: p. 6), who critically pointed out that:

“...our approach to developing strategy starts from the basis: ‘What we do, must be relevant to our corporate objectives’...In developing any corporate strategy, the approach is to begin by addressing three key strategic questions: (1) where are we now? (2) where do we want to be? (3) how do we get there? The human resources function then has to add two others; (1) what kinds of people skills will be needed to manage and sustain the organisation in the future to meet strategic business objectives? (2) what human resources programmes and initiatives will be needed to deal effectively with the external pressure and demands affecting organisation?”

In line with these efforts, strategic human resource management is focused on the relationship between strategic management and employee relations

learning, co-operation and innovation. Such processes could be very difficult to imitate. Thus, applying this to human capital theory, Boxall (1999) further added that companies have the potential to generate human capital advantage through recruiting and retaining outstanding people and capturing a stock of exceptional human talent, latent with productive possibilities.

It has also been emphasised that trends in resource-based theory literature are pushing all those interested in strategy towards studies of intellectual capital, learning processes and company adaptability (Boxall and Purcell, 2002). Researchers in strategic human resource management could play an important role in these developments because questions such as how to attract, motivate and develop workers with critical and scarce abilities and develop effective processes of work companies should be fundamental to any model of knowledge-based competition, and this is directly relevant to what is happening in the Multimedia Super Corridor status companies in Malaysia. Boxall and Purcell (2002) further said that, “greater progress will be made when companies are studied in a much more interdisciplinary or systemic way” (p. 183). This is why the current study seeks to integrate the understanding of knowledge management and human resource management. The findings of this exploratory, descriptive and explanatory study could serve as a new direction for future research, as suggested in Chapter 10 (see Section, 10.3).

In addition, reflecting on the work of Ulrich and Lake (1990) on strategic human resource management as generating, sustaining, and reinforcing competencies, and also reflecting on aspects of the literature by Delery and Doty (1996) on market-type employment systems, Sheppeck and Militello (2000) categorised human resource management practices into four strategic human resource management dimensions, i.e. employees’ skills and work policies, a supportive environment, performance measurement

and reinforcement, and market companies. In this regard, companies should, for instance, have a clear objective in terms of employees' skills and work policies in order to produce superior performing knowledge workers. In this respect, Sheppeck and Militello (2000) also emphasised that the right staffing, suitable training, proper work design and the practice of good relations among workers are of vital importance. Other than that, the companies should provide a supportive working environment, which may motivate knowledge workers to become a key aspect of efforts towards sustainable competitive advantage. This can be done through employees' empowerment, assistance to diversity and offering flexible benefits. Furthermore, performance measurement and reinforcement practices should focus on the knowledge workers' energies by looking at their specific productive behaviour rather than making overall assumptions about what work they have done. Finally, links should be created between employees and their companies through alternative work designs (i.e. freedom should be given to the knowledge workers), good compensation (i.e. salary) and allowance for market-control relationships (i.e. between employees and customers). This linkage would encourage knowledge workers to recognise their knowledge, transfer it to others and receive benefits as a result of doing so.

In a highly competitive environment and with reflection on the above study, Ulrich (1997) explains how human resource management can become a strategic business partner by diagnosing and meeting the needs of both knowledge workers and the company. Having a strategic attitude, human resource management is no longer about focusing on how companies might make themselves different from others. Viability and sustained advantage are a greater concern (Boxall and Purcell, 2002: p. 33). They said:

“Companies must need certain baseline conditions that make them similar to other companies (in their competitive sector and to the society in which they are based) while also having the opportunity to make gains from being positively different”.

Thus, there are many ways of practising strategic human resource management. There is no “best fit” or “best practice” for all. It depends largely on the companies and the way they appreciate their resources (Newell et al., 2002). Furthermore, according to Raich (2002: p. 271), “human resource professionals can become highly valued business partners if they are ready, willing, and able to speak the business language” (i.e. know which human resource practices can help enhance the business and willing to engage in the change and transformation processes). Being capable of doing so will lead them to become the “preferred partners” of business managers. In most cases, strategic human resource management is responsible for looking seriously into keeping the best talent, managing intellectual capital and supporting knowledge management, which will be discussed further in Section 3.4. Obviously, human resource professionals are the key players in team management only if they know how to manage their knowledge workers’ knowledge and their intangible assets in order to preserve and create value for the company. Jackson and Schuler (2000: p. 25), as shown below in Table 3.3, developed a comprehensive understanding of how human resource management can become a company’s strategic business partner (i.e. HR Triad).

to see whether it is worth spending on strategic human resource management practices. Thus, “human resource accounting” has been identified as a new measurement tool (Toulson and Dewe, 2004). Ironically, this is the measurement for the return of hiring human resources within the company in the sense of how much they actually contribute towards the company’s success. It could be argued that this is very much related to the economic modelling and cost-benefit analysis of intangible matters, which are not the focus of the current study. However, the researcher suggests that cost-benefit analysis between knowledge workers, knowledge management and human resource management is relevant and worthy of future study (see for example Chapter 10, Section 10.3). The findings could be very useful for further investigations of the extent to which knowledge workers; knowledge management and human resource management help companies to grow successfully.

3.4 Linking Strategic Human Resource Management with Knowledge Management

One may question whether strategic human resource management is required for knowledge management or whether knowledge management is required for strategic human resource management. Are they of the same importance, and are there any related roles? Thus, this section discusses the obvious differentiation between human resource management and knowledge management. As mentioned earlier, knowledge management is about managing knowledge within the company and treating it as the most valued asset for the success of the company. In this view, knowledge workers have been considered to become an important asset by virtue of their possession of this knowledge, as discussed in Chapter 2.

Therefore, human resource management is another aspect that would help knowledge management in terms of managing the human resources as an invaluable asset for the company, by taking on a more strategic business

Table 3.3
THE HR TRIAD: Partnership Roles and Responsibilities for Managing Human Resources

Line Managers	HR Professionals	Employees
Work closely with HR professionals and employees to develop and implement HR philosophies, policies and practices.	Work closely with the line managers and employees to develop and implement HR philosophies, policies, and practices	Work closely with line managers and HR professionals to develop and implement HR philosophies, policies, and practices.
Include HR professionals in the formulation and implementation of business strategy.	Stay informed of the latest technical principles for managing human resources	Accept responsibility for managing their own behaviour and careers in companies.
On a daily basis, consider the implications of business decisions for managing human resources	Develop the skills and competencies needed to support change processes.	Recognise the need for personal flexibility and adaptability.
Accept shared responsibility for managing human resources strategically and work to reduce barriers to this objective.	On a daily basis, consider how well the companies' approaches to managing human resources fit with it current and possible future business strategies.	Learn about and apply basic accepted principles for managing human resources for HR activities in which they participate (e.g., selecting team members, appraising supervisors, and training co-workers)
Learn about and apply basic accepted principles for managing human resources.	Work with employees to help them voice their concerns effectively, and serve as their advocate when appropriate. Be proactive in learning about how leading companies are managing human resources, and what they're learning from their experiences.	Voice their concerns and work with managers and HR professional to develop solutions to address them.

Source: Jackson and Schuler (2000: p. 25)

The bottom line here is that, as a strategic business partner, the human resource management of a company must show concerns about all workers and their right to a conducive working environment, flexibility and freedom in completing their task, learning culture etc., and must understand how money gets made, lost, and spent. They also need to know the market and what the business is and have a long-term view of where the business is heading. Furthermore, strategic human resource management in the company should be capable of educating line managers, be aware of the plans of top executives and be involved in the strategy formulation of the executive committee. Additionally, strategic human resource management in the company needs to develop and sell plans and ideas, and be able to obtain required resources (Jackson and Schuler, 2000: p. 659). Unfortunately, the issue of measuring strategic human resource management has still not been resolved, although there has been increased attention towards it (Bontis et al., 1999; Rowley, 2003; Toulson and Dewe, 2004). The review revealed that companies would like

resides and how it may best be utilised in order to achieve the company's goals. Besides that, the human resources department plays a key role in assessing employees' knowledge and determining whether it brings any major benefits to the company (i.e. identification of the benefits of knowledge management efforts).

Furthermore, the human resource management in the company may also choose the appropriate knowledge management programme and/or activities in order to ensure the participation of knowledge workers (Thite, 2004; Soliman and Spooner, 2000). This can be done by creating supportive environments for knowledge management programmes such as social gatherings of staff, the office layout, trust between employees within the firm, understand and valued differences in culture and language, timeliness, the way in which learning and mistakes are handled, and involvement and commitment from senior management. Also, it is argued that human resource management may propose that the company should provide enabling technology for the knowledge management programme, such as a knowledge-based system (Davenport and Prusak, 2000). This in turn requires support from the top management. With this support, it is hoped that the company could storm the knowledge management programme, form knowledge management rules, perform knowledge management activities and reform the knowledge management programme. In addition, Hislop (2003) specifically highlighted the importance of human resource management in terms of developing and encouraging commitment among knowledge workers to participate in knowledge management.

In connection with the work done by Nonaka and Konno (1998) on the SECI Model, Soliman and Spooner (2000: p. 344) put forward further roles of human resource management in supporting the knowledge management process, in the form of "knowledge mapping" as shown in

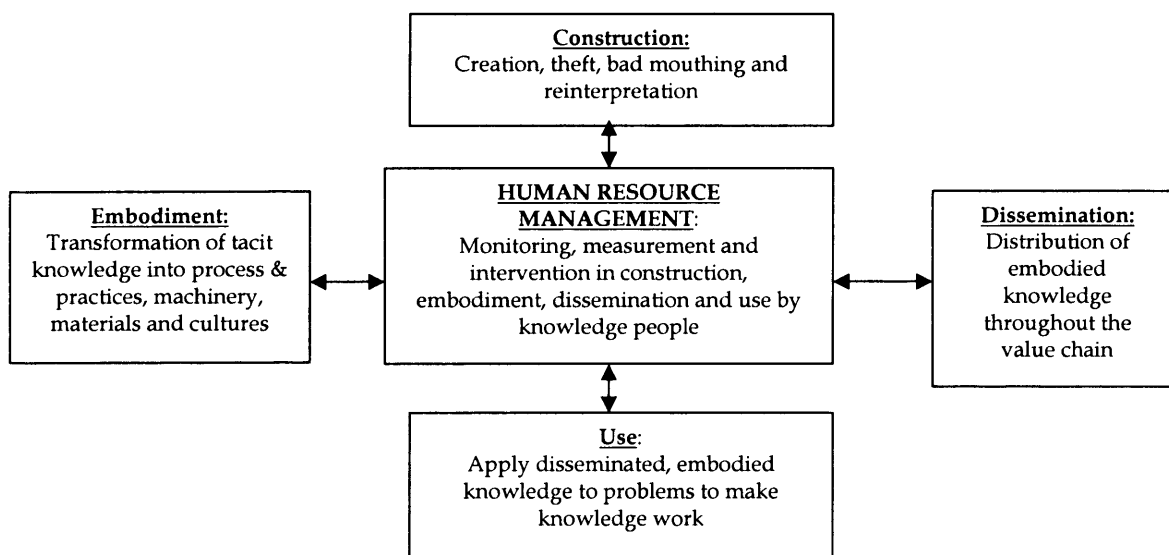
partnership-like role. The understanding here is this: if we do not look after the knowledge workers, do we think that they will leverage their knowledge for the success of the company or for themselves? Thus, we must start by taking good care of these knowledge workers in the hope that they will appreciate the company's benefits and remain in the company and contribute to its success and profits.

In this regard, Greengard (1998: p. 90) argued that even though there are many ways to support knowledge management practices in the company through human resource management, there are still some standard strategies. He described seven ways to ensure that knowledge management takes hold within the firm with the help of the human resource department. The first is to provide human resource executives' support. This should be followed by establishing cross-functional teams to map knowledge and plan an initiative. Then the human resources department needs to ensure that a process of knowledge transfer is in place. At the same time, the human resources department is responsible for developing and/or providing the suitable technology in order to make knowledge management flourish and nurture a sharing culture. The human resource department also needs to demonstrate the value of knowledge management in encouraging a buy-in attitude. Finally, the human resource department needs to view knowledge management as a work in progress rather just as a corporate image.

Soliman and Spooner (2000: pp. 339-342) further argued that human resource management might support knowledge management practice in the company by having a good understanding of the importance of using knowledge management techniques for leveraging their workers' knowledge. This can be done by first bringing the knowledge management in line with business directions. In order to do this, human resource management should play its role in identifying where the tacit knowledge

Figure 3.4 below. In the other words, both models could work hand in hand by first disseminating knowledge during the “socialisation” activities, followed by the use and transformation of that knowledge to meet the needs of the company during the “externalisation” as well as the “combination” activities, and finally constructing or reinterpreting it accordingly during the “internalisation” process. This continuous process would then help the transformation of tacit knowledge into explicit knowledge and vice versa.

Figure 3.4
The Knowledge Mapping Model of Human Resource Management Role in Constructing, Disseminating, Using and Embedding Employees’ Knowledge



Source: Soliman and Spooner (2000: p. 344)

In relating the earlier review to the Malaysian context, Yahya and Goh (2002) found an association between four areas of human resource management (i.e. training, decision-making, performance appraisal, and compensation and reward) and the five areas of knowledge management (i.e. knowledge acquisition, knowledge documentation, knowledge transfer, knowledge creation, knowledge application). In this view, it has also been argued that human resource management needs to adopt a unique role to assist and support the successful input and/or factors of the implementation of knowledge management. In other words, it could be assumed that human resource management may support the “socialisation”, “externalisation”, “combination” and “internalisation” stages more efficiently. As a separate entity from knowledge management,

perhaps what human resource management should do is to become more strategic in nature i.e. a strategic business partner, rather than just becoming a service provider. By doing so, the strategic alignment needs to meet several requirements of the issues that are closely related to managing knowledge workers, such as flexibility and freedom of autonomy, practising empowerment, having flat management and work-life balance.

Perhaps this work could also provide a signal of the active movement of the new concept of managing human resources in developing countries such as Malaysia. Here, it has been claimed that the emergence of Western human resource management will become crucial for efficient people management in developing countries (Budhwar, 2004; Budhwar and Debrah, 2001; Debrah and Smith, 2000; Rowley and Warner, 2004; Rowley and Benson, 2000). This is because it has been argued further that with the existence of thousands of Multi National Companies (MNCs) in developing countries, such as African states and the Asia Pacific region, Western human resource management could become influential in these countries (Budhwar and Debrah, 2001; Rowley and Warner, 2004). In fact, it has been stated that:

“These MNCs often introduce new working practices which are in line with their global strategies. The MNCs generally have well-developed HRM systems. It is thus conceivable that as more and more developing countries succeed in attracting FDI [i.e. foreign direct investment], the local firms they work with might emulate their HRM policies and practices. Thus, indirectly, the local firms can learn from the MNCs regarding how to transform their personnel into HRM.” (Budhwar and Debrah, 2001: p. 246)

Nonetheless, Rowley (2003) has argued that differences in HRM in any country could only be understood by looking at the pros and cons of four crucial approaches (i.e. convergence, contingency, culture and institutional factors). In this regard, the practice of human resource management stages is different in each country and thus requires the most appropriate approach for the company in order to fit in with the working culture of that

company without neglecting the existing supporting social and economic values and local practices. For instance, in China, according to Cooke (2004: p. 31), little attention is paid to the practice of human resource management and the relationships between workers are very much transactional in nature (i.e. I have the money, I employ you, therefore you should do a good job for me). In Thailand, the principle of management taught in Buddhism, known as “Brahmivihaara 4”, is applied in managing human resources (see, for example, Siengthai and Becther, 2004). A similar thing happens in Malaysia, where the majority of the citizens are Malays and/or bumiputra (i.e. Princes of the Soil) and the national religion is Islam. Thus, these two aspects have undeniably affected the management of workers in Malaysia (Mellahi and Wood, 2004). Further discussion on human resource management issues in Malaysia is provided in Chapter 4, Section 4.4.

Aside from these differences, these developing countries have one thing in common, namely the applicability of resource-based theory in explaining further how their human resources are being managed. In relation to this, it has been pointed out by Budhwar and Debrah (2001: p. 251) that “In the era of globalisation...[and]...in achieving competitive advantage, developing countries must transfer their PM [i.e. people management] into HRM [i.e. human resource management]. It is for this reason that Kamoche argues that the resource based-view can be applied to understanding of the role of HRs in strategic management in Africa and might contribute to the formulation of an HRM approach that is more appropriate for the Kenyan situation and perhaps for all developing countries in general...”. In the light of the earlier discussion on theories underpinning this study, the overall understanding on how human resource management may support knowledge management is shown here in Table 3.4. The overall view on the impact of this understanding on the current research is that it will encourage as well as support knowledge workers to participate in any

knowledge management activities. To take a simple example, during the socialisation processes as shown in Table 3.4, knowledge workers are expected to participate in customer interaction activities such as having lunch together, visiting the site and regularly checking on the products and services sold to the customers.

Table 3.4
Managing Knowing in the Knowledge-Based Company

Knowledge Management Elements and/or Processes	Knowledge Management Activities	Strategic Human Resource Management
Socialisation	Brainstorming Informal Meetings Discussions Dialogues Observation On-the-job training Customer interaction Coaching Mentoring Learning groups	To provide suitable environments like 'family day', 'dinner or lunch with the customers', 'staff annual dinner', 'company retreat' etc. To encourage workers' participation in knowledge management activities by creating 'team-based performance assessment'. To ensure that the company's planning on staffing and recruiting is aligned with the needs of the company. It is essential to get the right workers who will fit with the company working culture, for instance. To ensure high commitment from the top management.
Externalisation	Meetings Building hypotheses and models Communicating by cartoons After-reaction reviews Workshops Best-practice exchange Master classes Assignment	To support the embodiment and dissemination of knowledge management activities into the workplace. To provide competitive initiatives for workers to share more. To provide competitive compensation & rewards systems. To encourage the practice of 'flat' management that requires management to be more flexible, with an emphasis on worker involvement and empowerment. To emphasis the role of top management for encouraging team-based work.
Combination	The application of the uses of information technology groupware such as 'company yellow pages' and 'intranet system'.	To work with the relevant authorities in creating and/or providing effective IT system for knowledge management activities to run smoothly. To provide an effective training programme to introduce knowledge management systems among workers and utilise it at the maximum level.
Internalisation	Facilitation skills Knowledge sharing Client customer feedback review Development counselling and new ideas	Perhaps, the strategic human resource management in the company could apply the strategies suggested in the externalisation and combination processes, but the main focus should be on the following aspects: To create a situation of learning by doing. To provide more training and personal development programmes.

In this regard, what human resource management of a company can do is to monitor these movements by assessing whether the company really has the right knowledge workers to present the company's deals to the customers. If the individual knowledge workers are lacking in self-confidence and/or have bad public relation skills, then perhaps they need to be sent on training programmes in order to improve. Other than that, knowledge workers could also be given group tasks and/or team projects during the externalisation processes. In this view, what human resource management could do is to use a better competitive compensation and rewards systems upon completion of the project. In this case, team-based rewards could be better than individual rewards. Also the need for an efficient system to encourage knowledge-sharing activities is important. Here, perhaps top management of the company should consider making an investment to this end. Furthermore, continued support must be provided and examples must be shown in order to encourage the rest of the workers to adopt the knowledge-sharing attitude. Finally, training and personal development are clearly pertinent, allowing knowledge workers to keep abreast of what is going on within their fields of work. Thus, strategic human resource management should consider this as one factor that could contribute to the retention of knowledge workers.

3.5 Summary

Overall, in order to design and implement strategic human resource management within the knowledge management context, it is best to look at what Raich (2002: p. 269) said: "...we are convinced that the human resource function in the future will be different from that in the past. The companies that do not see this and do not act accordingly will have a serious problem with the core assets of the 'new economy': the knowledge workers and the knowledge professional...". It seems that knowledge workers in the knowledge-based society would prefer to have high autonomy, significant drives for achievement, a stronger identity and

affiliation with a profession rather than a company, and are likely to have a greater sense of self-direction (Amar, 2002; Despres and Hiltrop, 1995; Drucker, 1988 and 1998; Horribe, 1999; Hunter et al. 2002; Thite, 2004). In this view, neglecting knowledge management in the company would lead to loss, as knowledge that resides in the workers' brains is crucial for survival in the current, competitive business world.

In this regard, human resource management should play a more pro-active role by becoming more strategic in nature rather than just acting as a service provider. Thus, as in the business world, where companies have to continuously review, revisit, and update their brands and/or products to meet customers' changing needs, the same thing applies to their knowledge workers. An understanding of how to best manage their knowledge workers should be the centrepiece of all companies' concerns. To do this, the human resource management position must regularly be willing to make tough decisions about what it will and will not contribute to the success of knowledge management implementation, as described by the earlier SECI Model (Nonaka and Konno, 1998) and the Knowledge Mapping Model (Soliman and Spooner, 2000). Every human resource professional shall further craft initiatives using the benefits offered by the knowledge management practices.

To conclude, from the earlier discussions, the main proposition of this study is to understand the role of human resource management as a strategic business partner and how it can help to develop an effective system and/or workplace to enable knowledge management implementation. This is then congruent with the context in which the companies' end objective is a sustainable competitive advantage. This is because, as has been highlighted before, the techniques of knowledge management are indeed not sufficient without the support of human resource management practices.

CHAPTER FOUR

The Malaysian Economic Policy Framework

4.0 Introduction

As mentioned in Chapter 1, the purpose of this study is to locate the understanding of knowledge management and human resource management in the context of Malaysia's economic development (see for example Section 1.1). Therefore, an analysis of the Malaysian economic policy framework is pertinent in terms of demonstrating the need for the current study into the management of knowledge workers in the Multimedia Super Corridor status companies. This is due to the crucial need for this group of workers in ensuring the success of the formation of MSC by the Malaysian government. Further description of the Multimedia Super Corridor's current business scenario is presented in Section 4.4.

In this regard, this chapter concentrates on Malaysian economic policy, covering the location of Malaysia and her current population. This is followed by a description of Malaysia's economic transformation from an agricultural based to the current knowledge-based economy. Furthermore, a description of the national agenda, Vision 2020, is also presented. The chapter then provides a detailed description of the Multimedia Super Corridor status companies, which comprises the core of this chapter. It also outlines the current scenario of human resource management in Malaysia, which leads to the earlier research objectives and gives rise to the research questions of the current study.

4.1 Geography, Political System and Population

Malaysia comprises Peninsular Malaysia, 131,598 sq. km, and East Malaysia, covering a total area of 329,758 sq. km. Altogether, there are 13 states, and the capital is Kuala Lumpur. The government is a constitutional monarchy. As illustrated in Table 4.1, Malaysia has a population of approximately 23 million. It is also a multiracial country, with Malays making up 66.1 percent of the population, Chinese 25.3 percent and Indians 7.4 percent.

Table 4.1
Population Structure, 1990-2010 ('000 persons)

	1990	%	2000	%	2010	%
Total Population	18,102.5		23,265.9		28,904.2	
Malaysian Citizen	17,336.5	100.0	22,032.8	100.0	27,348.6	100.0
Bumiputra and/or Prince of Soils	10,586.1	61.1	14,564.5	66.1	18,668.2	68.3
Chinese	4,755.8	27.4	5,583.8	25.3	6,509.0	23.8
Indian	1,332.6	7.7	1,628.6	7.4	1,941.7	7.1
Others	662.0	3.8	255.9	1.2	229.7	0.8

Source: The Third Outline Perspective Plan (OPP3), 2001-2010, p. 149

Historically, this diversity within Malaysian society has its roots in the British colonisation, which created specific ethnic divisions with specific roles/tasks, such as rubber tapping for Indians, mining for Chinese and fishing and/or agriculture for Malays (Zawawi, 1998). The main impact of this segregation of ethnicity, however, was to create a depressing economic imbalance amongst these ethnic groups (Jomo and Todd, 1994 cited in Rowley and Bhopal, 2002: p. 1172). This then led to the development of economic policies that could safeguard the needs and/or importance of each ethnicity, which has contributed towards peace and harmony in Malaysian society. Despite the "cultural pluralism" of Malaysian society, economic development policies such as the NEP, NDP and NVP have helped the nation to focus more on developmentalism rather than just ethnicitism (Abdullah, 1997; Guan, 2000; Zawawi, 1998). Furthermore, the recent work of Wendy and Asma (2004: p. 419) on the Asian economic

crisis and its survival supports this; they highlighted that:

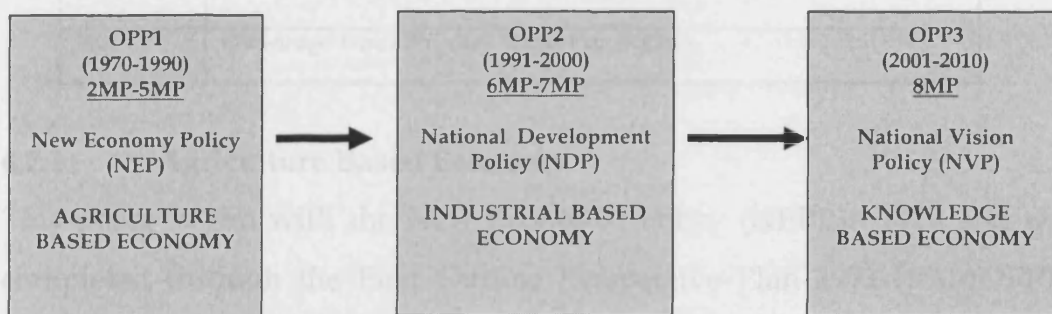
“Employees’ willingness to work harder and cover for lost manpower demonstrates that the implementation of...HRM strategies must be viewed in the context of pervasive Malaysian cultural values which, regardless of ethnic identity, place emphasis on harmony, respect for elders, acceptance of hierarchy and focus on the group over the individual (Asma, 2001).”

In this regard, the current study will not specifically investigate the impact of culture on issues relating to knowledge workers, knowledge management and human resource management. However, a brief explanation of the Chinese, Malays and Indian working cultures is presented in Section 4.4 on human resource management issues in Malaysia.

4.2 The Malaysian Economic Policy Framework: The Transformation Process

After forty-seven years of independence, Malaysia has seen the transformation of her economy from an agriculture-based economy in the 1970s and 1980s, to the industrial economy of the 1990s, and now to a knowledge-based economy in the 2000s (see for example Figure 4.2).

Figure 4.2
The Transformation of Malaysian Economy after Independence in 1957



A further chronology of events is outlined in Table 4.2, below:

Table 4.2
A Time-Line for Policies Development after Independence

Years	Events and/or Policy Development after Independence
1957	Federation of Malaya, becomes independent from Britain with Tunku Abdul Rahman as Prime Minister.
1963	British colonies of Sabah, Sarawak and Singapore join Federation of Malaya to form the Federation of Malaysia.
1965	Singapore withdraws from Malaysia, which is reduced to 13 states.
1965-1970	First Five-year Malaysian Plan (1MP) launched
1969	Outbreak of serious riots in Kuala Lumpur after federal elections.
1970-1990	<i>The First Outline Perspective Plan (OPP1)</i>
1970	New Economy Policy (NEP) established to encourage a fairer distribution of wealth, which was deemed to be the cause of the 1969 riots.
1971-1975	Second Five-year Malaysia Plan (2MP)
1976-1980	Third Five-year Malaysia Plan (3MP)
1981-1985	Fourth Five-year Malaysia Plan (4MP)
1986-1990	Fifth Five-year Malaysia Plan (5MP)
1991-2000	<i>The Second Outline Perspective Plan (OPP2)</i>
1991-1995	Sixth Five-year Malaysia Plan (6MP)
1991	Vision 2020 and National Development Policy (NDP) launched
1996-2000	Seventh Five-year Malaysia Plan (7MP)
1995	The Formation of Multimedia Super Corridor (MSC)
1997-1998	Asian Financial Crisis
2001-2010	<i>The Third Outline Perspective Plan (OPP3)</i>
2001-2005	Eighth Five-year Malaysia Plan (8MP)
2001	National Vision Policy (NVP)
2002	Knowledge-Based Economy Master Plan (KEMP)

4.2.1 Agriculture Based Economy

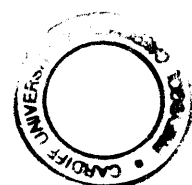
This phase began with the New Economic Policy (NEP) in 1970 and was completed through the First Outline Perspective Plan 1971-1990 (OPP1), derived from the Second Five-year Malaysia Plan 1971-1975 (2MP) to the Fifth Five-year Malaysia Plan 1986-1990 (5MP) (see for example Table 4.2). Agriculture was an important sector during the 1960s, 1970s and 1980s. In this period, Malaysia was reported to be among the world's largest exporters of natural rubber and palm oil (Malaysia, 1981). Employment

was relatively high during the 1970s in agriculture, forestry and fishing (i.e. the primary sector). The percentage of total employment in the primary sector was reported to be 50.5 percent in 1970, 39.7 percent in 1980 and 27.8 percent in 1990 (Malaysia, 1996). Towards the end of the agriculture-based economy age, phenomenal changes occurred in the sector, such as movement towards mining and quarrying. It was reported that the percentage of total employment in the manufacturing sector increased from 11.4 percent in 1970 to 19.5 percent in 1990 (Malaysia, 1996).

Ironically, the NEP was created because of the economic imbalance between ethnic groups, as mentioned earlier on. Here, Doug and Michael (1991) stated that:

“It was under the NEP that Malaysia embarked on an oft-criticised plan to redistribute 30 per cent of the nation’s corporate assets to the bumiputra [i.e. Prince of Soils] community by 1990 (p. 16).”

Although this was the case, the target was not fully achieved. According to the Economic Planning Unit (EPU), only 20 per cent of the nation’s assets were successfully distributed and there was still a need to increase the number of bumiputra professionals through the reformation of the national education system (cited in Doug and Michael, 1991: p. 17), which continues to be carried out during the NDP and NVP. It appears that the major contribution of the NEP was the balancing of political, social and economic issues (Rowley and Bhopal, 2002). By trying hard to reduce and/or eliminate poverty (especially amongst the Malays and Indians), the NEP was also helpful in restructuring Malaysian society towards ethnic economic equity (Abdullah, 1997; Guan, 2000). The outcome of this affirmative action policy also resulted in the expansion of manufacturing via export-oriented industries (EOI), which represented 80 per cent of total output (Rowley and Bhopal, 2002).



Overall analysis of the New Economic Policy (NEP) shows that, after the major riot of the ethnic Malays, Chinese and Indians in 1969, the NEP's policies may have achieved a better quality of life for Malaysian citizens. This had a significant impact on economic growth and development (Hammer et al., 1995: pp. 540-541). As a result, Malaysia achieved a measure political stability with the NEP, which focused on economic policies of "growth with equity". The NEP came to an end in 1990 and was replaced by a new policy known as the National Development Policy (NDP) during the industrial-based economy.

4.2.2 Industrial Based Economy

During this economic period, the National Development Policy (NDP) was created in 1970 and completed through the Second Outline Perspective Plan 1991-2000 (OPP2), derived from the Sixth Five-year Malaysia Plan 1991-1995 (6MP) and the Seventh Five-year Malaysia Plan 1996-2000 (7MP). This National Development Policy (NDP) had the objective of leading Malaysia towards the status of a fully developed and industrialised nation by the year 2020. Similar to the NEP, the NDP was aimed at balanced and sustainable development (i.e. growth and equal distribution). For instance, the aims of the Sixth Malaysia Plan (6MP) (1991-1995) were set to promote human resource development and to give priority to the role of the private sector as the engine of growth. The plan stated that:

"Firstly, the principle of growth with equity is fundamental to ensure the realisation of a fair and equitable distribution of national wealth. Secondly, a balanced societal development is conducive to the maintenance of social and political stability. Thirdly, the nurturing and molding of a Malaysian society with high moral values and ethics as well as positive attitudes are fundamental towards the creation of a responsible, resilient, progressive and caring society...The balance development of the economy is essential to ensure stable growth, minimize social conflicts, promote racial harmony and enhance national unity "

(Malaysia, 1991: p. 5)

In this regard, employment during this economic period has seen a tremendous evolution of the construction and manufacturing sectors (Second Outline Perspective Plan, OPP2, 1991: p. 19). As a result, there has been a high reported demand for highly skilled and educated workers who are expected to be adept at using new technology. Within this period, the birth of Vision 2020 - Malaysia's statement of national goals - was also witnessed. The vision provides a framework for "the way forward", a policy set up by the former Prime Minister that will lead Malaysia to become a developed nation by 2020 (Mohamad, 1991). Vision 2020 comprises nine challenges, as presented here:

1. The creation of a united Malaysia.
2. The creation of a Malaysian society which is free, firm, spiritually sound and which has self-confidence and is respected by other ethnic groups.
3. The fostering and creation of a democratic society, which is mature, and practices a society-oriented Malaysian democratic system based on consensus and co-operation.
4. The creation of a society with good ethics and morality.
5. The creation of a mature, liberal and tolerant society.
6. The creation of a progressive society with high achievement.
7. The creation of a caring society.
8. The creation of a just society, which shares equal economic opportunities.
9. The creation of a prosperous society with a viable, dynamic and strong economy.

In general, Vision 2020 is mainly aimed at improving the life of all Malaysians, protecting the dignity of the ethnic groups and safeguarding them from oppression by others (Chamhuri and Hasan, 1999). In relating to Vision 2020, the continuity of human excellence had become the main task for Malaysia by the time the Seventh Malaysian Plan was launched (1996-

2000). The plan maintains the broad objectives, with an emphasis on human development in order to compete in the international arena. It focuses on efforts to further improve the life of Malaysian citizens, deepening capital, improving technology, and building capacity (Asian Development Bank, 1997). This element, as highlighted in the Sixth Challenge of Vision 2020, stresses the importance of creating a form of Malaysia that is equipped with the technological knowledge required to face the new era of globalisation. The challenge is stated in more specific detail as follows:

“The sixth is the challenge of establishing a scientific and progressive society, a society that is innovative and forward-looking, 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 creation of the Multimedia Super Corridor was undertaken in 1995 with the purpose of realising the sixth challenge of Vision 2020 (Knowledge-Based Economy Master Plan, KEMP, 2002: p. 1). A detailed description of what the Multimedia Super Corridor is about is provided in Section 4.4.

Economically, the overall performance during this period has been reported as being commendable, although the country faced a financial crisis in 1997 and 1998. The real Gross Domestic Product (GDP) recorded an average growth of 4.7 percent per annum, surpassing the revised target of 3.0 percent during the Seventh Malaysian Plan 1996-2000 (Malaysia, 2001: p. 24). Recovery measures introduced in 1998 helped to stimulate consumption, while controlling inflationary pressures. The unemployment rate remained low, at about 3.1 percent, and more than half of the population attained secondary and tertiary education (Malaysia, 2001: p. 136). The next movement in Malaysian economic development is towards the knowledge-based economy as embodied in the OPP3 (Third Outline Perspective Plan, OPP3, 2001-2010).

4.2.3 Knowledge Based Economy

Malaysia today is classified as an upper middle-income country, as its per capita income has increased from Malaysia Ringgit (RM) 1,132 (approximate Sterling equivalent, £160)¹ in 1970 to RM 13,683 (approximate Sterling equivalent, £2000) in 2002 (Mohamad Sani, 2004). Also, the economy experienced a growth rate of 6.7 percent p.a during the First Outline Perspective Plan (OPP1) between 1971 and 1990, and 7.0 percent p.a during the Second Outline Perspective Plan (OPP2) between 1991 and 2000. It is expected that the growth rate will increase to 7.5 percent p.a. during the Third Outline Perspective Plan (OPP3: p. 6).

Within the Third Outline of the Perspective Plan (OPP3), which covers the period between 2001 and 2010, the Malaysian Government has developed a new policy, known as the National Vision Policy (NVP). It aims at establishing a progressive and prosperous “Bangsa Malaysia” (Malaysian Citizenship), which lives in harmony and engages in full and fair partnership. During this ten-year period, economic growth will be promoted alongside efforts aimed at poverty eradication and the restructuring of society. At the same time, social, economic and regional imbalances will be narrowed (Malaysia, 2001).

The new policy dimensions shown in Table 4.2, introduced in the National Vision Policy (NVP) as cited in the Third Outline Perspective Plan (OPP3: p. 6) are as follows:

1. Developing Malaysia into a knowledge-based society.
2. Generating an endogenously driven growth through strengthening domestic investment and developing indigenous capability, while continuing to attract foreign direct investment (FDI) in strategic areas.

¹ The current foreign exchange rate as for February 2005 is £1=RM 7.07748 (Universal Currency Convert, 2005) at [WWW] URL <http://www.xe.com/ucc/>

3. Increasing the dynamism of the agriculture, manufacturing and services sectors through greater infusion of knowledge.
4. Addressing poverty in remote areas and among the “Orang Asli” and “Bumiputra” minorities in Sabah and Sarawak as well as increasing the income and quality of life of those in the lowest 30 percent income category.
5. Achieving effective “Bumiputra” participation as well as equity ownership of at least 30 percent by 2010.
6. Increasing the participation of “Bumiputra” in the leading sectors of the economy; and
7. Re-orientating human resource development to support knowledge-based society.

Above all, it can be concluded that the thrust of human resource management in the Third Outline Perspective Plan (OPP3) will be to prepare a workforce that is capable of meeting the challenges of a knowledge-based economy to enhance economic productivity and competitiveness (Ahmad, 2002). Therefore, this knowledge-driven economy will then increase the demand for technological skills and expertise as well as developing a labour force equipped with tacit knowledge and a high level of thinking skills. With this in mind, the Eighth Malaysia Five-year Plan (2001-2005) has become the first phase of the National Vision Policy to be achieved, in order to strengthen the nation's capacity, capability and resolve in meeting future challenges (Mohamad, 2001). It has been stated that:

“The Eighth Malaysian Plan charts the next steps that we, as a nation, will take towards becoming a unified and fully developed nation in our own mold by the year 2020. In formulating this plan, we considered the progress achieved, took stock of our current position as well as the considerable challenges ahead. The strategies and programmes presented are aimed at putting the nation on a stronger footing and to be more resilient and competitive” (Malaysia, 2001: Forward, V)

With regard to the above, Malaysia is now on its way through this five year plan, which aims to achieve sustainable growth without neglecting to strengthen the stability of economic progress. Here, it has been estimated that the GDP will need to grow at 7 percent per annum (Jomo and Shyamala, 2001). With the help of the Malaysian Fiscal Policy, it is also hoped that the unemployment rate will decrease for all citizens regardless of ethnic group (Lucas and Verry, 1999). However, changes in the production methods and processes required to attain capital intensity and information communication technology applications have led to a shortage of highly skilled manpower in specific areas (KEMP, 2002: p. 50). Thus, there is the need to investigate the knowledge content of all economic activities, i.e. agriculture, manufacturing, science and technology (Malaysia, 2001: p. 88). In this regard, human resource development has continued to be given priority in support of the implementation of a productivity-driven growth, which requires highly skilled, trainable and knowledgeable manpower (Ahmad, 2002; KEMP, 2002; Lucas and Verry, 1999; Norsaidatul et al. 1999).

To expand this workforce, the government is now focusing primarily on the expansion of education and training, with greater emphasis on increasing the supply of science and technology (S&T) manpower. With regard to this expansion, a 60: 40 ratio of science to arts students is planned (Malaysia, 2001: p. 104). Enrolment at the tertiary level has seen some increment from 1995 to 2000. At the end of the 7MP, 170,794 students were reported to be enrolled at first degree level, as shown in Table 4.2.3a, while 92,304 students were enrolled at diploma level, as shown in Table 4.2.3b. Enrolment in science and technical courses at the first-degree level increased from 40.7 percent of the 75,709 total enrolment in 1995 to 52.0 percent of the 170,794 total enrolment in 2000. At the diploma level, enrolment in science and technical courses increased from 45.0 percent of the 46,480 total enrolment in 1995 to 56.8 percent of the 92,304 total

enrolment in 2000 (Malaysia, 2001: p. 104). In reference to the earlier definition of knowledge worker by the Multimedia Development Corridor (see for example Chapter 1, Section 1.1 and/or Chapter 4, Section 4.3.1), this is an indication that the number of skilled knowledge workers will be increased in the future.

Table 4.2.3(a)
Enrolment for First Degree Courses from Local Public Educational Institutions, 1995-2005

Course	Enrolment					
	1995	% of Total	2000	% of Total	2005	% of Total
Arts ¹	44,886	59.3	81,914	48.0	103,846	42.5
Science ²	18,171	24.0	49,575	29.0	1,897	29.4
Technical ³	12,652	16.7	39,305	23.0	8,784	28.1
TOTAL	75,709	100.0	170,794	100.0	244,527	100.0

Notes:

1. Arts, Humanities (includes Islamic studies, literature, Malay culture, social science, library science and art & design), Economics, Business (includes accountancy, business management, resource economics and agri-business) and Law.
2. Medicine, Dentistry, Agriculture, Related Sciences (includes home science and human development), Pure Sciences (refers to biology, chemistry, physics and mathematics) and others (includes pharmacy, applied science, environmental studies, food technology and science with education).
3. Engineering, Architecture, Town Planning & Survey and Others (include property management).

Source: The Eighth Malaysian Plan Report 2001-2005, (Malaysia, 2001: p. 105)

Table 4.2.3(b)
Enrolment for Diploma Courses from Local Public Educational Institutions, 1995-2005

Course	Enrolment					
	1995	% of Total	2000	% of Total	2005	% of Total
Arts ¹	25,558	55.0	39,871	43.2	55,961	37.8
Science ²	5,178	11.1	17,023	18.4	22,945	15.5
Technical ³	15,744	33.9	35,410	38.4	69,119	46.7
TOTAL	46,480	100.0	92,304	100.0	148,025	100.0

Notes:

1. Arts, Humanities (includes public administration, music, photography and secretarial studies), Economics, Business (includes accountancy, banking and hotel management & catering).
2. Agriculture and Related Sciences (includes home science and human development, computer studies, applied science and environment studies)
3. Engineering, Architecture, Town Planning & Survey and Others (include property management).

Source: The Eighth Malaysian Plan Report 2001-2005, (Malaysia, 2001: p. 106)

Furthermore, there is a similar indication in the current employment trend towards information, communication and technology backgrounds, as shown in Table 4.2.3c. Employment of information, communication and technology workers is expected to increase from 108,000 in 2000 to 306,610 in 2010.

Table 4.2.3(c)
Employment of Information, Communication and Technology Workers, 2000-2010 (persons)

Occupation	2000	% of Total	2010	% of Total	Average Annual Growth Rate (%) 2001-2010
System/Hardware Engineer Software	15,930	14.8	37,860	12.3	9.0
Developer/Engineer	10,410	9.6	26,680	8.7	9.9
Business/System Analyst	25,620	23.7	71,020	23.2	10.7
Computer Programmer	21,320	19.7	62,820	20.5	11.4
Technical Support	34,720	32.2	108,230	35.3	12.0
TOTAL	108,000	100.0	306,610	100.0	11.0

Source: The Third Outline Perspective Plan (OPP3), (2001-2010: p. 157)

Looking at the above table, it can be seen that there is a high expected demand for key information, communication and technology-skilled systems engineers, software developers, systems analysts, computer programmers and technical support. The almost triple expectation is due to the information, communication and technology boom, which is now leading the manufacturing sector towards automated production (Malaysia, 2001). Therefore, according to Leo Moggie (2003), this group of workers has also been recognised to become one of the key strategies in ensuring that the nation is ready to face the current and future challenges of globalisation and to sustain economic growth, by enhancing productivity and competitiveness.

With regard to this, priority is given to producing an adequate supply of manpower equipped with required skills and expertise, as well as tacit knowledge. Here, all Malaysians are given equal opportunities to enhance their quality of life and be involved in the knowledge-based economy. Focus will be directed towards achieving the following Strategic Plan, as indicated in the Knowledge-Based Economy Master Plan (2002: 50, Section 3.79), which stated that:

The Strategic Plan identified the need to secure the necessary human resources and talents that are needed in the short, medium and long-terms. Three sub-strategies have also been identified, namely:

- Strategy One - Launch a Brain Gain Programme to attract annually 5,000 world-class foreigners and talented Malaysians.
- Strategy Two - Build a World Class Education System for producing a world-class work force.
- Strategy Three - Develop a national system of life-long learning in the post-educational phase.

With this, Malaysia needs to develop its production-specific workforce into a knowledge-based and multi-skilled workforce. Therefore, there is a need for investment in a high quality and comprehensive training and education system, in order to meet the demands of the evolving working environment and to become more competitive. Here, the government has placed high priority on this matter by allocating 20.6 percent of the total development allocation under the 8MP or RM22.66 billion for such purposes i.e. education and training (Online Business Times, 2001). This is to ensure the acquisition of new skills to sustain Malaysia's economic growth and meet the challenges of globalisation (Yusof et al., 2000).

In addition, this increased allocation for education and training, from about RM 20.18 billion during the 7MP to RM 22.66 billion during the 8MP (Malaysia, 2001), could also affirm the growth of the future knowledge workers, whose numbers are reported to still be lacking (KEMP, 2002: p. 50). With regard to this and the earlier review carried out in Chapters 2 and 3, the prospect for the current study is to attain an in-depth understanding of the current situation of managing knowledge workers in the MSC status companies, as will be discussed in the next section.

4.3 Multimedia Super Corridor (MSC)

4.3.1 An Overview

Referring to the Sixth Challenge of Vision 2020, the Multimedia Super Corridor has now been recognised as one of the best way to make the Vision of 2020 a reality for all Malaysians (Knowledge-Based Economy Master Plan, KEMP, 2002). As a strategy to achieve this vision, the Multimedia Super Corridor has become one of the means of providing intellectual and strategic leadership. This is where the Malaysian Government has invested in an environment that helps companies, both Malaysian and international, to reach new technological frontiers and find new partners, and provides opportunities for mutual enrichment and success (Knowledge-Based Economy Master Plan, KEMP, 2002). Based on the history of the Multimedia Super Corridor, the project was conceptualised as far back as 1995. So, although it was not formally launched until late in 1999, the idea, concept and vision were formed a few years prior to this date.

Figure 4.3.1a
Location of Multimedia Super Corridor

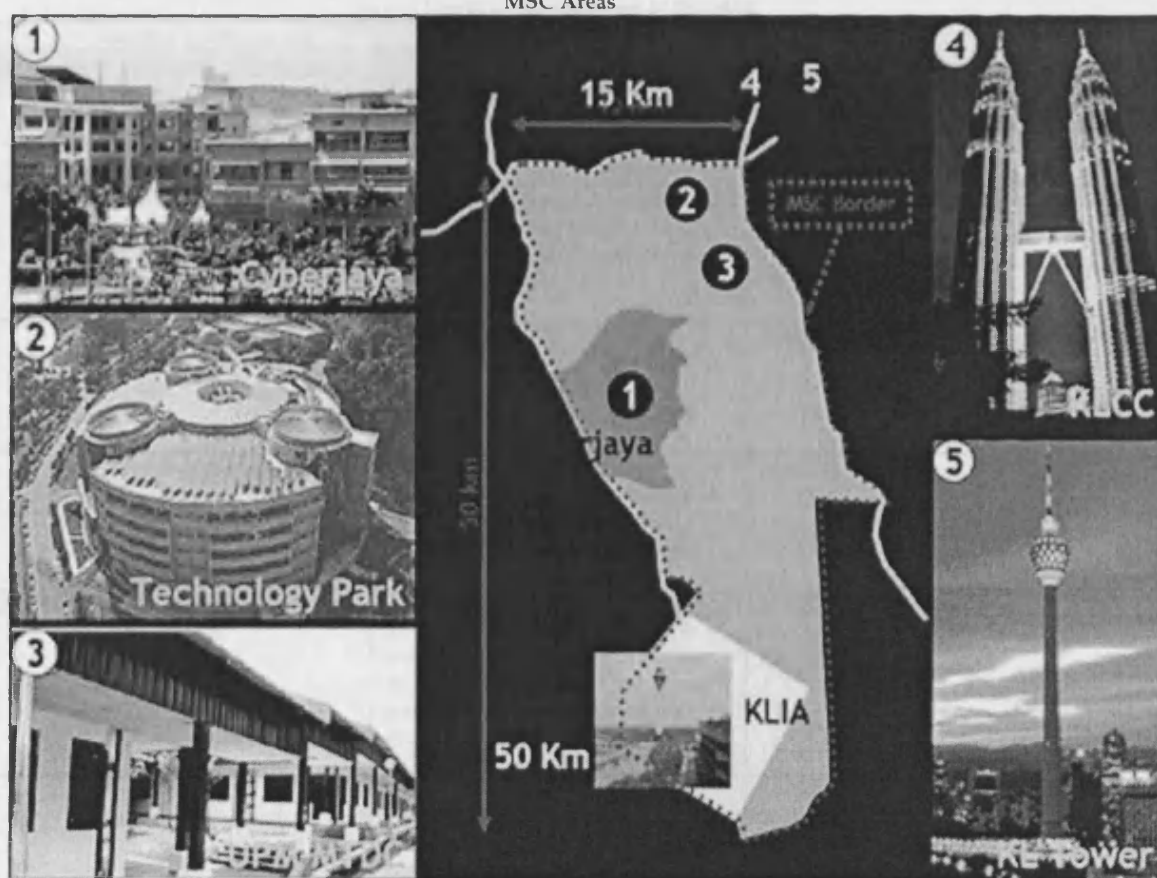


Source: Business Week Online, 1999. [Accessed Date: 10th March 2004]

Some milestones have been achieved, in terms of two forms of strategy (MDC, 2000). Firstly, Cyberjaya, Kuala Lumpur (KL) Tower, Technology Park, Kuala Lumpur City Centre (KLCC) and University Putra Malaysia Multimedia Technology Development Centre (UPM MTDC) are now considered as a hub, attracting companies from all over the world. It follows that if companies do their research and development (R&D) there, they will transfer their technology and give other Malaysians new employment opportunities. In line with this, Cyberjaya has been created as a nucleus of the MSC. It provides opportunities for Malaysian people to be hired and trained. Additionally, the transfer of knowledge technology between foreign and Malaysian workers is facilitated.

As a spin-off, the second strategy is to allow local companies to come in and grow, in the sense that they will become exporters of products and services. In some cases, local companies will start by being suppliers to the international and multinational companies. They may also do some research and development (R&D) and software development. From there, they may develop into major producers in their own right, exporting products overseas. Overall, there are two strategies here: firstly, the MSC is giving companies exposure so that they may become regional leaders, and secondly, at the same time, these companies may develop and carry out business globally (MDC, 1999).

Figure 4.3.1b
MSC Areas



Source:
Multimedia Super Corridor's Website. [Accessed Date: 10th March 2004]

Furthermore, the Multimedia Super Corridor covers an area 15 kilometres wide and 50 kilometres long, consisting of the Kuala Lumpur City Centre (KLCC) and extending southwards to Kuala Lumpur International Airport (KLIA) (see, for example, Figures 4.3.1a and b). The area encompasses the KL Tower, KLCC, UPM MTDC, Technology Park, Cyberjaya and KLIA. Within these areas, broadband fibre-optic communication and investment incentives, are provided to attract multinational and local information, communication and technology companies. The focus is on the prescribed flagship applications of the Multimedia Super Corridor, namely Borderless Marketing, Smart Schools, Multipurpose Cards, Electronic Government, World-Wide Manufacturing Web, Tele-medicine and R&D Cluster (see Table 4.3.1).

Table 4.3.1
Seven Flagship Applications of the MSC

Flagship Applications	Key Objectives	Driving Agency
<i>Multimedia Development Flagships</i>		
1. Electronic government	To reinvent how government works by improving the way it operates and delivers services to the public	Malaysian Administration Modernisation and Management Unit
2. Multi-purpose card	To improve the ease of conducting routine transactions with government agencies and private sector companies.	Bank Negara (Central Bank)
3. Smart schools	To develop a technologically literate and thinking work-force to transform Malaysia from an industrial to a knowledge-based economy	Ministry of Education
4. Telemedicine	To develop a technologically literate and thinking work-force to transform Malaysia from an industrial to a knowledge-based economy	Ministry of Health
<i>Multimedia Environment Flagships</i>		
1. R&D cluster	To foster collaborative efforts among leading R&D companies, local university and public research institutions, and to support the growth of small size companies.	Ministry of Science, Technology and Environment
2. World-wide manufacturing web	To provide a conducive environment for high value-added manufacturing and related services i.e., R&D, design, engineering, logistics support, manufacturing control, procurement and distribution.	Ministry of International Trade and Industry
3. Borderless marketing	To spearhead the growth of multimedia-based service industries in the MSC, with emphasis on telemarketing, online information services, electronic commerce and digital broadcasting.	Multimedia Development Corporation (MDC)

Source: Tyndall (2002: p. 182)

Furthermore, companies recognised by the government through MSC Status are entitled to enjoy a set of incentives and benefits, which are backed by Ten Bills of Guarantees (MDC, 1999) as below:

1. Access to a world-class physical and information infrastructure,
2. Unrestricted employment of local and foreign knowledge workers,
3. Freedom of company ownership by exempting companies with MSC status requirements,
4. Freedom to source capital globally for Multimedia Super Corridor infrastructure,
5. Provision of competitive financial incentives (i.e. 10 years' tax

exemption and no duties on import of multimedia equipment)

6. The opportunity to become regional leaders in intellectual property protection and cyberlaws,
7. Internet freedom,
8. Access to globally competitive telecommunication tariffs,
9. Tendering of key Multimedia Super Corridor infrastructure contracts to leading companies willing to use the Multimedia Super Corridor as their regional hub, and finally
10. Provision of an effective one-stop agency, i.e. the Multimedia Development Corporation, to help with the smooth distribution of the earlier incentives and benefits.

However, there are several general criteria that companies are required to meet in order to be eligible for Multimedia Super Corridor status, as highlighted by the Multimedia Development Corporation (MDC, 1999). These include the following:

- Companies must develop or use multimedia technologies to provide value in new product development, process development or innovative service development.
- Consideration of expansion to an Asian market should be a strategic priority.
- The company should be prepared to contribute to the creation and development of any of the Flagship Applications.
- It should be willing to take advantage of the Multimedia Super Corridor's high-performance, low-cost infrastructure and groundbreaking cyber laws.
- It should be interested to help shape a new development model for Asia's Information Age.

Basically, Multimedia Super Corridor status will be awarded to companies that are developers or heavy users of multimedia/information technology (MDC, 1999). To receive Multimedia Super Corridor status and to avail themselves of the Multimedia Super Corridor's incentives, companies will have to meet the specific (as well as general) selection criteria and will be expected to observe the conditions for offering and understanding where companies fit into the dual multimedia value chain. In short, to qualify for Multimedia Super Corridor status and its benefits, an applicant must also comply further with the six specific eligibility criteria:

1. Be a provider or a heavy user of multimedia products and services.
2. Employ a substantial number of **knowledge workers**: this criterion is the main reason why Multimedia Super Corridor status companies have been chosen as the focus of this study. The Multimedia Development Corporation (1999) defined "knowledge worker" as an individual who possess one of the qualifications below:
 - *Five or more years of professional experience in the multimedia/information and communication technology (ICT) business or in a field that is a heavy user of multimedia; or*
 - *A university degree (any discipline) or a graduate diploma (in multimedia/ICT) from a technical college, plus two or more years of professional experience in multimedia/ICT businesses or in a field that is a heavy user of multimedia; or*
 - *A master's degree or higher in any discipline.*
3. Provide technology transfer, contribute towards the development of the Multimedia Super Corridor and/or support Malaysia's knowledge economy initiatives.
4. Establish a separate legal entity for Multimedia Super Corridor qualifying multimedia business and activities.
5. Be located in an Multimedia Super Corridor-designated cyber city.
6. Comply with environmental guidelines.

4.3.2 Creating the Multimedia Super Corridor

The Multimedia Development Corporation envisages a twenty-year time frame for the complete implementation of the Multimedia Super Corridor. There are expected to be three phases of activity, as shown in Table 4.3.2.

Phase One:

Under this phase, the Multimedia Development Corporation will have to successfully create the Multimedia Super Corridor, attract core companies, launch seven Flagship Applications, and put in place a world-leading framework for cyber cities - i.e. Cyberjaya and Putrajaya - as world-class intelligent cities.

Phase Two:

The Multimedia Development Corporation envisages that during this period, it will link the Multimedia Super Corridor to other cyber cities in Malaysia by creating a web of corridors and establishing a second cluster of world-class companies. It will also serve the flagship applications, champion cyber laws within the global society, and establish a number of linked cities.

Phase Three:

During this final phase, it is expected that Malaysia will be transformed into a knowledge-based global test bed for new multimedia and information technology applications. There will also be a cluster of intelligent cities linked to the global information super highway, and an International Cyber Court of Justice will be set up.

The Multimedia Super Corridor is now entering the 2nd phase of development, particularly with regard to setting in motion the Seven Flagship applications. Recently, Penang (Pulau Pinang) and Melaka have also been awarded the status of second and third Multimedia Super Corridor states. These achievements have shown the dedication of the Malaysian government in working to support the continuous excellence of the Multimedia Super Corridor status companies and their benefits to the country.

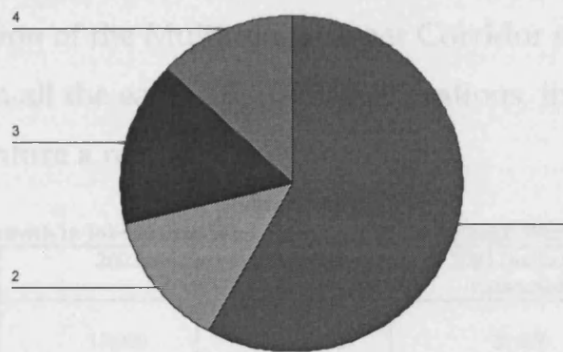
Table 4.3.2
Multimedia Super Corridor Milestones and Targets

Phase I (1996-2003)	Phase II (2004-2010)	Phase III (2011-2020)
- One corridor 50 world-class companies - Launch 7 flagship applications - World-leading framework of cyber-laws. - Cyberjaya as world leading intelligent city.	- Web of corridors. 250 world-class companies. - Set global standard in flagship applications. - Harmonised global framework of cyber laws. 4-5 intelligent cities linked to other global cyber-cities.	- All of Malaysia. 500 world-class companies. - Global test-bed for new multimedia applications. - International Cyber Court of Justice in the MSC. 12 intelligent cities linked to the global information highway.

Source: Tyndall, P. S. (2002: p. 180)

4.3.3 MSC Status Companies' Ownership

Figure 4.3.3
Profile of Multimedia Super Corridor Status Companies



Notes:

1. < RM500K (58%) with 360 companies.
2. RM 500K to RM 1Mil (13%) with 85 companies.
3. > RM 1 Mil to RM5Mil (16%) with 104 companies.
4. > RM 5 Mil (13%) with 85 companies.

Source: Multimedia Super Corridor Impact Survey (2003: p. 1)

Figure 4.3.3 shows that 58 percent of the MSC status companies are small and medium in size. This means that 360 out of 634 companies had paid-up capital of less than RM500, 000 (MSCIS 2003: 1). They are followed by 13 percent who have paid-up capital of more than RM 5 million. The rest are considered to be in the growing stage, as reported by the Multimedia Super Corridor IS 2003 (p. 2).

4.3.4 Employment Created in the Multimedia Super Corridor

According to Table 4.3.4a, in 2002 and 2003 up to 86 percent of the jobs created within the Multimedia Super Corridor status companies were filled by knowledge workers. This indicating a high demand for this group of workers by the Multimedia Super Corridor status companies. Furthermore, in the case of occupational grouping (Table 4.3.4b), it can be seen that software developers and programmers carry the largest number of workers, 3,278, as well as the greatest number of job vacancies, 659. This is followed by the technical support staff, who number 2,128 with 342 vacancies. With the total number of vacancies at 3,428 as at May 2003, serious attention by any related authorities is indeed needed. This is to assure the formation of the Multimedia Super Corridor status companies to put into operation all the earlier flagship applications, in order to make the success of this venture a reality.

Table 4.3.4(a)
Growth in Jobs Created and Percentage of Knowledge Workers

	2002	2003 (filled)	2003 (includes vacancies)	2004
Growth in Jobs Created	17,000	17,854	21,270	22,398
Percentage of Knowledge workers	86 per cent	86 per cent	86 per cent	88 per cent

Source: MSCIS (2003: p. 3)

Table 4.3.4(b)
Occupational Grouping

	As at end 2002	As at May 2003		Projected 2004
	Total	Filled	Vacant	Total Staff
MANAGEMENT				
CEO/MD/CTO/COO/CFO	1,057	1,103	101	1,188
Sales/Finance/Marketing/MIS	1,740	1,780	421	2,340
Other Managerial Staff	1,421	1,434	256	1,640
TECHNICAL				
Software Developer/Programmer	3,278	3,591	659	5,133
System Analyst/Designer	875	880	245	1,192
Business Analyst/Consultant	852	925	199	1,023
Systems /Hardware Engineer	954	1,080	283	1,271
Web Designer/Developer	353	336	146	503
Technical Support Staff	2,128	2,315	342	2,731
Film Director/Editor	238	236	17	253
Animator/Graphic Designer	230	230	64	563
Content Developer	199	177	76	425
Other Technical Staff	1,200	1,248	221	1,481
Support Staff	2,375	2,519	398	2,655
GRAND TOTAL	17,000*	17,854	3,416**	22,398

Source: MSCIS (2003: p. 3)

Notes: * - The exact total as end 2002 is 16, 900 and not 17, 000.

** - The exact total of vacancies as at May 2003 is 3, 428 and not 3, 416.

Therefore, the shortage of knowledge workers within the Multimedia Super Corridor status companies has become a great concern not only for the companies but also for the Malaysian Government (Tyndall, 2002: p. 188). This scenario has motivated the current investigation into understanding and managing knowledge workers efficiently. It is hoped that the findings of the current study will help in retaining and creating knowledge workers, for the purpose of the Multimedia Super Corridor’s success, which will bring Malaysia international acknowledgment.

4.3.5 Product and Services

In the case of products and services offered by the Multimedia Super Corridor status companies, local and export markets have different needs. For instance, entertainment content and programs, application software for smart cards and telecommunication products and services are meant for the local market. Meanwhile, call centre and data centre services, internet services and engineering design services are meant for the export market.

Table 4.3.5
Products and Services

FOR LOCAL MARKET	FOR EXPORT MARKET
Entertainment content and programs	Call centre and data centre services
Application software for smart card	Internet Services/Booking System, Travel Reservation System
Industry Specific Software Applications	Engineering Design Services
Telecommunication Products and Services	Industry Specific Software Applications
Software Integration, Implementation and Support Services	Software Integration, Implementation and Support Services

Source: MSC IS (2003: p. 5)

4.3.6 The Role of Multimedia Development Corporation

With regard to the earlier introduction to Multimedia Super Corridor status companies, there is a corporation that has become the most important body behind the existence of the Multimedia Super Corridor. The Multimedia Development Corporation was established in 1996 by the Malaysian Government specifically to spearhead the development and

implementation of the Multimedia Super Corridor. As a government-owned corporation, it is acting as a “one-stop super shop”, facilitating applications to the Multimedia Super Corridor by multinational and local companies (MDC, 1999). It is primarily aimed at the level of global markets, and the Multimedia Development Corridor also shapes Multimedia Super Corridor-specific practices by advising the Malaysian Government and standardises the Multimedia Super Corridor’s information infrastructure development.

In facilitating the establishment of company operations within the Multimedia Super Corridor, the Multimedia Development Corridor serves as a supporting partner. Having said this, the Multimedia Development Corridor is responsible for introducing the following assistances and/or benefits to the new awarded Multimedia Super Corridor status companies through its subsidiary – Multimedia Super Corridor Management Services Sdn. Bhd. (MSCMS) as follows (MDC, 1999): Firstly, it facilitates *expatriate services*, especially with regard to employing foreign knowledge workers. It expedites immigration matters. It also deals with professional visit passes, dependent passes, student passes, visa extensions, the silver hair program, the spouse program and permanent resident application. Secondly, it provides *efficient business operation services* such as relocation and removal services, records management, training programs and workforce development, legal advisory, freight forwarding and dispatch services, event management and interior designing and renovation. Thirdly, the Multimedia Development Corridor, through the Multimedia Super Corridor Management Services Sdn. Bhd, also acts as a *government liaison*. It provides services such as financial incentive advice, freedom borrowings, and application for import duty exemption and/or sales tax exemptions for equipment, applications for manufacturing licenses from the Malaysia Industrial Development Authority (MIDA), applications for license approval from and registration with related

government agencies and finally applications for grants and/or funds from relevant government agencies.

Overall, the Multimedia Development Corridor is committed to proactively collaborating with the government and companies for mutual growth, as outlined below (MDC, 1999):

- Continuously reviewing the Ten Bill of Guarantees and ensuring its implementation in both spirit and words.
- Actively assisting the government to pioneer, develop and update Cyber laws, formulate and modify policies to provide a sound framework for the Multimedia Super Corridor.
- Ensuring that the Open Multimedia Network provides the required bandwidth and quality at globally competitive tariffs with a cost-effective interconnection for Value-Added Services.
- Ensuring the timely development of top quality physical infrastructure to provide a balanced environment.

In this view, the Multimedia Development Corridor is trusted to leverage the products of the Multimedia Super Corridor in two ways. Firstly, the products that come out of Multimedia Super Corridor will increase the productivity of the other sectors, such as manufacturing, banking, insurance, education and health, thus improving Malaysia's global competitiveness. Secondly, the locally developed products could be exported, thereby improving the balance of payments position (MDC, 1999).

In addition to the above, the researcher also realised the importance of the Multimedia Development Corporation in regard to the current needs of small companies, which have become the highest percentage of Multimedia Super Corridor status companies. With regard to this, significant interest in small companies began in the 1980s. According to Marlow (2000: p. 140), this could be due to the shift towards overcoming tension and conflict in

larger companies. Since then, the small companies have become an important element in contributing towards the success of the nation (Bacon et al., 1996; Hamzah and Ho, 1994; Marlow, 2002). According to Bacon et al. (1996: p. 251) in the United Kingdom, 96 per cent of companies employ fewer than twenty people (i.e. one-third of the private sector workforce). Furthermore, during the 1980s, the small companies sector grew at a faster rate in the United Kingdom than in the rest of Europe, Japan and the United States of America (p. 252). Marlow (2002: p. 139) confirmed this:

“In 1998, the DTI reported that 46 per cent of those in employment work in small companies, while if the private sector alone is considered, over 90 per cent of those in employment are found in smaller companies (Small Business Action Update, 1998: p.2). So, although it is evident that small companies do face hurdles in terms of establishing a market share that ensures stability and, if desired, growth, their role in the contemporary economy is a paramount importance. Therefore, activities which can improve the sustainability of the sector should be promoted.”

In the case of Malaysia, Hamzah and Ho (1994: p. 27) argued from the manufacturing companies' point of view that “the National Development Policy's strategies for manufacturing companies is to further promote and upgrade small and medium industries (SMIs) to make them an important and viable vehicle for industrial expansion”. Therefore, small manufacturing companies have to create inter-industry linkage and support, in order to increase the value-added of these small companies to the country up to the level of 40 per cent and 50 per cent respectively, within the next decade, from the current positions of 20 per cent and 30 per cent respectively (see for example The Malaysian Eight Plan: pp. 235-264). Sohail and Boon Hoong (2003: p. 40) confirmed:

“...at the turn of the new millennium, the small sized companies had accounted for more than 80 per cent of the total manufacturing establishments in Malaysia. Within this total, 88 per cent were small scale enterprises and the remaining 12 per cent belonged to the medium scale enterprises. It has been observed that the SMEs in Malaysia continued to undergo intensive product specification, design and engineering activities, improvement in marketing and distribution to further

enhance their prosperity especially in preparing them for the global market...”

This quote illustrates the faster change and/or growth of the small companies in Malaysia. In fact, the same scenario is also happening in the Multimedia Super Corridor project, whereby the majority of the Multimedia Super Corridor status companies are small companies (see for example MSC IS 2003: p. 1 and 2004: p. 3). These increased numbers of small companies thus require practical knowledge of managing human resources within these companies. This knowledge is crucial to identifying the success factors that contribute to competitiveness (Brand and Bax, 2002; Marlow, 2000; Sohail and Boon Hoong, 2003). However, to date, not much is known about the exact ways of managing human resources in these small companies (Bacon et al., 1996; Brand and Bax, 2002; Marlow, 2000). Therefore, as mentioned earlier, strategic human resource management has been highlighted as the important element in helping the company to achieve sustainable competitive advantage (Boxall, 1999; Marlow, 2000; Schuler et al., 1993; Ulrich, 1997). Brand and Bax (2002) have further argued that strategic human resource management within the small companies is still fragmented. In the literature, it would appear that there are two different camps of understanding of these small companies. The first camp has tried to prove that there is not much difference between small and large companies in terms of managing knowledge workers. This implies that human resource management or strategic human resource management could fit both the large or small companies in similar ways. A study on 560 small companies in Leicestershire, United Kingdom, affirmed that the practice of “new management” is yet to be established, as many authors have suggested (Bacon et al., 1996: p. 267). According to Bacon et al:

“...we have presented evidence that point towards an important reappraisal of the human resource management practices of small business. Without doubt the issues and practices of personnel management in small companies are far from what the literature led to believe. We have stressed that small organisations have been implementing many of the initiatives that we identify in larger organisations...”

This shows that there is not much difference between managing workers in the big and small companies. The only real difference is that big companies have a lot more money and resources compared to small companies. In a way, small companies are more direct and flexible, as well as being flatter in structure and much more informal and organic than larger companies. Both have advantages and disadvantages.

On the contrary, the second camp has tried to prove that small companies do indeed need a “new style of management”, especially in the field of managing knowledge workers in the new technology-based companies. This is due to differences in the pace of change, the rise of research and development (R&D) and their industrial networks (Evans et al., 1998; Keogh and Evans, 1999; Oakey, 1993). Furthermore, Keogh and Evans (1999: pp. 344-345) found that “innovation” i.e. the transformation of an idea into a new or improved saleable product or operational process in industry or commerce, “internalisation” i.e. flexible shared processes that involve internal and external communication, “human resources” i.e. keeping the valued staff and “collaboration” with the main customers are the main barriers for the growth of the new technology-based small companies. It has been suggested that strategic human resource management should play an important role in providing the policies that will meet the needs to solve or perhaps to reduce these barriers (Keogh and Evans, 1999; Marlow, 2000). In addition, Marlow (2000: p. 140) also pointed out that, “the critical precept of strategic human resource management is that labour must form a central part of the companies’ strategic policy...re-evaluated as a resource to develop, rather than a cost to control”. To do

this, according to her, the company should consider being more flexible and managing workers informally on a short-term basis (p. 146). In this case, she emphasised that training and development and employees' participation are the critical aspects that should be considered by the small companies. Overall, understanding is that, up to now, there is no best way of managing these groups of workers in the small companies. Some authors have also pointed out the need to practise strategic human resource management and some suggest that there could be another new form of management, namely "knowledge management". Perhaps the combination of both will maintain the Multimedia Development Corporation's a crucial role in encouraging the Multimedia Super Corridor status companies to implement knowledge management. Furthermore, the lower level of knowledge management awareness, as revealed in Chapter 6 (see Section 6.3) and Chapter 7 (see Section 7.3), again calls upon the Multimedia Development Corporation to introduce and implement the benefits of knowledge management to Multimedia Super Corridor status companies.

To summarise, the Multimedia Development Corridor was created in order to look after Multimedia Super Corridor initiatives. It helps Multimedia Super Corridor status companies to face the knowledge economy competitively. Furthermore, the Multimedia Super Corridor was intended to function as a hub and contribute to the world, which is based on the web-economy (MDC, 1999). Thus, its success is crucial to the Malaysian government. This is due to Malaysia's preparedness to face the changes and challenges that globalisation will bring in future. As the former Minister of Finance stated, "...the Multimedia Super Corridor is not merely about physical infrastructure, miles of fiber in the ground, flagships and tax incentives. It is about a vision of creating a culture that can produce world-class knowledge products, leading-edge research and development and finally, a trust to provide a test-bed for new ideas and future innovations..." (Daim Zainuddin, 2000). To further strengthen this Mega

Project, the Eighth Malaysian Five-year Plan (8MP) and the Third Outline Perspective Plan (OPP3) consist of outlines to fulfil these needs. Considering the above, there is another issue that needs to be tackled by the Malaysian government, namely how to supply capable knowledge workers and at the same time prepare them to face the new globalisation of the economy, i.e. the knowledge economy. Therefore, the next section will specifically discuss the current scenario of human resource management in Malaysia.

4.4 Human Resource Management Issues in Malaysia

“The diversity of the composition of the modern workforce in Malaysia requires more appropriate and imaginative HRM solutions. There is no one universal model for HRM, which can guarantee success. This varies from country to country depending on the social systems, culture, politics, legislation, education, industrial relations system and the organization’s goals and management strategies.”

(Chiah-Liaw et al., 2003: p. 246)

4.4.2 Multiculturalism at Work Place

As mentioned earlier, Malaysia consists of different races; the majority of its inhabitants are Malays, followed by Chinese and Indians (see for example Section 4.1). Having said this, the issue of the different sub-cultures in Malaysia’s pluralistic society must be fully understood before undertaking further investigation into human resource management issues in Malaysia (Wendy and Asma, 2004). In this view, due to the segregation of specific ethnic task forces during the colonisation period, most Malays originate from *kampung* (rural villages) and hold a strong belief in Islamic teachings as the cornerstone of their way of life. Here, *gotong royong* (mutual help) and *Ummah* (united society) become the fundamental tenets by which the management of workers takes place (see, for example, Mellahi and Wood in Budhwar, 2004: pp. 207-210). In practical terms, this is not very much different from the situation regarding Chinese Malaysians; although their religion is Confucianism, they still hold collectivist values, respect for “face” and high power

distance, in keeping with Malays. Furthermore, to date, as far as the researcher is aware, no significant differences have been identified between Malays and Chinese with regard to work-related values (Budhwar, 2004 and Lim, 2002), except in one case that shows unique characteristics of the Malay production workforce in a shop floor industry. Here, Chiah-Liaw et al. (2003: p. 252) stated that:

“Most of the production workforce consists of Malays, as opposed to Chinese or Indians. It is important to note that many Malays come from a rural background and are not highly competitive by nature. The educational system tends to cocoon them from other races. They like to work together in groups at their own rhythm and build up slowly to speeds required by factory norms.”

To reiterate, as clearly justified, the current study is focused on knowledge workers and not production workers (see the different between these two in Chapter 2, Section 2.3). Thus, the earlier finding regarding Malay production workers' working values might not be relevant to this study. In the case of Indian Malaysian, the information is unfortunately still fragmented, except that they generally hold strong Hindu beliefs, which have been claimed to have a similar influence on their social customs as Islam has on Malays (Zawawi, 1998). In this regard, perhaps the idea of presenting a Malaysia working culture would be more appropriate than trying to break it down into the three main ethnicities (Malay, Chinese and Indian). According to Asma:

“Malaysia is an (*sic*) unique country in many ways. Although we are multiracial, multi-ethnic, each group has been able to retain its own fundamental beliefs and traditions. What has allowed us to come together is a set of common values based on age-old traditions, which I have mentioned earlier. Whether we are Malays, Kadazans, Ibans, Chinese or Indians, Malaysians are very peace-loving, obedient and accommodating - generally easy to get along with. Malaysians, regardless of ethnic group, generally like to work with people who are easy to relate to and understand their culture, traditions and sensitivities. Malaysians wants to progress like any other society but they want to do it on their own terms. Our culture is so deep rooted, our rituals are part of our daily lives and we will give our best to those who will make us grow and allow us to retain our basic core values. Hence you will

find that each group will carry some of its own cultural values into the workplace. A Chinese company will have its own subculture, so will an organisation managed by a Malay (*sic*) and so it is with the Indian companies, but I feel real synergy comes from workplaces which are intercultural, where all ethnic groups are able to work together with a lot of “give and take”.
(Schermerhorn, 1994: p. 54)

Overall, due to the teachings and beliefs discussed earlier, the Malaysian working culture has been acknowledged as high in power distance, low-medium in individualism, medium in masculinity and low-medium in uncertainty avoidance (Hofstede, 1980 and 1994). Within this understanding, the Malaysian working culture will be applied to the rest of the discussion in this thesis.

4.4.3 Human Resource Management Practices

As highlighted in Chapter 3, there is no “best fit” practice of human resource management that is applicable to all companies. In fact, the practice of human resource management is definitely based on the current and/or specific needs of the particular company, which is very much related to a range of factors such as social systems, culture, industrial relations system, the organisation’s goals and management strategies (Chiah et al., 2003; Kuruvilla, 1996; Maimunah, 1992 and 2005). Currently, in the Malaysia context, human resource management practice is seen to be moving towards fulfilling the needs of the Knowledge Based Economy Master Plan (KEMP, 2002). In this regard, information technology has emerged as the crucial element in the survival of human resource management in the global era (Fong Chan Onn, 2005). Therefore, serious attention has been paid to the issue of developing workers, also known as human resource development. More detail on this matter is provided in the coming section, in which the researcher emphasises the impact of the government’s affirmative policies on human resource management.

At this point, it would be beneficial to discuss the following practices of human resource management in general terms rather than specifically examining the public sector and/or the private sector, the manufacturing industry and/or the information technology industry etc., as the researcher considers the literature related to this matter to be insufficient at present. For instance, the recent work of Mellahi and Wood (2004) on human resource management in Malaysia seems to leave out the most important issue: the movement of Malaysia towards a knowledge based economy under the OPP3 policy and NVP. The researcher would suggest this loophole could perhaps offer a fruitful avenue for future work for researchers who are interested in analysing the current practice of human resource management in Malaysia. Furthermore, the researcher would suggest that the analysis of this issue could focus mainly on two types of worker - HRM practice for production workers (i.e. non-standard workers) and HRM practice for knowledge workers - by examining the exact definitions of these two groups. The current study could contribute to the latter issue. However, it is noteworthy that Mellahi and Wood (2004) highlight the Ministry of Human Resources as playing a key role in creating, encouraging and enforcing personnel policies and practices in Malaysia. Having said this, it could also be the case that industrial relations are considered by Rowley (2003) to be "soft" [few riots and/or disputes among the workers], which could be due to the strict endorsement by the Ministry of Human Resources via its Employment Act (Maimunah, 1996). Apart from that, it could also be due to the above-mentioned impact of the Malaysian working culture as a whole, which strongly adheres to the requirement to preserve "face" of others, respect leaders and avoid dissonance. Therefore, industrial relations in Malaysia are well known for being "under control" and it is regarded as a friendly country. The advantage of this scenario is that Malaysia is able to invite more FDI into the country and open more jobs to workers.

When it comes to the issue of the recruitment and selection of workers, however, the evidence shows a preference for external recruitment (Mansor and Ali, 1998, cited in Mellahi and Wood, 2004), but the researcher has doubts about this. In reference to large and stable companies, then the work of Mansor and Ali (1998) is applicable. However, in the case of small companies, there is still a preference for internal context and/or “word of mouth” (see, for example, Chapter 8, Section 8.2), especially for those in higher positions (Tay, 2001). Apart from that, although the percentage is quite low in Malaysia, there is now a trend among applicants to use e-recruitment facilities such as JobStreet.com (David and Sivanand, 2005). Furthermore, due to the shortage of skilled workers, increased recruiting of foreign workers in Malaysia has been reported (Mellahi and Wood, 2004).

In the case of employee rewards, performance appraisal and compensation systems, there are still non-standard systems within the public and private sectors, and even differences between industries. However, a recent movement has been seen towards becoming flexible to such variations, which is primarily based on “responsible autonomy” (Morris et al., 2003). For instance, according to Morris et al., the failure of the public sector’s New Remuneration Scheme (NRS) to reduce brain drain amongst academics at the higher Malaysian institutions provided evidence of the need for more objective, rational, fair and transparent promotional policies for pay systems. This supports the points emphasised by Cox (2000), who stated that, “pay systems are more likely to attain their objectives if employees have a real say in their structuring and implementation” (cited in Morris et al. 2003: p. 148). In addition, the compensation systems are seen to be different between local companies and foreign companies based in Malaysia. For instance, based on the work done by Kuruvilla (1996: pp. 31-34), companies such as Jotun Corro-Coat (JCC) are rather rigid in providing compensation packages for their workers compared to

American companies (such as Mattel Tools) and European manufacturers (e.g. X Semiconductors), which follow the market rate for operatives. However, good compensation and benefits do not stand alone. According to Fong Chan Onn (2005: p. 3):

“Legendary business icon Jack Welch of General Electric was once asked which reward people preferred - money or recognition. He replied, “You have to get rewarded both in the soul and the wallet.” Mr. Welch understood that it is not enough that companies pay their employees well and expect great work in return. Companies must also empower their employees and provide incentives for them to perform at high levels...[this is] essential to any successful organisation.”

Therefore the participation of workers through empowerment and partnership is a current issue of vital importance, not only in terms of discussion but also in practice. In this regard, an example of the practice of managerial participation in the Malaysian public sector has been reported by Jabroun and Balakrishnan (2000: p. 60). This provides a good indication of further participation activities not only within the organisation but also perhaps with their customers. It is undeniable that leadership must play a very pertinent role, although overall observation shows that there is still a lack of effective leadership, as Fong Chan Onn (2005: p. 1) pointed out:

“...as more Malaysian companies venture overseas, these budding MNCs will require strong leaders who can drive the business into the global marketplace while effectively managing people in different cultures and environments. Unfortunately, many HR specialists admit that there is a leadership vacuum. HR must bridge this gap between current and future leaders by finding ways to develop the next generation of corporate leadership....”

This observation is consistent with the findings of FCCG (1999), which revealed that incompetent leadership and poor knowledge of managing resources caused many companies to fail during the Asian financial crisis. Thus, human resource development has become the key topic of debate with regard to economic improvement (see Section 4.4.1 for further details). Having said this, it is also part of the challenge of the current study to explore this matter further.

4.4.1 The Impact of Key Government Affirmation Policies

Built on the earlier plans of OPP3, NVP, 8MP and lessons learned during the Asian Financial Crisis in 1997 and 1998, the quality of the country's manpower has been identified as one critical factor in determining how fast and how successfully Malaysia transforms itself from a production economy to a knowledge-based economy. Furthermore, her status as a learning region has required Malaysia to be able to value her intellectual, human, social, industrial, agricultural and cultural capital. In this view, it has been argued that "if the regions are expected to do more for them, then they need to be empowered to design and deliver policies, which are attuned to the nuances of their regional economies" (Morgan, 1991: p. 503).

In this regard, according to Malaysia's Minister of Human Resources, there are two crucial issues that need to be studied: firstly, what will the shift to a knowledge-based economy mean for Malaysia, its corporations and employees? Secondly, how well prepared is Malaysia – in manpower terms – for the proposed shift to the knowledge-based economy? Seeking answers to these questions will in turn raise more questions: what will be the demand for knowledge workers? Will our supply of knowledge workers be adequate for the present and the future? Are our universities, colleges and training institutes, whether public and private, well equipped to meet this need? How can corporations help to meet the demand for knowledge workers? (Fong Chan Onn, 2003).

With regard to this scenario, the main features of the knowledge-based economy are a highly educated labour force, knowledge workers who are skilled in the application of knowledge, and the use of information and communications technology. A knowledge-based economy promises more value-added production and greater international competitiveness (Malaysia, 2001 and OPP3). However, there is one big issue to be considered in relation to the increasing competition and demand for higher standards of efficiency in the global business venture. This is the question

of how the Malaysian economy can remain competitive and viable in the global marketplace. This is due to the current trend, whereby market liberalisation will increase opportunities for market opening to low-cost producing countries, while globalisation will lead to greater competition for foreign direct investment (Jomo and Shyamala, 2001). In relation to the earlier review in Chapters 2 and 3, employers in the knowledge-based economy face several challenges, such as the growing demand for customer satisfaction in the marketplace, the deepening economic interdependence in a globalise world, the free flow of information and rapid development of information and communications technology. Therefore, the human resource development issue was addressed during the Budget 2004 Speech as one of the resolutions aimed at overcoming the above scenario (Ahmad Badawi, 2004). This is because, in the past, it has been shown that long-term competitiveness in the international market can only be maintained through ensuring world class performance standards, operational excellence, cost efficiency and enhanced labour productivity and innovation (Amar, 2002 and Amar, 2004).

In line with this, having more knowledge workers (who are mostly information technology workers in the Multimedia Super Corridor Companies) may help the Malaysian economy to achieve sustainable competitive advantage. This is because, as Smith and Rupp (2004: p. 66) argued, "there is a shortage of information technology workers to fill jobs in the long term and ...the impact of this shortage will become more severe when productivity and growth become threatened. For example, in the USA many of these information technology intense jobs are being outsourced to India". Furthermore, in view of the success of the Multimedia Development Corridor in developing the Multimedia Super Corridor, the government will expand its role to become a one-stop agency for selected services sectors (Mohamad, 2002). Thus, there will be many requests from eligible companies to apply for Multimedia Super Corridor

status, as well as an increasing need for knowledge workers. This is because a successful transformation of the economy into a knowledge economy is predicated upon an adequate supply of knowledge workers (Abdul Rahim et al., 2000). However, the limited numbers of knowledge workers, as shown earlier in the Multimedia Super Corridor Information Survey 2003 report, require human resource management to look into this matter in depth, and especially at the need to motivate and retain knowledge workers in the country by applying knowledge management. In this view, the role of human resource management has been highlighted as crucial for the effectiveness of knowledge management implementation (Amar, 2002; Newell et al., 2002; Nonaka and Takuechi, 1995; Soliman and Spooner, 2000; Yahya and Goh, 2002). This is because in the current information age, knowledge, inputs, and work products of industries, governments, the professions and communities can be captured as digitised information. This can then be processed, duplicated, stored, retrieved and transmitted in whatever form it may take, unconstrained by time, distance and volume, at ever lower costs (Davenport and Prusak 2000; Grayson and O'Dell, 1998; Newell et al. 2002; Nonaka ,1994, 1995, 1998 and 2000; Ordóñez de Pabloz, 2002; Smith, 2001; Suk Choi, 2000; Wiig, 1999). Therefore, this capability adds huge new capacities to human intelligence, perhaps even outrunning society's capacity to apply it effectively and wisely through the managing of knowledge. This then leads towards Malaysia's transformation into an effective learning region, which is believe to support a more innovative attitude by "...working with what exists, however inauspicious, in an effort to break the traditional institutional inertia in the public and private sectors, fostering inter-firm networks which engage in interactive learning, nurturing trust and voice-based mechanisms which help to lubricate these networks and promoting a cultural disposition which sets a premium on finding joint solutions to common problems" (Morgan, 1997: p. 501).

In responding to this demand, the education systems and in particular institutions of higher learning (IHLs) have a very important role in the training of knowledge workers, particularly for the information communication technology sector in general and the Multimedia Super Corridor in particular. Besides, the time has come for the relevant authorities to take a second look at the current system to determine whether it meets the country's need for resourceful workers (Lucas and Verry, 1999). In the case of Multimedia Super Corridor status companies, there is now a need to understand these resourceful workers comprehensively. The information gathered will subsequently help the companies to create a situation that will motivate knowledge workers to remain in the country rather than going to work elsewhere. As stated earlier in Chapter 1 (see Section 1.3, The Research Obejctives), the research attempts to answer the following research questions:

- 1) How do knowledge workers perceive the current definition of "knowledge workers" by the Multimedia Development Corridor and what is their opinion of being classed as such?
- 2) How do knowledge workers perceive the current practices and movement towards the importance and actual implementation of knowledge management in Malaysia?
- 3) What are the factors affecting the successful implementation of knowledge management in Malaysia?
- 4) What would be the role of human resource management in managing knowledge workers and helping knowledge management to meet its objectives to achieve a competitive advantage?
- 5) What would be the role of the government development agency, and particularly the Multimedia Development Corporation, in ensuring the success of knowledge management implementation in Malaysia?

4.5 Summary

This chapter examines the phases of the Malaysian economy's transformation since independence in 1957. The agriculture-based economy was the main source of growth in the early phases of development. This was followed by the industrialised-based economy in the 1990s, which focused mostly on productivity and industrial upgrading to higher value-added industries. Currently, Malaysia is working actively towards a knowledge-based economy to enable it to face the era of globalisation competitively. Within the parameters of national development mentioned earlier, Malaysia has experienced rapid changes in the last twenty-five years, economically and socially. There have been increasing education and employment opportunities for citizens. Furthermore, what is currently happening in most organisations is the realisation of the fact that people are their most important resource (Amar, 2004 and 2002; Acton and Golden, 2003; Horribe, 1999; Otte, 2002; Richard, 1995; Rowley, 2003). They realise that managing this resource well is critical for their success, and ultimately, their survival. They also realise that to gain a competitive advantage, they have to perpetually attract, train and motivate a highly competent group of staff. Companies capable of doing so effectively will inevitably be the survivors. This is a fundamental issue; hence, achieving excellence must, to a large extent, be dependent on the company's human resource management philosophy. Thus, attracting and retaining knowledge workers is both a priority and a problem for all the development plans, as discussed earlier.

With the commencement of the plan in 2004, Malaysia now has 16 years in which to achieve Vision 2020. The next questions to address are as follows:

- "Is Malaysia on the right track to become a developed nation by the end of the next decade? Are Malaysians really ready for this, and what will happen in the years ahead?"

The NVP is entrusted to build on the success of its predecessor and set the pace for the country to be fully developed by

the year 2020. "Vision 2020", as the government has called this ambitious plan, is to have a united society inspired by strong moral and ethical values and a dynamic, robust economy that is resilient and socially just. In this regard, Multimedia Super Corridor status companies are considered as the growth engine for making the Sixth Challenge of Vision 2020 into a reality. Therefore, strengthening of their human resource development functions is crucial for the continuous success of the Multimedia Super Corridor status companies in particular and the nation in general. Here, knowledge workers have been highlighted as the most important asset for these companies. Thus, an understanding of how best to manage them contributes towards the achievement of the policies discussed above, such as 8MP, OPP3, KEMP and NVP, especially with regard to Malaysia's transformation into a learning region.

CHAPTER FIVE

Research Methodology

5.0 Introduction

The earlier chapters reviewed the literature on knowledge, knowledge work, knowledge workers, knowledge management and human resource management. With regard to this literature and the analysis conducted on the Malaysian economic policy framework, five main research questions were identified. The current study aims to describe the current status of knowledge management practices in Malaysia. The study also attempts to identify the factors, influences or forces that would contribute to the success of knowledge management practices by looking specifically at the roles of human resource management in supporting the implementation of knowledge management in Malaysia. In so doing, questionnaire survey and an in-depth semi-structured interview have been used for data collection.

Furthermore, as mentioned in Chapter 4, this study focuses on the Multimedia Super Corridor status companies, due to their prescribed assertion of having a number of knowledge workers. These became the centre of the study and acted as a unit of analysis for data collected from individual in companies (see for example Chapter 1, Figure 1.0 The Overall Research Framework). At the same time, as mentioned in Chapter 4, Section 4.3, these companies are also known as the important engine in achieving the Malaysian National Agenda, Vision 2020. Therefore, an appropriate understanding of the management of knowledge workers in the Multimedia Super Corridor status companies is vital for developing and/or improving working policies that are able to meet the current needs for Multimedia Super Corridor success.

In order to meet this main objective, the philosophical view and/or approach underpinning how the current study has been conducted is crucial for providing an appropriate and useful understanding of ontological as well as epistemological assumptions. This then further suggests the most effective way in which the data can be collected (i.e. methodology). Overall, this chapter highlights the methodology used. It starts by explaining the exploratory, descriptive and explanatory designs used in this study. This is followed by a discussion of realism as a philosophical background to the research, an explanation of the data collection methods, an examination of the validity and reliability of the research and finally an outline of the ethical implications of the current study.

5.1 Research Design

Research design is the “master technique” (Kornhauser and Lazarsfeld, 1975, cited in Ghauri et al., 1995: p. 26), which plays a very important role in finding answers to research questions. It provides the method by which a study can be completed and gives guidelines and/or instructions on how to collect and analyse the data (Churchill, 1991). Thus, one must be capable of identifying the best design by which to undertake research. An error of choice will have a huge and negative impact on the output. This is supported by Ghauri et al. (1995: p. 27), who stated that:

“...other common mistakes... [in research design]... are making wrong and/or irrelevant design choices, such as examining a badly understood problem with a very structured design...[or]...examining structured, well-understood problems with ‘unstructured’ methods, making it difficult to answer the research problem adequately...”

They further suggested that the researcher should look at three main aspects, as shown below in Table 5.1:

Table 5.1
Types of Research Design

Problem structure	Research Design
Unstructured	Exploratory
Structured	Descriptive
Structured	Causal

Source: Ghauri et al. (1995: p. 27)

There are three main types of research design, as outlined by Churchill (1991), Ghauri et al. (1995) and Saunders et al. (2000). These are exploratory, descriptive and causal. Even though all these research designs are explained as separate entities, the researcher can still combine them into one framework (Gill and Johnson, 2002). For instance, in the current study, all the above designs - exploratory, descriptive and explanatory - have been applied to collect data within the Multimedia Super Corridor status companies.

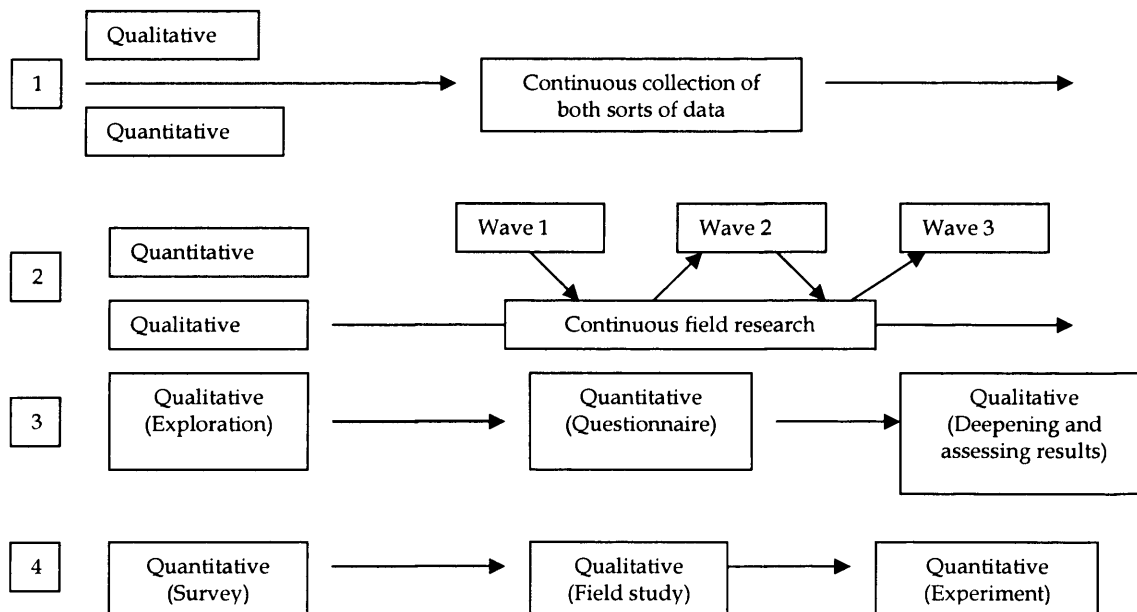
5.1.1 Exploratory Design

Firstly, exploratory research is usually conducted when the research problems are poorly understood (Ghauri et al., 1995: p. 28). It commonly utilises the qualitative data collection method (Ghauri et al., 1995; Zikmund, 1997). In this case, Ghauri et al. (1995) also emphasised that the researcher must have the ability to observe, get information and construct an explanation (i.e. theorise) from the findings. Within the current research context, this approach is considered to be useful due to the research objective, which is to understand the human resource management issues pertaining to the management of knowledge workers in Malaysia, which until now have been little addressed in the local context (see, for example, Yahya and Goh, 2002 and comments given by the respondents in Chapter 10, Section 10.4, Contribution of the Current Research to Theory and Practice). Exploring this issue of managing knowledge workers within the locale of Malaysia gives the researcher a greater understanding of their perception of the importance and implementation of knowledge management in knowledge based companies such as those in the Multimedia Super Corridor. Apart from that, the exploratory research not

only contributes in clarifying specific research themes, but also helps to verify certain methodologically related questions (De Vaus, 2002). For instance, after conducting the questionnaire survey, it was realised that there was a need to cross check the findings by examining more specific issues and questions during in-depth semi-structured interviews.

In other cases, authors may consider that exploratory research should utilise qualitative data collection (Ghauri et al., 1995; Zikmund, 1997). However, in this case, the triangulation of quantitative (i.e. questionnaires survey) and qualitative (i.e. in-depth semi-structured interview) approaches has been used in gathering data. This is purposefully done to ensure that the findings are sufficiently rigorous for further empirical analysis. This is in agreement with other authors who encourage use of the best methods of data collection, such as Miles and Huberman (1994, cited in Flick, 2002: p. 264) and Ghauri et al. (1995). For instance, according to Miles and Huberman (1994), as shown in Figure 5.1.1, there are many ways of carrying out triangulation of methods. Four methods have been recognised so far: firstly, qualitative and quantitative methods can be used together from the beginning of data collection until completion; secondly, the researcher can use qualitative and quantitative methods in alternate waves; thirdly the researcher can begin with a qualitative method, follow-up with quantitative and then double check with qualitative again, and finally, the researcher can take the same approach as in the third method but start with quantitative methods, using qualitative methods to double-check and finally conducting an experiment. In the current study, due to the consideration of cost and the limited time allocated for the fieldwork (i.e. three months), it was decided to adopt the third approach, which was initiated with a literature review on the exploration of the related issues and peer discussions. The questionnaire survey and an in-depth semi-structured interview follow later. Further discussion of these triangulation methods is provided in the next section.

Figure 5.1.1
Research Designs for the Integration of Qualitative and Quantitative Methods



Source: Adapted from Miles and Huberman (1994: p. 41), (cited in Flick, 2002: p. 265)

Furthermore, the findings from this exploratory research could be the best foundation for the researcher's future research. This is because exploratory research has been also described as an appropriate precursor to the development of more specific descriptive and good causal explanations (Churchill, 1991; Morgan, 1997). In agreement with this, Sekaran (1992: p. 95) states that:

"...exploratory studies are done to better comprehend the nature of the problem since very few studies might have been conducted regarding the phenomenon needed to be understood. Extensive interviews with many people might have to be undertaken to get a handle on the situation and the phenomena. Once a better understanding is obtained, more rigorous research can then proceed..."

5.1.2 Descriptive Research

The next design is descriptive research. As this study is trying to answer the questions of "what" and "how" (see for example Relationship between Research Questions, Objectives, Methods, Respondents and Data Analysis in Table 5.4), descriptive research is required in order to present data in a more meaningful way (Sarantakos, 1998; Sekaran, 1992; Zikmund, 1997).

According to Sekaran (1992: p. 97), descriptive research helps "... to understand the characteristics of a group in a situation of interest, aid in thinking systematically about aspects in a given situation, offer ideas for further probing and research, and/or help make certain simple decisions (such as how many and what kinds of individuals should be transferred from one department to another)". Usually, this approach is suitable when the research objective is to describe the social phenomenon of interest, such as describing the demographic characteristics of the population under study (i.e. knowledge workers in the Multimedia Super Corridor status companies); determining the proportion of the population that behaves in certain ways; and to make certain predictions on the basis of the findings (Churchill 1991; Schutt, 1996).

In other words, this method is applied, firstly, to provide general views on the characteristics of knowledge workers from the local context. Secondly, it is used in describing the perceptions of knowledge workers towards knowledge management practices in Multimedia Super Corridor status companies, Malaysia (i.e. importance and implementation). Finally, it describes how they perceive matters related to the roles of human resource management for the implementation of knowledge management.

5.1.3 Explanatory Research

The third research design is explanatory research. It is usually conducted when the researcher has a clear view of the research problem. In this regard, the research problem will become more narrowly defined after conducting the exploratory and descriptive research (Churchill, 1991; Zikmund, 1997; Schutt, 1996). Therefore, in order to identify further relationships between the variables or their impact on certain issues, causal research (i.e. explanatory research) is required (Sekaran, 1992; Zikmund, 1997). Some authors referred to it as "explanatory research" (Churchill, 1991), "cause-and-effect research" (Zikmund, 1997) or "causal and

evaluation research" (Schutt, 1996). In this thesis, the term "explanatory research" will be used in further discussions.

In this view, explanatory research is based more on assessing the problem situation by involving causal relationships between variables. At the same time the researcher is free to control certain variables with the purpose of seeing the effects on other dependent variables. Nick Bontis is a well-known researcher who has applied this type of design in conducting knowledge management research. For example, in his research with his colleague, sampling 76 senior executives from 25 financial services companies, Bontis and Fitz-enz (2002) measured the antecedents and consequence of effective human capital [i.e. knowledge workers] management. The findings revealed the existence of causal relationships between human capital management and business performance.

Another example of this type of research is experimental research, which normally entails testing hypotheses (Sekaran, 1992: p. 98). This is done by testing the relationships between variables that have been clearly defined. Furthermore, explanatory research is aimed at assessing the existing procedures, or may be focused on whether particular policies and programmes help to curb or minimise a problem. In this view, Ordóñez de Pablos (2004) provides a good example from her recent work on 123 Spanish manufacturing companies. Using a structural equation modelling technique, she tested the hypotheses underpinning the link between the human resource management systems, strategic organisational resources and the creation of sustained competitive advantage. It was found that "an internal HRMS contributes to the creation of knowledge stocks as individual level that is human capital [i.e. knowledge workers]" (p. 486).

However, even though the earlier works by Bontis and Fitz-enz (2002) and Ordóñez de Pablos (2004) could give some indications of the relationships between human resource management, knowledge management and managing knowledge workers, more work, providing further empirical data with qualitative findings, is needed in order to support the above situation and offer greater depth and explanation of such relationships. Therefore, the current study has also taken this challenge in order to provide more robust findings. Here, the explanatory design helps the researcher to reveal key views of the relationship between knowledge workers, knowledge management, human resource management and the government development agency towards the end of data analysis. Further explanations of these matters are presented in Chapters 6, 7, 8 and 9.

In the light of the above understanding and with reference to the earlier research questions and/or objectives (see Table 5.4), exploratory and descriptive research designs have also been adopted in the current study. This is because of its capability to provide the researcher with a deep understanding of human resource management issues pertaining to the management of knowledge workers in the Malaysian context. While, in this study, explanations or possible relationships are explored, clear cause-and-effect relations have not been sought as such. The explanatory findings thus permit the researcher to outline several more interesting issues that could be useful for future research, as presented in Chapter 10, Section 10.3.

5.2 Research Philosophical Background: A Realist Approach

In implementing the research designs discussed above, the ontological assumptions is first identified (i.e. the nature of understanding of the subject matter). This then leads to the development of epistemological assumptions regarding how exactly the researcher views the world. In reflecting on these assumptions, several research paradigms are offered in social science research. A paradigm is defined as "a set of beliefs (of metaphysics) that deals with ultimate or first principles. It represents a worldview that defines, ...for its holder, the nature of the 'world', the individual's place in it, and the range of possible relationships to that world and its part..." (Guba and Lincoln, 1994: p. 107). Different authors have discussed paradigms in different ways. Authors like Guba and Lincoln (1994) summarised these paradigms into three groups: "positivism", "interpretivism" and "realism". May (2001) put the issue in broader terms by classing paradigms as "objectivity", "positivism", "empiricism", "realism", "subjectivity", "idealism", "building-bridge" and "postmodernism". In another case, Allan (1998) divided them into "positivism", "interpretivism" and "eclecticism". In recent years, Remenyi et al. (2000) highlighted the use of the "positivist" and the "non-positivist" (i.e. phenomenological) approaches.

In the current research context, realism has been adopted as the most suitable paradigm by which to discover the needs of the current attempt to understand the management of knowledge workers in the Multimedia Super Corridor Status Companies, Malaysia. This is because as a realist, one can discover a world with no bounds (Ackroyd and Fleetwood, 2000). These authors further claim that realism involves three main criterions:

“The first is that there is a prediction to connect things in realist research and writing, which is not found with such frequency or extent in other types of approach to the field...The second claim is that realist analysis engenders debate about the nature of the world that research has uncovered or partly uncovered that may contribute to the growth of knowledge...The third claim is that realism has emancipatory [i.e. unrestrained] potential” (pp. 22-23).

In other words, this means that the researcher is free to see the world as it is, without the restrictions outlined by positivism and interpretivism. In this regard, compared to positivism, which is known as value-free, and interpretivism, known as value-laden, realism is rather value-conscious (Bhaskar, 1989; Lincoln and Guba, 1985). Positivism implies that one should focus on what one can observe and measure (Friedman, 1999). In this regard, the world and the universe are considered to be deterministic—they operate by laws of cause and effect such as “all cats are cats” (tautologies) and, “ $2+2=4$ ” (mathematics) (Trochim, 2000). These statements, according to positivism, can only become true by hypothesis-testing that locates sense and meaning with experience through quantitative research.

On the other hand, interpretivism argues that meanings and roles are not fixed and given (deterministic), but that negotiation in interaction is viewed to help the researcher to interpret results (Guba and Lincoln, 1994). In this regard, the qualitative approach used by interpretivists is a way to gain insights through discovering meanings by improving the comprehension of the issue as a whole (Strauss and Corbin, 1990). Furthermore, even though this interpretivism may be able to fill the gap created by positivism – that is, a comprehensive understanding of the whole – it still cannot provide strong findings. This is due to its lack of transparency, being too subjective, difficult to replicate and carrying problems with generalisation (Guba and Lincoln, 1994).

In another case, as knowledge workers serve as the unit of analysis of this study, realism allows the researcher to expand the assumptions made by the positivist as well as the interpretivist approach. Realism provides better mechanisms for discovering the behaviour of human beings more intuitively (Sayer, 2000). Furthermore, the eligibility of realism to utilise both quantitative and qualitative approaches provides the advantage of studying human behaviour in different ways (Ackroyd and Fleetwood, 2000; Sayer, 2000). It allows the researcher to explore, describe and explain issues related to the current study more deeply, as mentioned in the earlier section on research design. Furthermore, this is because, from the perspective of the scientific method, physical sciences and social sciences are two different things. In this view, Godard (1993: p. 288) states:

“At the heart of the social action critique is the argument that there is a fundamental difference between the subject matter of the physical sciences and that of social sciences: where the physical sciences study inanimate objects incapable of making conscious choices, the social sciences study human subjects with a will and volition of their own. Thus, where the behaviour of the former can be studied in accordance with their objective physical properties and is determined by external, causal forces, the behaviour of the latter must be studied in accordance with essentially subjective motives and belief systems and is determined by conscious and unconscious choice processes. It follows that though the behaviour of physical objects is subject to universal laws and can (ideally) be predicted with a high degree of certainty based upon these laws; the behaviour of human beings is not subject to such laws and cannot be predicted with a high degree of certainty. If behaviour does appear to be readily predicted, it is only because individuals choose to behave in certain ways under certain conditions. Thus, the task of the social sciences is to analyse not the ‘objective’ but rather ‘subjective’, seeking to explain and understand behaviour with reference to underlying motives and meanings systems [i.e. theoretical realism] rather than to predict and control it.”

In relation to the current study, the researcher has set out to explore, describe and explain knowledge workers’ current perceptions of the concept of the implementation of knowledge management and their understanding of how human resource management may support its

effectiveness. There is no determination of results in studying knowledge workers' behaviours as predicted by the positivist. However, the current study tries to report the findings as they are, i.e. the reality of the phenomenon under investigation, and provides rigorous discussions of the results collected via triangulation methods. This then allows the researcher to generalise the findings toward a broader aspect, especially within the Multimedia Super Corridor status companies. Therefore, there will be no proper regulations and/or laws in investigating these issues. This is then referring to the "subjectively constituted social reality" that provides "generative mechanisms" for conducting social science research not only at the surface but also at the level of concrete reality beyond (Godard, 1993).

In the light of this understanding, the nature of realism is that the physical and social worlds exist independently despite the knowledge that we have (Ackroyd and Fleetwood, 2000; Sayer, 2000). Thus, in agreement with the performance potential suggested by Reed (2000), causal power or ways of acting would become the concrete source in further explaining the relationship between the physical and the social world. For instance, in the case of high turnover in the company, this might no longer be simply due to job satisfaction; other factors such as competitive reward packages, the company working culture, job challenge and leadership commitment could also be considered as reasons. In other words, from the realist point of view, the above social phenomena, such as workers' actions, leadership commitment and company policy, are concept-dependent.

The main task here is not only to explain such matters and their effects, but also to understand and interpret exactly what they mean. For example, if young knowledge workers tend to leave the company after a two-year period, then there will be a need to explain not only "about" their leaving, but also "why" this is occurring. Therefore, there are dissimilarities in the

perception of reality in the realist paradigm compared to positivism and interpretivism. As mentioned earlier, objects and social relations in the social sciences have been argued to have causal power; thus, there is no fixed expectation that they may or may not produce regularities (Bhaskar, 1989). In view of this, there is a need for more methods by which to establish and evaluate the qualitative nature of social objects and relations on which causal mechanism depend in order to discover and assess regularities in the social sciences (Ackroyd and Fleetwood, 2000; Guba and Lincoln, 1994; Sayer, 2000), and less weight is placed on quantitative methods.

5.3 Linking Realism with the Triangulation Techniques

On final analysis, it can be concluded that realism allows combination of quantitative and quantitative methods. It has a major impact on the way research is carried out, especially in terms of research design, questions and research ethics. Therefore, for the purpose of this research, both methodologies have been utilised. In particular, qualitative methods (i.e. interviewing) and quantitative methods (i.e. questionnaire surveys) are the common techniques used by many researchers in developing and analysing their data. Both contribute to the success of contemporary social research (Denzin and Lincoln, 2000).

Furthermore, according to Merriam (1988), qualitative research is appropriate to research things as they are in their natural settings, and by attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them that are real. Denzin and Lincoln (2000: p. 8) have also pointed out that qualitative research seeks answers to questions that underline “*how*” social experience is created and given a meaning. In contrast, quantitative studies, which are normally conducted by the positivist, emphasise the measurement and analysis of causal

relationships between variables and not processes. With the understanding of realism, the triangulation of both quantitative and qualitative research methods for data collection have been applied in this study.

5.4 Data Collection Methods: Triangulation Techniques

In the current study, a questionnaire survey and an in-depth semi-structured interview of the primary sources are used for data collection. Secondary sources such as printed materials, i.e. annual reports, magazines and news releases, are also gathered for the purpose of further clarification. These triangulation methods have also been seen to help in cross checking the findings from each of the methods used, thus contributing to a greater reliability and validity of results (Denzin and Lincoln, 2000; Hussey and Hussey, 1997; Silverman, 2000). In addition, these triangulation methods may also reduce the weaknesses of the research design and strategies, as the latter will be compensated by the counter-balancing strengths of the former (Jick, 1979). Thus, this approach may provide more meticulous findings (Gill and Johnson, 2002; Leary, 1995). In the current research, qualitative methods were used to cross check the earlier findings gathered by the questionnaire survey. However, the main drawback of triangulation is that it may not be suitable for further replication, as it is very costly and time-consuming (Hussey and Hussey, 1997: p. 75).

According to Gill and Johnson (2002), there are three different applications for triangulation: firstly, the use of different research methods in the same study to collect data and to check the validity of the findings, secondly, the collection of different data on the same phenomena, sometimes using different researchers so as to validate findings, and thirdly, collecting data on the same phenomena at different times and places within the same study. The current research employs the first category as shown in Table 5.4 (i.e. relationship between the methods chosen and the research questions). Furthermore, even though it has been shown in Figure 5.1.2

that the current study starts with the exploration of research issues via a qualitative technique (i.e. a literature review on knowledge, knowledge work, knowledge workers, knowledge management, human resource management and an analysis on the Malaysian economic framework), this section will highlight the actual stages of data collection conducted by the researcher during her fieldwork. The fieldwork began with the questionnaire survey as the first stage, followed by the in-depth semi-structured interviews.

5.4.1 First Stage of the Fieldwork: Questionnaire Survey

This section justifies the reasons and method by which the questionnaire was undertaken. This includes a general definition of questionnaires, links with the current research, i.e. the advantages and disadvantages of this approach, and an outline of the various types of questionnaire survey. This is followed by a description of the respondents, how the questionnaire was designed, tested and rationalised, how the questionnaire was administered, as well as several challenges faced by the researcher, and finally the data analysis of the survey questionnaire findings. A questionnaire is defined as a general term to include all techniques of data collection in which each person is asked the same set of questions in a pre-determined order (De Vaus, 2002). Hussey and Hussey (1997: p. 161) defined it as a list of well thought-out questions that have been tested on a trial sample and used with the aim of getting reliable responses from a chosen sample. This is to find out what a chosen group of participants do, think or feel. In another case, Oppenheim (1992: p. 10) provides a broader understanding by emphasising that the planning and putting together of any questionnaire for survey use has to be included in the research design stage (See Table 5.4). According to him, a questionnaire is more than a list of questions or a form to fill in, but is a measurement tool, and a way of collecting particular kinds of data stemming directly from the earlier overall research design.

Table 5.4.1
The Relationship between Research Questions, Objectives, Methods and Respondents and Data Analysis

Research Questions	Objectives	Methods	Data Analysis	Respondents
(1) How do knowledge workers perceive the current definition of "knowledge workers" by the Multimedia Development Corridor and their opinions of being classed as such?	To explore the overall perception and opinions of knowledge workers regarding the current definition of knowledge workers provided by the Multimedia Development Corridor, and also to understand their characteristics from the local point of view.	a). Survey Questionnaire – Self administered questionnaire b). In-Depth Semi-Structured Interview	Descriptive Analysis using SPSS Development of specific themes from the transcripts. Note taking during the fieldwork visits	Knowledge workers as defined by Multimedia Development Corridor from 40 Multimedia Super Corridor status companies
(2) How do knowledge workers perceive the current practices and movement towards the importance and actual implementation of knowledge management in Malaysia?	To explore the overall perception and opinions of knowledge workers regarding the current practices of knowledge management and future development (i.e. importance and implementation).	a). Survey Questionnaire – Self administered questionnaire b). In-Depth Semi-Structured Interview	Descriptive Analysis using SPSS Development of specific themes from the transcripts Note taking during the fieldwork visits	Knowledge workers as defined by Multimedia Development Corridor from 40 Multimedia Super Corridor status companies
(3) What are the factors affecting the successful implementation of Knowledge Management in Malaysia?	To identify the critical factors, influences or forces that contribute to the successful implementation of knowledge management in Malaysia.	a). Survey Questionnaire – Self administered questionnaire b). In-Depth Semi-Structured Interview	Descriptive Analysis using SPSS Development of specific themes from the transcripts Note taking during the fieldwork visits	Knowledge workers as defined by Multimedia Development Corridor from 40 Multimedia Super Corridor status companies
(4) What would be the role of human resource management in managing knowledge workers and helping the knowledge management meet its objectives to achieve a competitive advantage?	To see where human resource management could fit into the knowledge management processes and help it to meet the end objective of leveraging knowledge effectively.	a). Survey Questionnaire – Self administered questionnaire b). In-Depth Semi-Structured Interview	Descriptive Analysis using SPSS Development of specific themes from the transcripts Note taking during the fieldwork visits	Knowledge workers as defined by Multimedia Development Corridor from 40 Multimedia Super Corridor status companies
(5) What would be the role of government development agency particularly the in ensuring the successful implementation of knowledge management in Malaysia?	To explore the role of the Malaysian Government Development Agency (the Multimedia Development Corridor) ensuring that knowledge management succeeds and meets the company objectives.	a). In-Depth Semi-Structured Interview b). Secondary Data	Descriptive Analysis using SPSS Development of specific themes from the transcripts. Note taking during the fieldwork visits Apply own recording and comparing with earlier findings from survey, interviews and personal observation	Knowledge workers as defined by Multimedia Development Corridor from 40 Multimedia Super Corridor status companies Several managers/personnel from Multimedia Development Corridor

The main objectives of the research are to describe the human resource management issues pertaining to the management of knowledge workers in Malaysia, by looking specifically at the development of the practice of knowledge management in Malaysia and factors that play major roles in its successful implementation. Thus, a questionnaire survey was undertaken in order to explore the overall views of knowledge workers on the current practices of knowledge management in the local context. In this regard, the advantages of questionnaires are pointed out by authors like De Vaus (2002), Ghauri et al. (1995), Hussey and Hussey (1997), and Oppenheim (1992), as outlined below:

- Allows the study of a large population by making assumptions about a sample population for the study, which is thus cheaper and less time consuming than studying the whole population.
- Allows descriptive statistics to be calculated that are representative of the population at large.
- Helps similar studies to take place.
- Simplifies methods and procedures so that they are accessible to others and the design and implementation can be assessed.
- Is reliable in assuring respondent anonymity and allows for higher response rates.
- Requires comparatively little administration.
- Has a high degree of standardisation and accessibility, which is particularly important from a data analysis viewpoint, as results can be generalised.
- Ensures that the interviewer is unbiased in questioning respondents.
- Is open-minded with regard to respondents completing the questionnaire at their convenience.
- Is an appropriate way of obtaining primary information suitable for the purposes of triangulating other methods of data collection.

On the other hand, according to Hakim (1987: p. 49), a questionnaire survey usually “involves the use of structured questions which necessarily obtains a lesser depth and quality of information than an interview”. With regard to this, it could demand a lot of time and energy in order to obtain a good rate of return. Thus, questionnaires also have disadvantages. Firstly, the researcher does not have any control over the way the questionnaire is filled in. Secondly, there may not be a high response rate. Thirdly, there are limits to the checks that can be carried out on incomplete and erroneous questionnaires (Oppenheim, 1992). The above disadvantages were acknowledged and attempts were made to reduce these issues. Efforts to increase the response rate are discussed later where the administration of the questionnaire is presented (see for example Section 5.4.1.6).

5.4.1.1 Respondents to the Questionnaire and Sampling Issues

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 in Chapter 4 (see Section 4.3). 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 (please see Appendix D for a sample of emails and those who accepted or rejected the request).

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. Furthermore, the researcher attempted to arrange questionnaire surveys and in-depth semi-structured interviews with representatives of the 40 companies who responded. However, not all companies agreed to both data collection methods. Table 5.4.1.1 shows the breakdown of the 40 Multimedia Super Corridor status companies that participated in the current research.

It should also be highlighted that there were some obvious, large differences in the numbers of interviews carried out between companies; for example, in Companies 3 and 20, several interviews were conducted, in contrast to the single interviews in Companies 7, 10, 22, 29, 30 and 33. The numbers of interviews reflect the size of the company. In this regard, the researcher was able to conduct more interviews in bigger companies, as more knowledge workers were available for interview. However, relatively few big Multimedia Super Corridor status companies participated in this research. This could be due to the fact that more than half of the

Multimedia Super Corridor status companies are small companies (see for example MSC IS, 2003 and 2004). Furthermore, in this study, the researcher is interested in the views of individual workers. The responses are not used to outline organisational characteristics specific to individual organisation. While some companies provided numerous interviewees, there is no reason to suggest that this had a biasing effect on the data. Having said this, perhaps the single or multiple interviews conducted in those companies do not bring enough discrepancy to allow a better understanding of the current issues related to knowledge workers, knowledge management and human resource management in Malaysia. Ironically, the credibility of data collected from these companies could also be disputed. In practical terms, the bigger the company, the better established it will be, and the more competent its workers. Nonetheless, there should not be any response bias, as the interviews conducted in these companies were on a one-to-one basis in a quiet meeting room provided for the researcher. Here, respondents were more relaxed and free to express their views.

Table 5.4.1.1
Breakdown of the Multimedia Super Corridor Companies who participated in Data Collection Methods

MULTIMEDIA SUPER CORRIDOR Status Companies (Pseudo...)	Survey Questionnaire (n= 171) (19 MULTIMEDIA SUPER CORRIDOR Status Companies)	In-Depth Interview (n= 79) (30 MULTIMEDIA SUPER CORRIDOR Status Companies)*	Secondary Data
COMPANY 1	5	3	Available
COMPANY 2	10	2	Available
COMPANY 3	15	10	Available
COMPANY 4	5	-	Not Available
COMPANY 5	5	2	Not Available
COMPANY 6	-	2	Available
COMPANY 7	-	1	Not Available
COMPANY 8	5	-	Not Available
COMPANY 9	-	5	Not Available
COMPANY 10	-	1	Not Available
COMPANY 11	6	-	Not Available
COMPANY 12	-	2	Available
COMPANY 13	-	5	Not Available
COMPANY 14	-	2	Not Available
COMPANY 15	-	3	Not Available

COMPANY 16	-	3	Not Available
COMPANY 17	-	3	Available
COMPANY 18	10	-	Available
COMPANY 19	5	-	Available
COMPANY 20	20	3	Available
COMPANY 21	-	2	Not Available
COMPANY 22	-	1	Not Available
COMPANY 23	-	4	Available
COMPANY 24	-	5	Not Available
COMPANY 25	15	-	Available
COMPANY 26	7	-	Available
COMPANY 27	8	-	Available
COMPANY 28	5	1	Not Available
COMPANY 29	-	1	Not Available
COMPANY 30	-	1	Available
COMPANY 31	-	2	Not Available
COMPANY 32	7	-	Available
COMPANY 33	-	1	Not Available
COMPANY 34	18	1	Available
COMPANY 35	10	-	Available
COMPANY 36	-	3	Not Available
COMPANY 37	-	3	Not Available
COMPANY 38	10	1	Available
COMPANY 39	5	2	Available
COMPANY 40	-	4	Available
Total = 40	171	79	20 Available

Note: * These 30 companies, included 9 companies which also participated in the survey questionnaire.

In linking the above circumstances with sampling issues, the selection of potential participants from the whole population is known as “choosing a sample” (Remenyi et al., 2000). It would be impossible for the researcher to utilise the whole population as participants, as Sarantakos (1998: p. 139) states:

“In many cases a complete coverage of the population is not possible...complete coverage may not offer substantial advantage over a sample survey. On the contrary, it is argued that sampling provides a better option since it addresses the survey population in a short period of time and produces comparable and equally valid results.”

In the current research context, at the time when the researcher conducted her fieldwork, there were 660 Multimedia Super Corridor status companies

with more than 20,000 knowledge workers (see Chapter 4, Section 4.3.4a). Due to constraints such as cost, research difficulties and time, the researcher decided to adopt the sampling process. It has been realised that there would be some negatives aspects to this type of sampling, i.e. there is a need for more administration, planning and programming than saturation surveys, which may affect the validity aspect as well. However, efforts were made to reduce these drawbacks (see for example Section 5.4.1.5).

Furthermore, there are two main types of sampling category. The first category is probability sampling, also known as random sampling; this places emphasis on the fact that there is an equal chance of potential participants being selected from the whole population (Henry, 1990: p. 25). This technique can be adopted by applying “simple random sampling”, “systematic sampling”, “cluster sampling” and “multi-stage sampling”. The second category is non-probability, which allows the researcher to apply or use subjective judgements in selecting the sample (Henry, 1990: p. 17). For instance, in the current study, the researcher’s first judgement for potential participants was that they were formally declared to be known as knowledge workers, as provided by the Multimedia Super Corridor status companies. In doing this, the researcher would be considered to be a little biased. However, according to Remenyi, et al. (2000: p. 204):

“In business and management research it is often the case that a biased sample is required. If the researcher is interested in developing guidelines for managers then he or she is only interested in learning from organisations that may be considered to be good or excellent performers. Even when the researcher wants to study poor performance in order to learn what mistakes to avoid, then the sample that he or she would seek would also be biased.”

In fact, it has also been agreed by many authors that non-probability sampling methods are particularly relevant in exploratory research (Churchill, 1991; De Vaus, 2002; Henry, 1990 and Remenyi et al, 2000).

Purposive samples, convenience samples, judgement samples and snowball samples are more popular methods used under this category. As this research has no specific purpose in mind but to explore the current issues regarding knowledge workers, knowledge management and human resource management in Multimedia Super Corridor status companies, Malaysia, the researcher employed convenience and snowball sampling.

A convenience sample is a group of individuals and companies that are readily available to participate in the study (Churchill, 1998; Henry, 1990). In the current research, only 40 Multimedia Super Corridor status companies were available for the fieldwork. With the help of each company, the researcher managed to invite knowledge workers to participate in the questionnaire survey and in-depth semi-structured interviews, which will be presented in Section 5.4.2. From the convenience sample that the researcher gathered, she started to generate more participants for in-depth semi-structured interviews and more participants through practicing the snowball technique. The snowball technique normally relies on a previously identified group of participants recruiting other participants from the population. The researcher normally did this when she went to the volunteer companies who were involved in the questionnaire surveys. After a brief discussion and/or phone conversation, the researcher started to ask the individuals if they could refer her to any other individuals for further discussions on the relevant research matters. From this, the researcher managed to get several important names and further interview arrangements were made. The snowballing technique continued during these referral interview sessions as well (Henry, 1990; Remenyi et al., 2000). At the end of the interview session, the researcher usually asked the participant if he or she could suggest anybody else who would be willing to be interviewed, and the researcher would make an appointment to meet the suggested individuals. Thus, a newly identified participant would name others and the sample grew like a snowball.

Both sampling methods, i.e. questionnaire survey and in-depth semi-structured interviews, can be considered as being broadly representative of the population. The accuracy of these samples was supported at the time of fieldwork, as there were 660 Multimedia Super Corridor status companies. However, as mentioned earlier, when the researcher started contacting them, several of these companies no longer existed. When referring this matter to the Multimedia Development Corporation, the contact/spokesperson iterated that these companies are considered to no longer be active. However, due to the need to retain the companies' image and reputation, the Multimedia Development Corridor has yet to exclude those companies from the list, except when the owners of the companies had personally announced that they had shut down. Here, out of 660 companies, approximately 10 to 15 percent were no longer active, which amounts to 60 to 90 inactive companies and brings the total number of existing Multimedia Super Corridor status companies at that time to around 570 to 610.

In the current research, the sample of 40 volunteered Multimedia Super Corridor status companies is considered representative of the whole population. This is because the number of returned questionnaire surveys (171) and 79 respondents for the in-depth semi-structured interview both satisfy the rule of thumb as proposed by Roscoe (1975), which has been noted by Sekaran (1992: p. 253). They say that a sample size larger than 30 and less than 500 is representative for most research. Furthermore, these 40 companies cover all types of business. Most were small companies running in parallel with the major companies with the Multimedia Super Corridor status (see, for example Chapter 4, Section 4.3). Furthermore, amongst those 40 companies, there are also several leading companies like Maccos (Pseudonym), Miamas (Pseudonym), Sea Shell (Pseudonym) and Fastest (Pseudonym).

5.4.1.2 Questionnaire Layout and Wording

In designing the questionnaire, a standard procedure provided by authors like De Vaus (2002), Flick (2002), Ghauri et al. (1995), Hussey and Hussey (1997), Oppenheim (1992) and Tull and Hawkins (1990) was taken into consideration. Furthermore, in order to explore the issue of human resource management pertaining to the management of knowledge workers in Malaysia, the questionnaire required attitude statements by the knowledge workers who were the respondents. According to Oppenheim (1992: p. 174), an attitude statement is “a single sentence that expresses a point of view, a belief, a preference, a judgement, an emotional feeling, or a position for or against something”. Thus, careful and thorough attention needs to be given when preparing a questionnaire. Summarisations of the ideas of the above authors have highlighted the *dos* and *don'ts* as follows: questions should be precise and written simply, avoid double negative meanings, avoid loaded words, consider providing a “Don't Know” or “Not Applicable” category, avoid leading or biased questions, avoid ambiguous words and meanings, avoid implicit alternatives, avoid assumptions, and finally avoid generalisations and estimations. In other words, the questionnaire must be prepared in such a way that the respondents can understand it very well and are able to complete it easily.

In the current research, the above aspects have been considered in preparing open and closed questions. Normally, closed questions are used for collecting quantitative data (i.e. questionnaire survey) and open questions for collecting qualitative data (i.e. semi-structured and unstructured interviews). Open questions allow the respondents to give answers in their own way without having to stick to any suggested answers (Ghauri et al., 1995). Closed questions are most often used in order to ensure that the respondents can fill them in quickly and that they are easy to process and analyse. The questionnaire used in the current research was semi-structured. In its structured sections, the questions were closed

and required respondents to choose from a list of given possible answers (see Appendix A, Copy of Questionnaire). In Sections B to D of the questionnaire, a Likert scale was used to help the respondents to give their feedback. It is when the “respondents indicate their attitudes by checking how strongly they agree or disagree with carefully constructed statements that range from positive toward the attitudinal object...[and]...individual generally choose from five alternatives: strongly agree, agree, uncertain, disagree, and strongly disagree...”(Zikmund, 1997: p. 357). It allows respondents to choose from a range of answers, and this provides a reliable estimation of attitude (Oppenheim, 1992). The disadvantages of closed questioning are lack of impulse answering and bias in answer categories. To address this, open-ended questions were also provided in Section E. According to Oppenheim (1992), this section provides an opportunity for the researcher to probe and obtain more detailed answers and freedom and spontaneity of answers.

Furthermore, although the national language in Malaysia is Bahasa Malaysia, (i.e. Malay Language), the questionnaire was set in English. English was chosen to avoid confusion that may arise in the translation process, particularly in the case of terms such as knowledge worker, knowledge management, chief knowledge officer, knowledge-based economy etc. Also, since the respondents are well educated and speak English well, they were not expected to have problems with the English language. This questionnaire was sent out for pilot testing, as discussed further in the next section.

5.4.1.3 Pilot Testing

According to Sekaran (1992) and Zikmund (1997), the main purpose of conducting a pilot test is to double check whether the questions are well understood by the respondents, check for respondents' changing of questions, look at the questionnaire's continuity and flow, and experiment with question sequencing and patterning. Piloting the questionnaire is required to lessen response bias due to poor questionnaire design. It is therefore crucial to conduct pilot testing in order to achieve the best use of language and sequence of questions, and this stage is essential to a good questionnaire (Moser and Kalton, 1985).

Since the researcher was not able to go to Malaysia to conduct the pilot test, and due to the cost considerations, she used the Malaysian community in Cardiff, Wales, United Kingdom as participants. A pilot survey was conducted in Cardiff on 22 participants between January and February 2003. The participants were Malaysian postgraduate students who were studying in a variety of fields. The researcher considered all of them as knowledge workers (see the Multimedia Development Corridor's definition on knowledge workers in Chapter 2, Section 2.3). This is in agreement with Hussey and Hussey (1997: p. 163), who suggested that "...at the very least, the questionnaire should be tested among friends or colleagues, but as far as possible on people who are similar to the people in the sample...". Thus, the pilot test was held with the purpose of identifying and reframing any deviant questions that arise in the questionnaire and finally, to ensure the integrity of the questionnaire (Ghauri et al., 1995; Oppenheim, 1992).

Based on the comments received on, for example, the wording, the sequence of the questions, and whether the questions made sense and were relevant to the research questions and objectives, several changes were made to the original questionnaire. After taking into consideration the

above comments and further suggestions by the research supervisors, the questionnaire was then finalised and can be found in Appendix A.

5.4.1.4 Rationale for the Questions

The questionnaire was designed according to the previous literature review on the theoretical framework for knowledge, knowledge work, knowledge workers, knowledge management, human resource management and the Malaysian economic policy framework. In particular, the questions set were based on a questionnaire and interview guided method formulated by Suk Choi (2000) and Hunter et al. (2002). Suk Choi's questionnaire is used as a guide for research that seeks to explore the idea of knowledge management practices in Malaysia and participants' perceptions of being knowledge workers. Hunter et al.'s (2002) interview guide was a guide for the researcher to seek the current views of knowledge workers on the human resource management issues pertaining to the management of knowledge workers in Malaysia. However, the researcher did not take all the questions as they were. Instead, each question was used as a guide to suit the objectives of this research and the reliability test was conducted prior to the actual data collection. The questionnaire was divided into four sections. The first section captured the respondents' backgrounds; this was followed by issues on human resource management, the importance and implementation of knowledge management, overall perceptions of knowledge management and general comments.

Section A: Background Information

In this section, inquiries into the background of the respondents were made. These are about the type of company that they work for, the total numbers of knowledge workers, the duration of employment, their position, gender, age, ethnic and education qualification. It was expected that the findings from this section would provide the researcher with the

opportunity to explore the understanding of the characteristics of knowledge workers from the Malaysian context far better.

Section B: Issues of Human Resource Management

The second section dealt with the current issues of human resource management, comprising experience on the latest assignment, knowledge sharing, personal development, performance appraisal, rewards and their future. Most of these questions were adopted from the work undertaken by Hunter et al. (2002) under the title of “*Knowledge management practice in Scottish law companies*”. It was expected that human resource management would be in an excellent position to promote a culture that supports knowledge by not only designing compensation and rewards systems that nurture and encourage knowledge sharing (Hunter et al., 2002), but also educating employees about knowledge management and its benefits for achieving a competitive advantage (Greengard, 1998).

Section C: The Importance and Implementation of Knowledge Management

The third section dealt with the importance and implementation of knowledge management in the local context. As described in Chapter 2, the questions asked were mainly based on the success factors for knowledge management implementation identified by Allee (1997) and further work done by Suk Choi (2000). These critical factors include employee training; employee involvement; teamwork; employee empowerment; top management leadership and commitment; company constraints; information systems infrastructure; performance measurement; egalitarian climate; benchmarking and knowledge structure. The purpose of these questions is to explore the current status of knowledge management practices in the local context and the factors that affect their successful implementation.

Section D: Various Issues and Overall Perception of Knowledge Management

The fourth section described the various issues and overall perception of knowledge management, which comprises the respondents' views on the definition of knowledge workers by the Multimedia Development Corridor, the need for a chief knowledge officer, the considerations needed to become "knowledge-intensive" companies and the suitability of knowledge management in the company in particular and the industry in general.

Section E: General Comments

Finally, in section E, general comments were requested from the participants on any relevant matter. This section provides an opportunity to give thoughts, feedback or comments that may be relevant but are not directly covered in this study.

5.4.1.5 Administration of the Questionnaire Survey

After completing the pilot test in Cardiff and getting permission from the Multimedia Super Corridor status companies in September 2002, the researcher was provided with a liaison officer from each of the companies. Normally, they were human resources officers, human resources managers, public relations officers, chief technology officers, business development managers or research officers. A set of 500 self-administered questionnaires was sent to the Multimedia Super Corridor status companies that had volunteered for the research in March 2003 and the researcher promised to collect them when she visited Malaysia in May 2003. Respondents were identified voluntarily by the liaison officers in the volunteering companies and were required to fill in the questionnaire, which was then returned to the liaison officers, from whom the researcher collected the completed questionnaires. However, it must be acknowledged that the identification of respondents by the liaison officer could be a problem, as the liaison officer is likely to approach individuals who he or she knows better, even

though the researcher had provided the exact definition of knowledge workers. The researcher has no control over this matter. However, the researcher believed that any problems and bias related to this type of distribution and collection methods could be reduced by the fact that the respondents filled in the questionnaire voluntarily without any enforcement and were requested to seal the envelopes provided in order to avoid disclosure issues. Furthermore, any incomplete questionnaires were discarded from the overall analysis, as mentioned in Chapter 6, Section 6.1.

The data collection process took about three months (March to May 2003). The initial response rate was quite slow (due to several difficulties faced by the researcher, as outlined in the next section). However, after several follow-ups, the researcher eventually obtained 171 returned questionnaires, which was equivalent to a 34.2 percent response rate. In early June 2003, after gathering all the questionnaires, the researcher started to key in the data and prepare for the next stage of data collection, i.e. the in-depth semi-structured interviews. From the survey findings, it was found that most of the respondents primarily favoured team-based work, had mixed opinions on an intention to stay long or not, in the current company and had a lack of understanding about knowledge management (see for example Chapter 6). This gave the researcher the idea to seek an in-depth understanding of this group, their characteristics, hopes and expectations of being knowledge workers from the local context. Also, it seems that the perceived importance of knowledge management is high; however, its implementation is still low. Thus, in-depth semi-structured interviews were used to cross check the accuracy of the questionnaire survey findings (see Section 5.4.2 on an In-Depth Semi-Structured Interview).

5.4.1.6 Several Difficulties Faced by the Researcher

The researcher did not face great difficulties during questionnaire survey data collection as compared to the in-depth interviews; except that she had been told that most of the companies were in the middle of finishing their projects, and therefore might not readily respond to the questionnaires sent to them. The following are several difficulties that gave the researcher some valuable experience and lessons.

Firstly, one company filled in one questionnaire on behalf of 36 knowledge workers. The researcher was told that the person in charge had gathered a few friends together and they had discussed and completed the questionnaire in a joint effort. The liaison officer informed the researcher that the workers had done what their boss asked them to do. After referring to the supervisory team, it was decided that the questionnaire completed on behalf of 36 knowledge workers could not be used, and that each questionnaire should represent one individual only. Secondly, the distribution process of the survey questionnaire began two months before the researcher left for Malaysia in May 2003, in the hope that by the time the researcher arrived in Malaysia, she could start to key in data and do some early analysis without wasting too much time before starting with the in-depth semi-structured interviews. However, the researcher experienced two foreign Multimedia Super Corridor status companies who did not fill in the questionnaires at all; in fact, they were returned blank. The reason was that the management had changed their minds about participating in the study. The researcher was told that she needed to request further formal permission from their head office in Cboy country (Pseudo) and Lion country (Pseudo) before proceeding. Due to the researcher's need to proceed with the in-depth semi-structured interviews, she had to respect their decision and continue with other companies through snowballing techniques. However, these two companies allowed the researcher to conduct one interview each.

5.4.1.7 Quantitative Data Analysis

In analysing the data, firstly, the responses were coded according to the Multimedia Super Corridor areas, e.g. "01" for Cyberjaya. In several cases, responses to the open-ended questions were categorised into specific themes before being given a code, e.g. "the role of top management". Secondly, the data were entered into SPSS for Windows with the purpose of running the descriptive analysis, as discussed further in Chapter 6. Thirdly, a further cross tabulation was conducted to analyse the relationships between several specific variables. Overall findings were used to develop a quantitative statistical profile of the Multimedia Super Corridor status companies. This data was presented as a descriptive analysis of findings, as described further in Chapter 6.

5.4.2 Second Stage of the Fieldwork: In-Depth Semi Structured Interview

Moser and Kalton (1971: p. 271) defined an interview as "a conversation between the interviewer and the respondent with the purpose of eliciting certain information from the respondents". Meanwhile, Nachmias and Nachmias (1996: p. 232) viewed it as "...a face-to-face, interpersonal role situation in which an interviewer asks respondents questions designed to elicit answers pertinent to the research hypotheses". In other words, it is a meeting of two and/or more people, a form of two-way communication that provides feedback on matters related to the research being undertaken. According to Ghauri et al. (1995), there are three types of interview that are usually used by the researcher: firstly, the *unstructured interview*, which has no predetermined schedule and is normally conducted informally. It allows the respondent the opportunity for free expression on any matters related to the current study. Thus, it offers an indefinite source of qualitative information. Secondly, the *structured interview* uses an interview guide prepared in advance, and the questions are normally based on what the researcher has planned. It is used mostly when generating quantitative

data. Thirdly, the *semi-structured interview* does not have a rigid or directive plan as compared to structured interviews. It is also less fluid than unstructured interviews. It provides a free agenda, allowing the interviewer to explore any areas of specific interest relating to the current study.

An in-depth semi-structured interview is a session where the respondents are provided with enough freedom to steer the conversation and bring in all sorts of tangential matter, which for them, has a bearing on the main subject. It may take up to five hours and may even be extended into repeated interviews at a later date, especially in the case of finding out how individuals' perspectives change in response to some experience or event in their lives Hakim (1997: p. 27). A good example of this style has been used by Wright (1996) in his research on "*Exploring the in-depth interview as a qualitative research technique with American and Japanese companies*". The research focuses on a sample of leading US and Japanese manufacturers of photocopiers, bearings and machine tools for British industrial markets in order to examine the viability of low pricing as a strategic option in the US and Japanese international marketing mix. Wright (1996) concludes from the research outcomes that the in-depth interview provided a useful technique with senior company managers when used on a "less directive" i.e. semi-structured basis, as it encouraged respondents to express experiences, attitudes, needs and ideas relevant to their companies' marketing strategies and price competition in the market place.

Having this in mind and for the purpose of the current research, a semi-structured interview guide had been developed from the survey findings (see Appendix B). One needs to have a specific agenda in mind, especially on an issue that is controversial or has the potential to be discussed in further detail, as in the case of the definition of knowledge workers in the local context and knowledge workers' perceptions of knowledge management practices within the company as well as the role of human

resource management in supporting knowledge management. This information is seen to be best developed during in-depth interviews and is in line with the realist approach used in this study. Specifically, the use of in-depth semi-structured interviews was considered to be useful for the following reasons:

- To obtain a better understanding of the views of the knowledge workers on the current research scenario, i.e. human resource management issue pertaining to the management of knowledge workers in the Malaysian context. This is because the findings from the questionnaire survey could not adequately describe and interpret the whole situation being studied (Lincoln and Guba, 1985; Mintzberg, 1979; Strauss and Corbin, 1990). This is in agreement with the positivist limitations as described in earlier sections (see, for example, Section 5.2).
- The ability of an in-depth semi-structured interview with open-ended questions to allow the researcher to get a broad idea about the subject (Oppenheim, 2002 and Silverman, 2000). In addition, open-ended questioning may also allow the interviewer to use his/her judgement to improvise the meanings, and is normally partly interview-led and partly informant-led (Hillary and Peter, 1999: p. 8). This is very useful for the exploratory, descriptive and explanatory research undertaken in this case.
- By using a semi-structured question format, an in-depth interview was used to ask questions related to the early research questions on knowledge workers with the purpose of gaining more information on their motivation to participate in knowledge management within their company and seek opinions on how human resource management can assist the implementation of knowledge management (see Interview Guide, in Appendix B). With regard to this, this interview was

used to explore and identify the issues concerning knowledge workers, knowledge work and knowledge management itself.

- It is appropriate for the realist philosophical background, which underpins the current study, as it can capture real life data in a social situation. Here, questions can be rephrased, and there is more opportunity to probe than with a questionnaire survey (Arksey and Knight, 1999; Denzin and Lincoln, 2000; May, 2002; Patton, 1990). This could help to achieve more genuine results. The interview session makes use of the participant's dynamics, which could not be achieved with a survey questionnaire only. It provides greater detail of coverage and extent than is usually possible with a large survey. The research time is also minimised, since data are obtained quickly.

5.4.2.1 Respondents to the Interview Survey and Sampling Issue

Similar to the questionnaire survey, the respondents were selected and arranged from the volunteering Multimedia Super Corridor status companies, as shown in Table 5.4.2.1. This research involved non-probability sampling and the techniques used were convenience sampling and snowballing (see earlier discussion of these techniques in Section 5.4.1.1). There were 79 initial respondents for the in-depth semi-structured interview. However, tape number 53 was voided due to poor recording quality. Thus, in this case, only 78 interviews were transcribed for further analysis. In some companies, several interviews were conducted. For instance, in one firm, the researcher had 10 interview sessions with knowledge workers from various backgrounds. It took the researcher three days to complete all interview sessions with this firm.

Originally, the Multimedia Super Corridor status companies were classified into 18 sectors (see for example Appendix F). However, upon

discussion with the supervisory panel, it was decided to create a unique classification scheme. This is to avoid redundant discussion on companies who are involved in almost identical activities, such as software development for business application and software development for engineering application. In fact, several respondents also described the redundant activities practised by some of the Multimedia Super Corridor status companies. For instance, the Information Technology Manager (respondent number 2) of a big company mentioned that:

“They get the Multimedia Super Corridor but don’t really work much within the scope...[of]...Multimedia Super Corridor. They have other businesses as well...” (Page 4, line 3-5)

In a similar case, respondent number 8, the Director of a company, mentioned that:

“...they are still companies who are not genuine, they go for applying just for the name’s sake, without the backing part, you know, the product...[different products]” (Page 1, line 27-32).

Therefore, in general there are four types of Multimedia Super Corridor status companies involved in the current study. These classifications are Type A: Businesses involving software development, internet-based business and content development (this is mostly relating to the creation of new programmes, services and products for business application, engineering application and e-business); Type B: Businesses involving data or support centres or heavy users (this is mainly for supporting and providing established companies with a means to save their customers’ data, employees, vendors etc.); Type C: Businesses involving production-house or postproduction work and animation (this is very much related to the production of television programmes, which requires the use of high technology equipment); Type D: Businesses involving consultancy, education and training (this is very much related to companies supporting research and design activities, and these companies are usually higher learning institutions such as the University of Multimedia Malaysia and University Putra Malaysia).

These classifications were then shown to several earlier participants, who were asked to comment on whether they made sense. Based on the overall feedback received, these classifications were accepted. However, the focus of this study is knowledge workers within the Multimedia Super Corridor status companies, irrespective of the type and size of company they are working in. As long as a company had already been awarded Multimedia Super Corridor status, it was eligible to participate in the current research. The details of the respondents who participated in the semi-structured interviews are shown below:

Table 5.4.2.1
Number of Interviews and Knowledge Workers Interviewed in the Multimedia Super Corridor Status's Companies

Types of MULTIMEDIA SUPER CORRIDOR Status Companies	Number of interviews	People interviewed
Co1: A	3	1 Technical Director 1 HR Manager 1 Finance and HR Manager
Co2: A	2	1 Business Development Manager 1 Software Engineer
Co3: A	10	3 Top Management 1 HR Manager 2 IT Managers (i.e. software and portal development) 1 Business Strategy Manager 2 Software Engineers 1 Computer Programmer
Co4: A	-	
Co5: A	2	1 HR Manager 1 Computer Programmer
Co6: A	2	2 Software engineers
Co7: A	1	1 HR Manager
Co8: A	-	
Co9: A	5	1 Top Management 1 HR Manager 1 Business Development Manager 1 Chief Technology Officer 1 System Engineer
Co10: A	1	1 Software Engineer
Co11: A	-	
Co12: A	2	1 HR Manager 1 System Analyst
Co13: A	5	2 Top Management 1 Project Manager 2 Computer Programmer
Co14: A	2	1 Business Development Manager 1 Executive Secretary
Co15: A	3	1 Top Management 1 Admin. and Account Manager 1 Software Engineer
Co16: A	3	1 Business Development Manager 2 Officers
Co17: A	3	1 Top Management

		1 HR Manager 1 Information Technology Manager
Co18: A	-	
Co19: A	-	
Co20: A	3	1 Director 1 HR Manager 1 Senior Engineer
Co21: A	2	1 Top Manager 1 HR Manager
Co22: A	1	Business Development Manager
Co23: A	4	1 General Manager 1 HR Manager 1 Business Development Manager 1 Computer Engineer
Co24: A	5	1 Vice President 1 Assistant HR Manager 1 Information Technology Manager 1 Business Consultant 1 System Analyst
Co25: A	-	
Co26: A	-	
Co27: B	-	
Co28: B	1	Executive Secretary
Co29: C	1	Business Development Manager
Co30: C	1	HR Manager
Co31: C	2	Business Development Manager IT Officer
Co32: C	-	
Co33: C	1	Human Resource Manager
Co34: C	1	Officer
Co35: C	-	
Co36: C	3	1 Top Management 1 Business Manager 1 Officer
Co37: D	3	1 Knowledge Management Manager 1 Business Development Manager 1 Software Engineer
Co38: D	1	Training Officer
Co39: D	2	1 HR Manager 1 IT Administration Executive
Co40: D	4	1 Top Management 1 HR Manager 2 Officers
Total = 40 (30 involved)	79	

5.4.2.2 Design of the Interview Guide

According to Gorden (1975: p. 75), the interview guide plays two important roles. Firstly, it is a reminder of the research topics that the researcher needs to cover during the interview sessions. Secondly, it is a means of keeping track of the information gathered during the interview session, and acts like “an inventory of what has been covered and what has not”. In the current research, the researcher used the interview guide as a checklist to cover all matters intended for the research questions. Findings obtained

from the survey questionnaire were used when generating the interview guides, in addition to the work done by Hunter et al. (2002) as well as Suk Chai (2000) (see Appendix B, The Interview Guide).

When designing the interview guide, the researcher followed the four elements suggested by Flick (2002: pp. 75-77) as follows. The first element, i.e. *non-directional*, means that the session begins with unstructured questions, followed by more structured questions towards the end of the interview session (Merton and Kendall, 1946, cited in Flick, 2002: p. 75). Thus, there is an opportunity to use the interview guide flexibly. Furthermore, at this stage, Roger (1944) emphasised that “the interviewer should restrain himself or herself as far as possible from making early evaluations” (cited in Flick, 2002: p. 75). For example, Section 1 of the current research interview guide (see Appendix B) provides a list of unstructured questions regarding personal and company backgrounds. The researcher also started by offering assurances as to the confidentiality of the information provided to her.

The second element is *specificity* – the session starts to focus on the specific questions that are intended by the researcher, as prepared in the interview guide. Using separate material for recalling the previous experiences of the participants provides more significant feedback on matters related to the current research. Looking at the second section of the interview guide, the researcher provided the participants with definitions of the terms “knowledge workers”, “knowledge management” and “chief knowledge officer”. The purpose of this was to lead the participants towards more specific questions, i.e. knowledge workers’ perceptions of the importance and implementation of knowledge management and human resource management issues.

The third element is *range*, which aims at protecting the earlier feedback and/or responses given by the participants. In this view, the participants are allowed to raise new topics and/or issues. In other words, the researcher is flexible with regard to the questions asked in the interview. In some cases, the researcher did not follow the interview guide exactly, although she made sure that all important questions were asked. For instance, if the researcher interviewed the human resource manager, the focus was very much on human resource management issues and knowledge workers. This also applied when the researcher interviewed top management respondents, where the questions were focused more on the overall views, and especially on the role of the government development agency and general company policy matters. While doing this, the researcher would encourage the interviewees to bring into the discussion any particular matters that the researcher had not been aware of. For example, the issue of knowledge workers normally being head-hunted was raised in this way.

The fourth element is *depth and personal context*, which should allow for maximum self-revelation and more complex emotional responses. In relation to the interview guide in the current research, the questions provided always encouraged further probing and prompting. It sometimes took the researcher three hours to finish an interview session. In this case, probes and prompts were used during the interview sessions, especially when asking the respondents open-ended questions. With regard to this, the interview guide serves as a counter check of the whole body of information, and ensures the clarity and accountability of the earlier questionnaire survey findings.

5.4.2.3 Administration of the Interview Session

Below are the general procedures that the researcher prepared prior to conducting the actual interview. Firstly, the researcher needed to plan an interview schedule, contact the participants, and organise the time and place at which the interview session would be held. In the current research, the permission for interview sessions were arranged while collecting the questionnaires that were completed between May and June 2003. However, due to the snowballing technique, the interview process continued until the last day of the fieldwork in Malaysia. After obtaining permission, the interviews with volunteered knowledge workers were conducted. The appointments were made according to the respondents' convenience. Normally, they were conducted at lunchtime or in the afternoon, when they were least busy. For example, the interview with the Vice President of one big company was conducted after office hours, at 6.00 pm. It took the researcher two hours to complete this interview session. However, there were two cases where interviews took place at breakfast time.

Secondly, while the interview session was taking place, with the participants' permission, the researcher used a tape recorder in order to ensure that all the information were recorded. This aided in the transcribing process and data analysis. The interview guide consisted of four main parts, the first of which served to introduce and describe the research. This helped to build a good relationship with the respondent and hopefully put him or her at ease. In obtaining answers for the questions, the researcher ensured that the respondent would do all the talking.

Thirdly, the researcher used probing and clarifying techniques during the interview, and notes were taken whilst observing the session. Perhaps it is more efficient to be an active, patient and flexible listener with regard to the participant's response, and always seek permission for further tape recording. Here, the interviewer becomes an attentive listener who shapes

the process into a familiar and comfortable form of social engagement - a conversation - and the quality of the information obtained will largely be dependent on the interviewer's skills and personality (Denzin and Lincoln, 2000: p. 7). In this case, the researcher needed to determine whether participants' opinions were real or not, through direct observation of their body language and the office environment and cross-checking the issues raised with other participants. Normally, it took the researcher one to three hours to complete an interview session.

Furthermore, the researcher did not tie herself to the interview guide as prepared earlier, but gave the participants freedom to express their views on matters related to the current research. Thus, the researcher was rather flexible in administering the interviews, although she would interrupt the conversation in order to clarify matters further and to ensure that the conversation followed the right track. In total, 75 respondents agreed to be tape-recorded and the rest did not, but the researcher managed to take notes while these interview sessions took place.

5.4.2.4 Several Difficulties and Benefits for the Researcher

Firstly, on 17th June 2003, two interviews with a company's information technology engineers were arranged. On arrival at their office at the arranged time and date, the researcher was informed that the executive who had arranged the interviews had subsequently resigned from his job. The staff at the company knew nothing of the purpose of the researcher's visit. Therefore the researcher had no option but to cancel the interviews and try to arrange another session for a future date.

Secondly, due to important work commitments, two individuals selected for the interview cancelled their appointments at the last minute. They did, however, promise be interviewed by telephone in future. Thirdly, in a number of cases, even after convincing respondents that they were within

the scope of the research topic, they refused to participate in the survey, believing that they were not the right people to do so.

Fourthly, the researcher was assigned to two participants who, although under the same holdings (i.e. e-GGG's company, pseudonym), did not work within the Multimedia Super Corridor status companies' criteria for knowledge workers (i.e. they were not heavy users of information, communication and technology), and therefore should not have been considered for the interview. Fifthly, some companies were busy completing their own projects. Therefore, they did not have time to receive personal research requests.

The sixth difficulty encountered was that due to red tape and bureaucracy, getting access to companies was a major challenge that the researcher had to face. A decision of whether to wait, to proceed or to find alternatives often had to be made. Some companies gave rapid access or feedback, whilst others took longer to reply.

Finally, a major difficulty for the researcher was arranging a number of interviews within the same Multimedia Super Corridor area in one day. Due to the cost and time involved in travelling to Cyberjaya, the researcher had to carry out as many interviews as possible in one day, as it is far from Kuala Lumpur and other Multimedia Super Corridor areas (see Chapter 4, Section 4.3.1 see maps of Multimedia Super Corridor areas). Also, as public transport services are limited or non-existent in some areas, it was necessary to plan ahead before commuting to interviews from other areas.

5.4.2.5 Benefits

The researcher received great help from all the top management personnel involved in this fieldwork, who gave permission to interview their staff, use their libraries and other facilities. Furthermore, this group of management promised their help whilst working in the United Kingdom (UK). Some have already enquired about the researcher's progress and whether more input from them is required. The researcher has also used personal contacts, university friends and professors in her home department to increase the number of respondents for interviews.

5.4.2.6 Data Analysis: The Use of Manual Coding and Categorising

In August 2003, the transcribing processes and transcript development started. In the process of transcribing, the information obtained from each interviewing approach is gathered into one written form and/or text, i.e. a transcript in a Word file. Subsequently, the interpretation of the data was conducted using manual coding and categorising. This is because Flick (2002: p. 176) stated that:

"Interpretation of texts may pursue two opposite goals. One is the revealing, uncovering or contextualizing of statements in the text, which normally leads to an augmentation of the textual material; for short passages in the original text, page-long interpretations are sometimes written. The other aims at reducing the original text by paraphrasing, summarising or categorising. These two strategies are applied either alternatively or successively."

When referring to the appropriateness of the method used for analysing qualitative data, Flick (2002: p. 218) further mentioned that "here, as with other procedures in qualitative research - despite all the rhetoric surrounding certain approaches - no procedure is appropriate in every case...[thus] the problem of how to assess qualitative research has not yet been solved".

However, the rigour of the findings was assured by several alternatives, which are presented in more detail regarding their reliability, validity and generalisability (see Section 5.5). Following the method of Strauss and Corbin (1990), as well as Flick (2002), in analysing the data, it is necessary to determine the meaning of the information gathered in relation to the purpose of the research (see for example Table 5.4.2.6). As this research is conducted to investigate the overall views of knowledge workers on the human resource management issues pertaining to the implementation of knowledge management from the local context, it is important to focus on the important themes, commonalities and patterns derived from these interpretations.

To do this, the researcher employed theoretical and thematic coding, as discussed further by Strauss and Corbin (1990) and Flick (2002). Beginning with *open coding*, line by line and paragraph by paragraph, several main concepts were identified, such as “reasons for leaving the company”, “learning willingness”, “seeking challenge”, “internal recruitment”, “likes freedom” and “never heard about knowledge management”. Having gathered these codes, which was a time-consuming process, the researcher started to categorise them according to the research questions, i.e. research question 1 (RQ1), research question 2 (RQ2), research question 3 (RQ3), research question 4 (RQ4) and research question 5 (RQ5).

Table 5.4.2.6
Qualitative Data Analysis

	CODING AND CATEGORISING			
	Theoretical coding	Thematic coding	Qualitative content analysis	Global analysis
Openness to each text by:	Open coding	Principle of case analysis Short characterisation of the case	Explicating content analysis	Case-oriented edition of texts
Structuring (e.g. deepening) the issue by:	Axial coding Selective coding Basic questions Constant comparison	Elaboration of a thematic structure for case analysis Core and social distribution of perspectives	Summarizing content analysis Structuring content analysis	Overview supports orientation in the search for additional evidence
Contribution to the general development of interpretations as a method:	Combination of induction and deduction Combination of openness and structuring	Comparison of groups in relation to the issue after case analysis	Strongly rule based procedure for reducing large amounts of data	Complementary suggestion for orienting in texts in coding interpretation
Domain of application	Theory building in all possible domains	Group comparisons	Large amount of data from different domains	Preparation for other procedures
Problems in application	Fuzzy criteria for when to stop coding	Time consuming due to case analysis as intermediate step	Applying the schematic rules often proves difficult	Fast overview of the text does not replace and may even impede its fine analysis
Limitations of the method	Flexibility of methodological rules can be learned mainly through practical experience	Limited to studies with pre-defined comparative groups	Strongly oriented to quantitative methodology	Compatibility with sequential analyses is uncertain
References	Strauss (1987); Strauss and Corbin (1990)	Flick (1994; 1995a)	Mayring (2002)	Legewie (1994)

Source: Flick, U. (2002: pp. 213-214)

Then, further refinement and differentiation were carried out through *axial coding*. In this stage, the relation between categories and their subcategories is established (Flick, 2002). In addition, according to Strauss and Corbin (1990), the combination and comparison of these codes brings a better and clearer understanding of the phenomenon under investigation. In this case, in agreement with Rubin and Rubin (1995), Flick (2002: p. 181) emphasised that the researcher should "...move continuously back and forth between inductive thinking (developing concepts, categories and relations from the text) and deductive thinking (testing the concepts, categories and relations against the text, especially against passages or cases that are different from those from which they were developed)." Using this technique, the

researcher managed to gather evidence to support the relevant codes, such as “internal recruitment” being related to the role of human resource management, “seeking new challenges” being related to the characteristics of knowledge workers from the local context and so on.

Further to this, *selective coding* was also used, especially in the case of differentiating between the agreement and disagreement of knowledge workers with the Multimedia Development Corridor definition of “knowledge workers”. At this stage, any central phenomenon derived from the existence of codes and categories that relate closely to the main issue was selected by the researcher for further analysis. For example, disagreement tended to be due to the “multimedia” concept and the term “technology” stated in the definition. Other than that, disagreement was also expressed due to the requirement of 5 years’ professional working experience and so on (see for further details Chapter 9, Section 9.6). In these circumstances, new knowledge will always be explored and help in generating a grounded theory of diverse themes (Flick, 2002).

With regard to the above and the *thematic coding* (i.e. modifying of the earlier codes and categories into a short description of each case), several main themes were developed. These are: issues on knowledge workers (i.e. perceptions of the definition of “knowledge worker” offered by the Multimedia Development Corridor and the characteristics of knowledge workers from the local context); issues on knowledge management (i.e. more specific sub-issues such as the suitability of knowledge management, its implementation, sharing activities etc.; see Chapter 7 for more details on knowledge management issues); issues on human resource management (i.e. roles to be played by human resource management in supporting knowledge management implementation and managing knowledge workers, see Chapter 8 for more details); and finally, issues relating to the

government development agency (i.e. investigating why Multimedia Super Corridor status is important for the participating companies and considering why the relocation of the Multimedia Super Corridor status companies to Multimedia Super Corridor areas is seen as unfavourable etc.). Several of these themes emerged unexpectedly, and all are presented separately in chapters 7, 8 and 9, where discussion of the findings provides answers to the earlier research questions.

5.4.2.7 Software Packages for Qualitative Data Analysis

Currently, the general interest in utilising software packages like Atlas/ti, NUD*IST and other CAQDAS (computer-aided qualitative data analysis software) stage for analysing qualitative data has seen some tremendous changes, especially when dealing with large samples and varied amounts of data (Coffey and Atkinson, 1996; Fisher, 1997; Flick, 2002). Some researchers believe that the use of CAQDAS makes the analysis processes more systematic and transparent, and enhances the reliability and creativity of research (Weitzman and Miles, 1995; Wengraf, 2001). For example, according to Weitzman and Miles (1995), the use of NUD*IST facilitates the attachment of codes to tiles of data, allows the researcher to retrieve all cases in the data that have similar codes, and allows the researcher to divide, subdivide and classify the transcript accordingly. Having these in mind, the categorisation of themes can be done easily by using the hierarchical tree structure of NUD*IST.

However, the drawbacks of CAQDAS have also been highlighted, such as the impact of the software programme on the genuine ground theory (Lonkila and Harmon, 1999; Wengraft, 2001), the danger of being overwhelmed by the sheer volume of information that becomes available when using the software (Kelle and Laurie, 1995), the risk of rendering qualitative research similar to survey procedures and losing the original data (Coffey and Atkinson, 1996) and “the fear that the attention attracted

by the computer and the software will distract the researcher from the real analytic work - reading and understanding the texts and so on" (e.g. Lee and Fielding, 1991, cited in Flick, 2002: p. 261). Furthermore, Weitzman (2000: p. 803) commented that:

"This list of expectancies and hopes [the use of software package] includes quite a variety. None of the programs available so far can fulfil each of these, and definitely not in the same way. Similar to the earlier days of word processing, the decision to use one of the software makes it more complicated to switch to another one, as the problems of compatibility and data export: there no standard, which allows to take data and codings for example from one package to another one. Thus, the decision for one or the other software package should be well considered and carefully taken. And finally, the potential user should keep in mind: 'There is still no one best program'." (cited in Flick, 2002, p. 254)

On account of the above views, the number of interviews that the researcher had conducted (i.e. 79) and the time-consuming nature of the task, the researcher decided to code and retrieve data manually. The process allows the researcher to have a greater understanding of and familiarity with the data, as it was necessary to read the transcripts many times, develop the important themes, and have the data cross checked. However, the researcher is looking forward to adapting the software programme (i.e. NUD*IST) for future research, especially given that she plans to carry out a comparative study involving a large number of respondents, as described further in Chapter 10, Section 10.3.

5.4.3 Documents Gathered During the Fieldwork

Apart from the above, the researcher also gathered documents during the fieldwork (i.e. secondary data collection), especially during the interview sessions. Although it has been suggested that data collection should commence with secondary data (Churchill, 1991), the researcher found that it was more economical and practical to collect secondary data during the fieldwork. The researcher realised that when you are involved in a real situation, you are aware of the best type of information or documents that

are really needed. The documents that the researcher gathered were newspaper articles that related to any of the participating Multimedia Super Corridor status companies, their company profiles, important reports (e.g. MSC IS 2003), magazines, company newsletters etc. These documents provided the researcher with useful information about the Multimedia Super Corridor status companies and allowed her to check the correct spelling of certain companies and cross-check accurate information on their activities. This is in agreement with Yin (1994: p. 81), who states that the three main advantages of collecting secondary data are that: it aids the verification processes, especially in terms of having the right spelling of particular information that you already have, such as companies' names and individuals' positions, it provides back-up or support materials on any special matters arising during the fieldwork, and it provides the opportunity to make further assumptions or conjectures on certain matters related to the current study.

5.5 Reliability, Validity and Generalisability

Reliability, validity and generalisability are critical factors in ensuring the accuracy of findings (Flick, 2002; Fowler, 1984; Sarantakos, 1998). Reliability is the ability of an instrument to produce consistent results (Sarantakos, 1998: p. 83), the stability and consistency of measurement (Sekaran, 1992: p. 171) and the degree to which measures are free from error and therefore able to produce consistent results (Zikmund, 1997: p. 340). In other words, reliability is all about being consistent. Meanwhile, validity is defined as "...the ability to produce findings that are in agreement with theoretical or conceptual values..." (Sarantakos, 1998: p. 78) and the ability to measure what is intended to be measured (Zikmund, 1997: p. 342). This includes the ability to test the research hypotheses, i.e. internal validity, and the ability to extend the findings to wider settings and/or the generalisability of the findings, i.e. external validity (Sekaran, 1992; Sarantakos, 1998). In relationship with validity, generalisability is

known as “ ...the applicability of the research findings in one organisational setting to other settings...the wider the range of applicability of the solutions generated by research, the more useful the research is to the users of such research...the more generalisable the research, the greater its usefulness and value” (Sekaran, 1992: p. 13).

Furthermore, in quantitative research, Fowler (1984: p. 74) pointed out that “...good questions are reliable, providing consistent measures in comparable situations, and valid; answers correspond to what they are intended to measure...” Here, Sekaran (1992) emphasised that the stability and internal consistency of measurements are vital and are a good indicator of the reliability of the instrument. Inadequate wording, inconsistent meaning, with some respondents interpreting questions differently, and un-standardised expectations for a type of response would affect the reliability of the instrument used in collecting data (Fowler, 1984). There are several ways to test the reliability of an instrument, as suggested by authors like Sekaran, Zikmund and Flick (i.e. test-retest reliability, parallel-form reliability, inter-item consistency reliability, split-half reliability and inter-rater reliability). In the current research, inter-item consistency reliability tests were used during the pilot test and the actual questionnaire survey. This method employs the statistical measurement of Coefficient Alpha (α). According to Litwin (1995: p. 24):

“Coefficient alpha measures internal consistency reliability among a group of items combined to form a single scale. It is a statistic that reflects the homogeneity of the scale. That is, it is a reflection of how well the different items complement each other in their measurement of different aspects of the same variable or quality.”

If the value of Alpha (α) is above 0.7, the scale can be considered reliable to the sample (Pallant, 2001: p. 87). In the questionnaire survey, the value of Cronbach's coefficient alpha (α) during the pilot test was 0.782, and the corresponding figure was 0.837 during the actual data analysis, after the fieldwork. These measures were thus found to be reliable.

Sarantakos (1998) has suggested two ways of validating an instrument: empirical (i.e. criterion validity, concurrent validity and predictive validity) and theoretical validation (i.e. face validity, content validity, construct validity, internal and external). In the current questionnaire survey, empirical validation, that is concurrent validity, was used for the validation process. The findings of the questionnaire survey have been supported by the existing empirical evidence provided by Suk Choi (2000) and Hunter et al. (2002) (see Chapter 6 for more details). Therefore, the validity of this research has sufficient support, although the generalisability of these findings could be limited to the Multimedia Super Corridor status companies. In addition, future research on the different sectors and/or industries is strongly encouraged (see Chapter 10, Section 10.3).

In qualitative research (i.e. in-depth semi structured interviews), reliability can be obtained through the quality of recording, data documentation and interpretation, notes taken during direct observations and field notes (Kirk and Miller, 1986, cited in Flick, 2002: p. 220). Furthermore, regarding interview data, reliability can be increased by providing training for interviewers and also checking the interview guide after conducting the first session (Silverman, 1993, cited in Flick, 2002: p. 220). In the current study, the researcher personally interviewed the respondents, without any assistance, and was involved in all research activities from the beginning of this research to the end, which demonstrates that the researcher is very familiar with what has to be done, and this adds to the reliability of this research. For validation purposes, various authors have suggested several

measures, such as examination of trustworthiness, credibility, transferability, dependability, and conformability (Lincoln and Guba, 1985), credibility, trustworthiness and authenticity (Miles and Huberman, 1994, cited in Sarantakos, 1998: pp. 80-81), analysing the interview situation, i.e. whether what is said is correct, the appropriateness of sincere "truth self-presentation" and communicative validation, i.e. the interviewee's agreement with the contents obtained after the interview (Flick, 2002). In checking the credibility and validity of the information gathered in the in-depth semi-structured interviews, all the above measures were adopted. Furthermore, reference was also made to the earlier findings from the questionnaire survey for the purpose of comparison. This revealed that most of the results obtained from the triangulation of methods were in agreement; the significance of the findings would suggest that the information is credible and valid.

However, similar to the case of the questionnaire survey, even though triangulation of methods promises higher reliability and validity for the research, the generalisability of the current research to wider society and other institutions could be another noteworthy point of discussion. From the realist perspective, Sayer (1984) argued that, "the pattern it [the research] discovers in particular open systems cannot be expected to apply to others with any accuracy, although we may be tempted to try. And for different reasons its role cannot be extended beyond description to (causal) explanation" (p. 219). In agreement with this, Ackroyd and Fleetwood (2000) further argued that "despite their general familiarity to sociologists, the effects of the differentiation of institutions, and particularly the behavioural consequences of their presence, have not yet been well understood. One of the reasons for this is that theoretical sociologists tend to be focused on the character of modern social relations *per se* and the general processes that led to the phenomenon of society as some kind of totality" (p. 89). In this case, to generalise what has been found in the

current study to other settings might not be appropriate without a proper investigation. This dilemma has been summed up by Lincoln and Guba (1985) thus: “the only generalisation is: there is no generalisation”.

However, further judgement on generalisation can still be made through the transferability of findings from one context to another and testing for the degree of comparability to different contexts (Flick, 2002: p. 230) as suggested in the recommendations for future research in Chapter 10.

5.6 Ethical Implications

In view of the triangulation of methods used in the current study, Zickmund (1997: p. 257) pointed out that there are many ethical issues to be considered when carrying out survey-based research, such as the respondents’ right to privacy; the use of deception; the respondents’ right to be informed about the purpose of the research; the need for confidentiality; the need for honesty in collecting data; and the need for objectivity in reporting data. In agreement with this, it has been emphasised that through shared guidelines, principles, and written and unwritten laws, research ethics help the researcher to ensure that the end purpose of a scientific endeavour is compatible with its values and goals (Kimmel, 1988: p. 42).

Therefore, in conducting this type of study, moral conduct is of great importance. For instance, permission to access Multimedia Super Corridor status companies must be obtained and appointments need to be made with all knowledge workers prior to the interview session. In the dissemination of the results of this study, it is important that the names and positions of the respondents are not identified. For this reason and in order to maintain anonymity, subjects were coded. Interviewees in the study were identified by numbers, that is, R1 for respondent number 1, R2 for respondent number 2 and so on. The researcher also respected any

obligations made to the participants, such as to provide them with the results of the current study when completed (i.e. Abstract of the thesis).

In fact, from the perspective of realism, the strength of this approach is that it provides the researcher with a holistic understanding in investigating the current issues. As a realist, it is the duty of the researcher to report the truth of everything, i.e. the findings of the current study. Thus, there is no bias in the final report writing. This has been emphasised by Tsoukas (2000: p. 534), who stated that:

“We are realist simply because reality is where it has always been, outside our heads. Insofar as we create structures through patterns of sustained interaction, from the micro-level of the small group right to the macro-level of global economic systems, we are confronted by real structures, which we only partially and often indirectly and unintentionally have helped create. Such structures cause us to form beliefs about them. In turn, our descriptions of these structures (more precisely, how we describe them) are matters which depend on the language-based institutionalised meanings of a community of actors have historically adopted.”

5.7 Summary

To summarise, this chapter began with the research design underpinning the current study, namely the exploratory and descriptive approaches. These designs were based on the paradigm of realism, which allows the researcher to see the world as it is, rather than becoming too subjective or too deterministic. This was then taken together with the method employed for this research, namely the triangulation method. It was hoped that the questionnaire survey and in-depth semi-structured interviews used in this study could be regarded as valuable methods, contributing towards rigorous results. This issue will be discussed further in Chapter 6. The questionnaire survey also helps the researcher to explore what is known about the current issues on managing knowledge workers in the local context.

In addition, an in-depth semi-structured interview is considered as a “deep” inductive approach that appears to be similar to ethnographic and phenomenological studies, and provides detailed observations of behaviour within a number of individual knowledge workers. In this view, the qualitative research offers a greater depth of information to complement and extend the earlier quantitative survey results. Thus, these methods definitely contribute towards the acquisition of detailed information, as normally required by all researchers. Furthermore, Hakim (1997: p. 32) has pointed out that one common linkage between qualitative and quantitative research is that the results of the two linked studies are sometimes presented in a single report.

After discussing the methods employed and how each method was administered, this chapter explained how the data were analysed and discussed the use of descriptive analysis and manual coding to generate issues during the transcription process. In doing so, the researcher has taken into consideration the factors of reliability, validity and generalisability of the findings, together with the current study’s ethical implications. The next chapter discusses the questionnaire survey findings, followed by an exploration of the findings from the in-depth semi structured interviews in Chapters 7, 8 and 9. Finally, Chapter 10 concludes this study.

CHAPTER SIX

Results of the Questionnaire Survey:

Some Descriptive Findings

6.0 Introduction

As discussed in Chapter 5, this study has employed a questionnaire survey as the first data collection instrument. This chapter provides an analysis of the results of the questionnaire survey, which was intended to seek and examine the opinions of respondents about the management of knowledge workers in the Multimedia Super Corridor status companies in Malaysia. The key findings from this chapter will then be fully explored and explained through the analysis of the in-depth semi-structured interviews in Chapters 7 to 9.

Out of 40 Multimedia Super Corridor status companies and 500 questionnaires initially sent out during the fieldwork, some 19 companies participated (for further details, see the breakdown of 40 participating Multimedia Super Corridor status companies in Chapter 5, Section 5.4.1.1) 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 (see the difficulties faced by the researcher while collecting data using the questionnaire survey in Chapter 5, Section 5.4.1.6). Therefore, the analysis of results in this study is based on 171 responses. As seen in Chapter 5, these findings expect response bias to have been minimised, as most of the participating Multimedia Super Corridor status companies were small companies and similar to the population of figures in the Multimedia Super Corridor Impact Survey 2003 report. Nonetheless, several attempts to minimise the risk of response bias during the

administration of questionnaire survey have also been made, as described in Chapter 5, Section 5.4.1.5.

In general, the questionnaire findings presented in this chapter focus on two main issues. Firstly, an overview of the importance and implementation of knowledge management is given. Secondly, there is an overview of the human resource management issues pertaining to the management of knowledge workers in Malaysia. This chapter is organised in the following manner: section 6.1 provides the overall company profiles; section 6.2 provides the respondents' demographic information; section 6.3 describes the results of the respondents' views on the importance and implementation of knowledge management in Malaysia; section 6.4 discusses the findings on human resource management issues and section 6.5 concludes the chapter.

6.1 Overall Company Profile (N= 19)

First of all, Table 6.1(a) provides information regarding the overall profiles of the companies on which the questionnaire survey was conducted. The decision to combine the types of Multimedia Super Corridor companies was based on summaries of their activities rather than the specific sectors in which they operated, as presented in the Multimedia Super Corridor Impact Survey's report (see for example Chapter 5, Section 5.4.1.1).

Table 6.1(a)
Summary of Companies Activities

Companies Activities	No. of Cos. Participated (N=19)*	No. of Respondents (n=171)
	Percent	Percent
Software Development, Internet Based Business, Content Development	12 (63.1)	98 (57.3)
Production/Post Production/ Animation	1 (5.3)	20 (11.7)
Data Centre/Support Centre/ Heavy User	5 (26.3)	48 (28.0)
Consulting, Education and Training	1 (5.3)	5 (3.0)

* These 19 companies included the 9 companies, which were also involved in the in-depth semi-structured interviews (see for further details, Chapter 5, Section 5.4.1.1).

As the table indicates, the most frequently reported type of company was related to software development, internet-based business and content development i.e. twelve companies (63.1 percent), from which there were 98 responses (57.3 percent). The second most frequently reported types of company were in data centres and support centres, which could be classed as providers or heavy users of multimedia products and services. There were five such companies in the sample (26.3 percent), providing 48 respondents (28.0 percent).

Looking back at Chapter 4, Section 4.3, and the current approved number of 1,057 Multimedia Super Corridor status companies by sectors as at June 2004, the findings are consistent with the report that more than half of the Multimedia Super Corridor status companies (i.e. 573 companies; 54 percent) are involved in software development, internet based business and content development (MSC IS, 2003). Therefore, these findings could be considered to represent a fairly good sample for the purpose of the current study.

Furthermore, in Table 6.1(b), out of the nineteen Multimedia Super Corridor status companies that participated in the survey, ten have less than 100 knowledge workers (52.6 percent). There are four companies with more than 500 knowledge workers (21.1 percent). When further cross tabulations were conducted, it was revealed that 101 (59.0 percent) of the total respondents (n=171) were from companies with less than 100 knowledge workers, and 34 or 19.9 percent of respondents were from larger companies with more than 100 knowledge workers (see Table 6.1(b)2). This shows that more than half of the participating Multimedia Super Corridor status companies and respondents were from companies with less than 100 knowledge workers. It could be further described that these companies were small and medium companies, as defined by SMIDEC (2005); from an information, communication and technology

perspective, medium sized companies are usually those with sales turnover of between RM 200, 000 and RM 5 million or employing between 5 and 50 full-time workers. This finding is also in accordance with the recent Multimedia Super Corridor Impact Survey (2004: p. 3), which stated that "MSC companies are still largely made up of small and medium sized companies with paid-up capital of less than RM 500,000; the percentage (56%) seemed to be similar to that of last year [i.e. 2003] (58%)". As mentioned in Chapter 4, Section 4.3.6, the contribution of these small companies and their workers towards national success is undeniable. Thus, findings from this study could provide empirical evidence of the most suitable management techniques in small companies. Further discussion on this matter is presented in Chapter 10, Section 10.1.5.

Table 6.1(b)
Number of Knowledge Workers

Number of knowledge workers they claimed to have*	No. of Cos. Participated (N=19)	No. of Respondents (n=171)
	Percent	Percent
Less than 100 knowledge workers (kw)	10 (52.6)	101(59.1)
0-20 kw	3(15.8)	8(4.7)
21-40 kw	1(5.3)	18(10.5)
41-60 kw	2(10.5)	21(12.3)
61-80 kw	2(10.5)	25(14.6)
81-100 kw	2(10.5)	29(17.0)
Between 101-200 knowledge workers	1(5.3)	7(4.1)
Between 201- 300 knowledge workers	2(10.5)	12(7.0)
Between 301- 400 knowledge workers	2(10.5)	17(9.9)
Between 401-500 knowledge workers	-	-
More than 500 knowledge workers	4(21.1)	34(19.9)

* The definition of knowledge worker by the Multimedia Development Corridor is applied in this study (see Chapter 4, Section 4.3)

In another case, considering the ownership variable, most of the participating Multimedia Super Corridor status companies participating were found to be local Malaysian companies (15; 78.9 percent) as shown in Table 6.1(c). This represents the recent figures regarding the Malaysian Multimedia Super Corridor status companies that are locally owned (735; 70 percent) as of June 2004 (MSC IS, 2003). The overall company profile of the Multimedia Super Corridor status companies considered is thus representative of the current population of the Multimedia Super Corridor status companies; namely, the majority of them are small companies, involved in software development and belonging to Malaysian residents.

Table 6.1(c)
Ownerships Structure of Participating MULTIMEDIA SUPER CORRIDOR Status Companies

Company Ownership	No. of Cos. Participated (N=19)	No. of Respondents (n=171)
	Percent	Percent
Malaysian Owned	15 (78.9)	114 (66.7)
Joint Venture	1 (5.3)	15 (8.8)
Foreign Owned	3 (15.8)	42 (24.5)

6.2 Demographic Information on the Respondents to the Questionnaire Survey (n= 171)

As reviewed in Chapter 2, 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. This will be presented in more detail in Chapter 7.

Table 6.2(a)
Gender of the Respondents

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

First of all, Table 6.2(a) shows that 91 of the respondents were male (53.2 percent) and 80 were female (46.8 percent). The small difference between the numbers of males and females participating in the current study does not reflect a major dissimilarity of opinions (see Appendix H). Thus, the researcher has decided not to focus closely on the gender issue. However, if a larger data set were available for future research, it might be useful to carry out a gender-based study of knowledge management practice (see for example Chapter 10, Section 10.3). Furthermore, Table 6.2(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 categorise the positions of information technology officer and information technology manager separately is made for the purpose of drawing a clear distinction between those respondents who have an information technology working background and those who do not within the Multimedia Super Corridor 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 6.2(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)

Table 6.2(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)

Furthermore, looking at the years of service as shown in Table 6.2(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 6.2 (d) indicates that the majority of knowledge workers were aged between 20 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 have recently completed their degrees, and are young and energetic.

Table 6.2(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 6.2(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 (Multimedia Development Corridor) that is "an individual who possesses one of these qualifications such as five or more years' professional experience in multimedia/information and communication technology 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 context. This issue is revisited in Chapter 10 (see Section 10.2.1).

Table 6.2(e)
Highest Academic Achievement of the Respondents

	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)

* This is a certificate given to a Malaysian who completed his or her secondary education. It is approximately equivalent to GCSE in United Kingdom.

Finally, in Table 6.2 (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) (see Chapter 4, Section 4.1). This suggests that the study is not biased towards any particular ethnic group and is representative of workers in the wider population of Multimedia Super Corridor status companies. Therefore, the differences of opinion between ethnic groups were not investigated, as the results of the Pearson Chi-Square analysis revealed that there were no statistically significant differences (see for example Appendix H).

Table 6.2(f)

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

6.3 Overview of Knowledge Management in the Multimedia Super Corridor Status Companies

In Chapters 2 and 3, 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 Multimedia Super Corridor 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 Multimedia Super Corridor status companies. Therefore, these findings are useful in terms of allowing human resource management in the Multimedia Super Corridor status companies to identify which factors are favoured 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 Table 6.3.1 and 6.3.2). This will then be further elucidated by an examination of the findings of the in-depth semi-structured interviews, which will be presented in Chapters 7, 8 and 9.

6.3.1 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. 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 realise the importance of the outlined success factors of the implementation of

knowledge management in the Multimedia Super Corridor status companies. A complete summary of the recorded results of these factors is attached in Appendix G.

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 6.3.1. 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 interviews, as presented in Chapter 7.

Table 6.3.1
The Importance of Knowledge Management's Top Factors (n = 171)

Factors	Importance					Mean	Median (Range)
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
Supporting team-based approaches to problem solving in Knowledge Management (<i>c26</i>)	2 (1.2)	3 (1.8)	17 (9.9)	59 (34.5)	90 (52.6)	4.36	5.00 (1-5)
A spirit of co-operation and teamwork in the company (<i>c25</i>)	-	9 (5.2)	14 (8.2)	55 (32.2)	93 (54.4)	4.36	5.00 (2-5)
Top management leadership and commitment towards knowledge management (<i>c3</i>)	-	11 (6.4)	12 (7.0)	58 (34.0)	90 (52.6)	4.33	5.00 (2-5)
Sharing knowledge with other members of a work group (<i>c13</i>)	-	8 (4.7)	17 (9.9)	61 (35.7)	85 (49.7)	4.30	4.00 (2-5)
Effectiveness of information systems towards knowledge management (<i>c17</i>)	-	6 (3.5)	19 (11.1)	67 (39.2)	79 (46.2)	4.28	4.00 (2-5)

Gaining knowledge about customers, own competencies and capabilities (c16)	-	8 (4.7)	19 (11.1)	76 (44.4)	68 (39.8)	4.19	4.00 (2-5)
A formal system that allows for contribution of every employee's opinions or suggestion towards knowledge management (c1)	1 (0.6)	11 (6.4)	22 (12.9)	59 (34.5)	78 (45.6)	4.18	4.00 (1-5)
Actively encourage employee participation in decision processes (c29)	7 (4.1)	12 (7.0)	8 (4.7)	72 (42.1)	72 (42.1)	4.16	4.00 (1-5)
Promote ongoing employee participation in decision processes (c24)	2 (1.2)	7 (4.1)	21 (12.3)	76 (44.4)	65 (38.0)	4.14	4.00 (1-5)
Reward and recognition for actual performance improvement (c12)	6 (3.5)	10 (5.8)	16 (9.4)	63 (36.9)	76 (44.4)	4.13	4.00 (1-5)

Note: 1 (Not Important), 2 (Slightly Important), 3 (Moderately Important), 4 (Important) and 5 (Very Important)

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. Further explanations of teamwork and knowledge sharing are provided in Chapter 7, Section 7.3.2. 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.

6.3.2 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 Multimedia Super Corridor status companies. As in Section 6.3.1, 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 implement" 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 Multimedia Super Corridor 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 companies. However, this view has also been highlighted during the in-depth semi structured interviews, and further results are provided in Chapters 7 and 8.

Table 6.3.2 further provides the 10 highest mean score of factors that are being moderately implemented, such as teamwork (c25, c13, c26 and c14), minimisation 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. The recorded results of these factors are attached in full in Appendix G. 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 Multimedia Super Corridor companies (*mean* = 3.20; *median* = 3.00). This implies that teamwork is currently favoured by knowledge workers and is now moderately or little implemented in the Multimedia Super Corridor status companies. The understanding here is that in high technology companies such as the Multimedia Super Corridor status companies, teamwork may be the best platform for knowledge workers to leverage their knowledge effectively.

Table 6.3.2
The Implementation of Knowledge Management's Top Factors (n = 171)

Factors	Implementation					Mean	Median
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
A spirit of co-operation and teamwork in the company (c25).	1 (0.6)	82 (48.0)	6 (3.5)	46 (26.9)	36 (21.0)	3.20	3.00 (1-5)
Sharing knowledge with other members of a work group (c13).	2 (1.2)	65 (38.0)	35 (20.5)	40 (23.4)	29 (16.9)	3.17	3.00 (1-5)
Supporting team-based approaches to problem solving in knowledge management (c26).	2 (1.2)	88 (51.5)	12 (7.0)	38 (22.2)	31 (18.1)	3.05	2.00 (1-5)
Sharing knowledge with members of other work groups within the company (c14).	5 (2.9)	82 (48.0)	30 (17.5)	34 (19.9)	20 (11.7)	2.89	2.00 (1-5)
Minimisation of hierarchical and bureaucratic procedures of effective knowledge management (c7).	7 (4.1)	88 (51.5)	22 (12.9)	35 (20.4)	19 (11.1)	2.83	2.00 (1-5)

Effectiveness of information systems towards knowledge management (c17).	4 (2.3)	96 (56.1)	20 (11.7)	29 (17.0)	22 (12.9)	2.82	2.00 (1-5)
Top management encouragement toward utilization of knowledge management system (c4).	8 (4.7)	82 (48.0)	27 (15.8)	42 (24.5)	12 (7.0)	2.81	2.00 (1-5)
Organisational commitment to empower people in knowledge management (c28).	5 (2.9)	99 (57.9)	14 (8.2)	31 (18.1)	22 (12.9)	2.80	2.00 (1-5)
Analysis of job performance data and information (c9).	7 (4.1)	93 (54.4)	19 (11.1)	45 (26.3)	7 (4.1)	2.72	2.00 (1-5)
Gaining knowledge about customers, own competencies and capabilities (c16).	4 (2.3)	101 (59.1)	26 (15.2)	23 (13.5)	17 (9.9)	2.70	2.00 (1-5)

Note: 1 (Not Implemented), 2 (Little Implemented), 3 (Moderately Implemented), 4 (Implemented) and 5 (Extensively Implemented)

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. socialisation, externalisation, combination and internalisation). Therefore, further investigation on this issue has been carried out during the in-depth semi-structured interviews, as presented in Chapters 7 and 8. 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 minimisation 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 Multimedia Super Corridor 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 6.3.2 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 summarised 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, 2003; Despress and Hiltrop, 1995; Fisher et al., 2003; Greengard, 1998; Holbeche, 2002; Jackson and Schuler, 2003; 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 socialisation as well as externalisation 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 Multimedia Super Corridor 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. A further

discussion of this matter is provided in the next section, in the overview of human resource management issues as perceived by knowledge workers in the Multimedia Super Corridor status companies.

6.4 Overview of Human Resource Management Issues

The questions used in this section were developed from the work done by Hunter et al. (2002), which focused on issues related to knowledge workers, knowledge management and human resource management in the United Kingdom context. In fact, the findings from their focus group interviews revealed the need for further clarification of similar issues in different contexts. Thus, these questions have been adjusted in order to fulfil the objectives of the current study. The statistical analysis was conducted based on a full 5-point Likert scale ranging from 1 (Strongly Disagreed) to 5 (Strongly Agreed). For presentational purposes, the responses reported in the cross-tabulation analysis have been divided into three categories, namely '*disagreed*' (which combines '*disagreed*' and '*strongly disagreed*'), '*undecided*' and '*agreed*' (which combines '*agreed*' and '*strongly agreed*'). Descriptive findings from cross tabulation and Pearson Chi-Square analysis were also used to explore noteworthy results concerning the issues of experience on the latest assignment, knowledge sharing, personal development, performance appraisal, rewards and the future of knowledge workers.

6.4.1 Experience on the Latest Assignment

As seen in Chapter 3, knowledge management and human resource management are strategically linked in terms of encouraging and supporting workers to appreciate and utilise the knowledge that resides in their intellect. In this case, exploring knowledge workers' experience in their latest assignments could help knowledge management and human resource management to identify the levels of agreement with issues such as: Does the assignment help them to learn and grow (experience number

1, *exp1*)? Is the assignment interesting and challenging (experience number 2, *exp2*)? Does it allow for the use of self-knowledge and ability (experience number 3, *exp3*)? Do knowledge workers clearly understand the task assigned to them (experience number 4, *exp4*)? And does it provide freedom for decision-making (experience number 5, *exp5*)? These findings could later help to cross check the earlier review of the characteristics of knowledge workers, which indicates that that they are usually involved in challenging work, are enthusiastic about learning and dislike repetitive work. Furthermore, they could be also used by human resource management to define the current needs of knowledge workers, especially the type of knowledge work that is best suited to them.

Table 6.4.1(a)
Experience on the Latest Assignment (n=171)

Attributes	Level of Agreement					Mean
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
1. This assignment helped me to learn and to grow (<i>exp1</i>).	-	29 (16.9)	7 (4.1)	80 (46.8)	55 (32.2)	3.94
2. My work was interesting and challenging (<i>exp2</i>).	1 (0.6)	44 (25.7)	9 (5.3)	64 (37.4)	53 (31.0)	3.73
3. My work made good use of my knowledge and ability (<i>exp3</i>).	2 (1.2)	43 (25.1)	5 (3.0)	76 (44.4)	45 (26.3)	3.70
4. When task were assigned to me, I understood thoroughly what was expected of me (<i>exp4</i>).	-	49 (28.7)	4 (2.3)	75 (43.9)	43 (25.1)	3.65
5. I had the freedom to make the necessary decisions to do my work properly (<i>exp5</i>).	-	75 (43.8)	3 (1.8)	71 (41.5)	22 (12.9)	3.23
6. I received PROMPT feedback on my work, good or back (<i>exp6</i>).	1 (0.6)	80 (46.8)	11 (6.4)	53 (31.0)	26 (15.2)	3.13

Notes: 1 (Strongly Disagreed), 2 (Disagreed), 3 (Undecided), 4 (Agreed) and 5 (Strongly Agreed)

In this regard, Table 6.4.1(a) reveals that 80 respondents (46.8 percent) agreed and a further 55 (32.2 percent) strongly agreed that their latest assignments had helped them to learn more and grow (*exp1*). In fact, many of them revealed that the assignment was interesting and challenging (*exp2*) (Agreed= 64, 37.4 percent and Strongly Agreed= 53, 31.0 percent) and that it had allowed them to use their knowledge and ability (*exp3*) (Agreed= 76, 44.4 percent and Strongly Agreed= 45, 26.3 percent). However it was also found that 75 (43.9 percent) of respondents were not given the freedom to make the necessary decisions relating to their tasks (*exp5*).

When further analysis was conducted by type of company, as shown in Table 6.4.1(b), it was revealed that all types of company reported high percentages of agreement with *exp1* (Type A - Software Development, Internet Based Business and Content Development; = 75, 76.5 percent; Type B - Production, Post and Animation = 15, 75.0 percent; Type C - Data Centre, Support Centre and Heavy User = 42, 87.1 percent and Type D - Consulting, Education and Training = 3, 60.0 percent). This result was explored further using the Pearson Chi-Square test, which revealed no statistically significant difference between any of the types of company at the 5% level ($\chi^2 = 11.230$, $df=9$, $p=.260$). For *exp2*, however, more than half of the workers from Type A and B companies indicated agreement with the statement (66 or 68.0 percent and 15 or 75.0 percent), whereas the corresponding figures for companies of Type C and D were 12 (25.0 percent) and 2 (40.0 percent). A Pearson Chi-Square test on the difference between *exp2* and types of company was statistically significant at the 5% level ($\chi^2 = 41.721$, $df = 12$, $p=.000$). This would imply that the nature of Type A and B companies is that they are very much involved in developing innovative and creative ideas. For instance, in Type A companies, the creation of e-business usually starts with its framework i.e. content development, which is followed by software development.

In Type B companies, knowledge workers are usually involved in production and/or animation activities. This type of work requires workers to produce interesting and attractive television programmes and advertisements in order to attract as many viewers as possible. Therefore, the tasks given to knowledge workers in these types of companies would usually be expected to be interesting and challenging. Such work encourages knowledge workers to be creative as well innovative. At the same time, it also helps knowledge workers to learn and grow. It may be the case that knowledge management is required most in these types of company. Thus, human resource management in these companies is seen to

assist knowledge management practice in order to ensure that knowledge workers leverage their knowledge effectively.

In comparison, workers from Type C companies might not need to take on challenging tasks, as they are usually involved in supporting and maintaining data safely and efficiently. In this case, they would be very much involved in routine work that utilises their knowledge and ability, as shown in their responses to *exp3* (Type C= 43, 89.6 percent) ($\chi^2=15.533$, $df=8$, $p=.050$). For *exp5*, even though the earlier finding shows signs of disagreement with the statement, it still seems that Type A, B and C companies provide a significant different of freedom to their knowledge workers (56 or 57.1 percent; 11 or 55 percent; 25 or 52.1 percent). A Pearson Chi-Square analysis shows the statistical significant between *exp2* and types of company at the 5% level ($\chi^2=13.662$, $df=6$, $p=.034$). Here, more freedom is provided in Type A companies (although some respondents disagreed with this statement) compared to Types B, C and D.

Similar results were also found in the analysis by age of respondents, as shown in Table 6.4.1(c). It revealed a high percentage of agreement with *exp1*, *exp2* and *exp3* in all age categories. A Pearson Chi-Square was also conducted to inspect relationships between these experiences and the ages of the respondents. The results revealed no statistically significant difference between *exp1* and *exp2* ($\chi^2=5.587$, $df=6$, $p=.471$; $\chi^2=8.544$, $df=8$, $p=.382$). However a statistically significant difference was found between *exp3* and age ($\chi^2=15.533$, $df=8$, $p=.050$). Overall this could imply that age is not the main barrier to knowledge workers' learning and growth while completing their tasks. In fact, each age group agreed that the tasks given to them were interesting and challenging, while at the same time allowing especially knowledge workers age between 20 to 29 years old to use their knowledge.

Next, in *exp5*, even though respondents from all age categories agreed that they had been given freedom in completing their tasks, there was still a significant difference between the age of respondents and the freedom provided to them ($\chi^2=13.662$, $df=6$, $p=.034$). It seems that knowledge workers aged between 20 and 29 strongly disagree with *exp5*, compared to knowledge workers aged 30 to 39 and 40 to 49.

Table 6.4.1 (b)
Analysis Showing Experience on the Latest Assignment (*exp1*, *exp2*, *exp3*, *exp5*) by Type of Companies

Level of Agreement on <i>exp1</i> , <i>exp2</i> , <i>exp3</i> and <i>exp5</i>	Type of Companies* (N= 19)								TOTAL		
	A (N=12) (n= 98)		B (N=1) (n= 20)		C (N= 5) (n=48)		D (N= 1) (n= 5)				
	f	%	f	%	f	%	f	%	F	%	
Agreed	<i>Exp1</i>	75	76.5	15	75.0	42	87.5	3	60.0	135	79.0
	<i>Exp2</i>	66	68.3	15	75.0	12	25.0	2	40.0	117	68.4
	<i>Exp3</i>	66	67.4	11	55.0	43	89.6	1	20.0	121	70.7
	<i>Exp5</i>	56	57.1	11	55.0	25	52.1	1	20.0	93	54.4
Undecided	<i>Exp1</i>	6	6.2	1	5.0	-	-	-	-	7	4.0
	<i>Exp2</i>	6	6.1	1	5.0	2	4.2	-	-	9	5.3
	<i>Exp3</i>	3	3.0	1	5.0	-	-	1	20.0	5	3.0
	<i>Exp5</i>	2	2.0	-	-	1	2.1	-	-	3	1.8
Disagreed	<i>Exp1</i>	17	17.3	4	20.0	6	12.5	2	40.0	29	17.0
	<i>Exp2</i>	26	26.5	4	20.0	34	70.8	3	60.0	45	26.3
	<i>Exp3</i>	29	29.6	8	40.0	5	10.4	3	60.0	45	26.3
	<i>Exp5</i>	40	41.8	9	45.0	22	45.8	4	80.0	75	43.8
TOTAL for <i>Exp1</i> , <i>Exp2</i> , <i>Exp3</i> and <i>Exp5</i>		98	100.0	20	100.0	48	100.0	5	100.0	171	100.0

* Type A = Software Development, Internet Based Business and Content Development;
Type B = Production, Post and Animation; Type C = Data Centre, Support Centre and Heavy User; Type D =
Consulting, Education and Training

Table 6.4.1 (c)
Analysis Showing Experience on the Latest Assignment (*exp1, exp2, exp3, exp5*)
by Age of Respondents (n=171)

Level of Agreement on <i>exp1, exp2, exp3</i> and <i>exp5</i>		Age of Respondents (n=171)						TOTAL	
		20-29 years old (n=110)		30-39 years old (n=52)		40-49 years old (n=9)			
		f	%	f	%	f	%	F	%
Agreed	<i>exp1</i>	85	77.2	42	80.7	8	88.9	135	79.0
	<i>exp2</i>	70	63.6	42	80.7	5	55.5	117	68.4
	<i>exp3</i>	70	63.6	43	82.7	8	88.9	121	71.0
	<i>exp5</i>	56	50.9	28	53.8	9	100.0	93	54.4
Undecided	<i>exp1</i>	5	4.5	2	3.8	-	-	7	4.1
	<i>exp2</i>	7	6.4	2	3.8	-	-	9	5.3
	<i>exp3</i>	3	2.7	1	1.9	1	11.1	5	3.0
	<i>exp5</i>	3	2.7	-	-	-	-	3	1.8
Disagreed	<i>exp1</i>	20	18.2	8	15.4	1	11.1	29	17.0
	<i>exp2</i>	33	30.0	8	15.4	4	44.4	45	26.3
	<i>exp3</i>	37	33.7	8	15.4	-	-	45	26.3
	<i>exp5</i>	51	46.4	24	46.2	-	-	75	43.8
TOTAL for <i>exp1, exp2, exp3</i> and <i>exp5</i>		110	100.0	52	100.0	9	100.0	171	100.0

Table 6.4.1(d)
Pearson Chi-Square Analysis between the Latest Assignment (*exp1, exp2, exp3, exp5*) and Types of Company and
Age of Respondents

Test Variables		Age of Respondents		
	χ^2	df	P	
Types of Company	<i>exp1</i>	11.230	9	.260
	<i>exp2</i>	41.721	12	.000*
	<i>exp3</i>	15.533	8	.050*
	<i>exp5</i>	13.662	6	.034*
Age of Respondents	<i>exp1</i>	5.587	6	.471
	<i>exp2</i>	8.544	8	.382
	<i>exp3</i>	15.533	8	.050*
	<i>exp5</i>	13.662	6	.034*

Overall, it can be summarised that knowledge workers agreed that their latest assignments allowed them to learn more by using their existing knowledge. Furthermore, their latest assignments were also seen as interesting, challenging and at times permitted them to make their own

decisions. These findings are similar to what has been found from the in-depth semi-structured interviews. They confirm the previous literature that indicates that the characteristics of knowledge workers mean that they are usually involved in knowledge work that is challenging and non-repetitive (Amar, 2002; Horribe; 1999; Helton; 1988; Kelly; 1990). The findings also indicate that knowledge workers are enthusiastic about learning, as it helps them to grow further. Further discussion on these findings in relation to the approach taken by human resource management and knowledge management, especially in the issue of personal development, is presented in more detail in Section 6.4.3 and Chapter 7.

6.4.2 Knowledge Sharing

In the work done by Nonaka and his colleagues on the Spiral of Knowledge and the SECI Model (see for example Chapter 2, Section 2.2) knowledge sharing among knowledge workers has been seen as the most crucial element in meeting the end objectives of knowledge management. Knowledge sharing allows knowledge workers to transmit and receive valuable knowledge to and from others within and across departments in the company. However, to date there is still some debate about whether knowledge workers really share their knowledge or not and what exactly makes them want to share or otherwise. The current study thus takes the challenge of exploring exactly how knowledge workers understand the concept of knowledge sharing and how they see it as adding value to the company.

In this regard, Table 6.4.2 (a) shows the knowledge workers' overall level of agreement with the practice of knowledge sharing within the companies they work for. Most respondents, i.e. 87 (50.9 percent) agreed, and 38 (22.2 percent) strongly agreed, that they are encouraged to share knowledge learned with others (*ks1*). This is shown further in *ks5* where most respondents reported a high percentage of disagreement with the

suggestion that their senior staffs are too busy to share knowledge with them (Strongly Disagreed = 19, 11.1 percent; Disagreed = 91, 53.2 percent). These findings, however, seem to be in contradiction to *ks2*, *ks3* and *ks4*. In this case, the majority of respondents, i.e. 93 (54.4 percent), disagreed and 8 (4.6 percent) strongly disagreed that knowledge sharing is a part of the company's culture (*ks2*).

Table 6.4.2(a)
Experience on Knowledge Sharing (n=171)

Attributes	Level of Agreement					Mean
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
1. I am encouraged to share with others what I have learned from my recent assignments (<i>ks1</i>).	-	38 (22.2)	8 (4.7)	87 (50.9)	38 (22.2)	3.73
2. Sharing knowledge systematically is part of the company's culture (<i>ks2</i>).	8 (4.6)	93 (54.4)	2 (1.2)	49 (28.7)	19 (11.1)	2.87
3. The firm has a well-organised system for sharing knowledge (e.g. about clients, managing projects, new approaches) across departments or practice areas (<i>ks3</i>).	10 (5.8)	100 (58.5)	4 (2.3)	40 (23.4)	17 (10.0)	2.73
4. The firm has a well-organised system for sharing knowledge (e.g. about clients, managing projects, new approaches) within departments or practice areas (<i>ks4</i>).	10 (5.8)	101 (59.1)	7 (4.1)	33 (19.3)	20 (11.7)	2.72
5. Senior staffs are too busy to reflect on their experiences and share them (<i>ks5</i>).	19 (11.1)	91 (53.2)	3 (1.8)	45 (26.3)	13 (7.6)	2.66

Note: 1 (Strongly Disagreed), 2 (Disagreed), 3 (Undecided), 4 (Agreed) and 5 (Strongly Agreed)

This is supported by the fact that more than half the respondents disagreed (100; 58.5 percent) and strongly disagreed (10; 5.8 percent) that their companies had well-organised systems for knowledge sharing across departments (*ks3*) as well as within departments (*ks4*) (Disagreed = 101, 59.1 percent and Strongly Disagreed= 10, 5.8 percent). An explanation for this contradiction could be related to the earlier findings in Section 6.3.1 and 6.3.2, which provide quite similar results (i.e. the importance of knowledge management achieved high scores, but lower scores were given for the actual implementation of knowledge management).

In this view, it could be teamwork that encourages knowledge workers to share knowledge. However, proper mechanisms are not yet in place to support such activities. This could be also due to the belief that top management is seen to be responsible for supporting the knowledge sharing working culture as well as providing an effective information system for knowledge workers to leverage their knowledge to others. Further exploration on this matter has also been made during the in-depth semi-structured interviews, as presented in Chapters 7 and 8.

Furthermore, as the main purpose of the current study is to understand knowledge workers and how their companies support them in terms of managing knowledge, a further analysis of knowledge sharing variables by demographic information such as the role and age of respondents (see for example Table 6.4.2b and 6.4.2c) was conducted. A particular analysis of knowledge sharing as part of the company culture (*ks2*) by the type of companies and the size of companies was also conducted with the purpose of obtaining more details findings, as shown in Tables 6.4.2(d) and 6.4.2(e).

Table 6.4.2(b) provides the percentage responses of respondents from each type of role in response to the item *"I am encouraged to share with others what I have learned from my recent assignments"* (*ks1*). It shows that the majority of respondents from all categories indicated their agreement with *ks1*. This is further supported by the Pearson Chi-Square test between *ks1* and the role of respondents, which shows no statistically significant difference at the 5% level ($\chi^2=4.710$, $df=9$, $p=.859$). This implies that regardless of their roles, most respondent have similar opinions on *ks1*. For instance, Information Technology Officers (87 or 70.7 percent), Non Information Technology Officers (7 or 87.5 percent), Information Technology Managers (26 or 76.5 percent) and Non Information Technology Managers (5 or 83.3 percent) agreed with this statement. However, lower levels of agreement were found with the statements *"Sharing knowledge systematically is part of the company's culture"*(*ks2*), *"The firm has a well organised system for sharing*

knowledge (e.g. about clients, managing projects, new approaches) across departments or practice areas" (ks3) and "The firm has a well organised system for sharing knowledge (e.g. about clients, managing projects, new approaches) within departments or practice areas" (ks4). This supports the earlier findings shown in Table 6.4.2(a). In this regard, most respondents, regardless of what position they held, realised the need and/or importance of keeping and sharing their valuable knowledge. Statistical analysis using the Pearson Chi square test revealed no significant difference between ks2 and ks3 at the 5% level (see Table 6.4.2f; ks2: $\chi^2 = 11.982$, df=12, p=.447; ks3: $\chi^2 = 7.676$, df=12, p=.810). However, the culture and system are still not there to encourage these activities (see for example Section 6.3). Furthermore, in the case of ks4, a significant difference was found between the role of knowledge workers at the 5% level ($\chi^2 = 21.362$, df=12, p=.045). It was revealed that the majority of those who disagreed with ks4 were information technology officers.

When these items were analysed by age, similar findings were also discovered and represented in Table 6.4.2(c), which shows that the majority of knowledge workers from all age groups agreed with ks1 ($\chi^2 = 2.645$, df=6, p=.852) and disagreed with ks2 ($\chi^2 = 21.356$, df=8, p=.006), ks3 ($\chi^2 = 13.055$, df=8, p=.110) and ks4 ($\chi^2 = 17.758$, df=8, p=.023). The most noteworthy finding was that all respondents in the 40 to 49 age group disagreed with ks2 (9 or 100 percent) and ks4 (9 or 100 percent). From the researcher's point of view, this group usually contains those who are the senior staffs in the company, which could include the information technology and non-information technology managers, as mentioned earlier. This confession by the senior staff provides evidence that the current status of the implementation of knowledge management in the Multimedia Super Corridor status companies is still low. The working culture and system to introduce knowledge sharing are yet to be established; also, the role of the senior staff could be further interpreted. In this case and in agreement with the earlier findings in Section 6.3,

again the role of leadership or perhaps top management could be strongly related to supporting as well as encouraging knowledge sharing activities.

Table 6.4.2 (b)
Analysis Showing Knowledge Sharing (*ks1*, *ks2*, *ks3* and *ks4*) by Role of Respondents (n=171)

Analysis Showing Knowledge Sharing (ks1, ks2, ks3 and ks4) by Role of Respondents (n=171)											
Level of Agreement on ks1, ks2, ks3 and ks4	Role of Respondents (n=171)								TOTAL		
	IT Officers (n=123)		Non IT Officers (n=8)		IT Managers (n=34)		Non IT Managers (n=6)				
	F	%	f	%	f	%	f	%	F	%	
Agreed	ks1	87	70.7	7	87.5	26	76.5	5	83.3	125	73.1
	ks2	47	38.2	4	50.0	17	50.0	-	-	68	39.8
	ks3	40	32.6	3	37.5	12	35.3	2	33.3	57	33.3
	ks4	36	29.3	6	75.0	11	32.4	-	-	53	31
Undecided	ks1	7	5.7	-	-	1	2.9	-	-	8	4.7
	ks2	1	0.8	-	-	1	2.9	-	-	2	1.2
	ks3	2	1.6	-	-	2	5.9	-	-	4	2.3
	ks4	5	4.1	-	-	2	5.9	-	-	7	4.1
Disagreed	ks1	29	23.6	1	12.5	7	20.6	1	16.7	38	22.2
	ks2	75	61.0	4	50.0	16	47.1	6	100.0	101	59.0
	ks3	81	65.8	5	62.5	20	58.8	4	66.7	110	64.4
	ks4	82	66.6	2	25.0	21	61.7	6	100	111	64.9
TOTAL for ks1, ks2 ks3, ks4		123	100.0	8	100	34	100.0	6	100.0	171	100.0

Table 6.4.2(c)
Analysis Showing Knowledge Sharing (*ks1*, *ks2*, *ks3* and *ks4*) by Age of Respondents (n=171)

Level of Agreement on <i>ks1</i> , <i>ks2</i> , <i>ks3</i> and <i>ks4</i>	Age of Respondents (n=171)						TOTAL		
	20-29 years old (n=110)		30-39 years old (n=52)		40-49 years old (n=9)		F	%	
	f	%	f	%	f	%			
Agreed	<i>ks1</i>	79	71.8	39	75	7	77.7	125	73.1
	<i>ks2</i>	39	35.4	29	55.8	-	-	68	39.8
	<i>ks3</i>	37	33.7	18	34.6	2	22.2	57	33.3
	<i>ks4</i>	38	34.5	15	28.8	-	-	53	31
Undecided	<i>ks1</i>	7	6.4	1	1.9	-	-	8	4.7
	<i>ks2</i>	2	1.8	-	-	-	-	2	1.2
	<i>ks3</i>	3	2.7	1	1.9	-	-	4	2.3
	<i>ks4</i>	5	4.5	2	3.8	-	-	7	4.1
Disagreed	<i>ks1</i>	24	21.8	12	23.1	2	22.2	38	22.2
	<i>ks2</i>	69	62.8	23	44.2	9	100.0	101	59.0
	<i>ks3</i>	70	63.6	33	63.5	7	77.8	110	64.4
	<i>ks4</i>	67	60.9	35	67.3	9	100.0	111	64.9
TOTAL for <i>ks1</i> , <i>ks2</i> <i>ks3</i> and <i>ks4</i>		110	100.0	52	100.0	9	100.0	171	100.0

In terms of the types of company studied, Table 6.4.2(d) shows further that most participating Multimedia Super Corridor companies i.e. Type A, B and C, are yet to introduce and/or practice a knowledge sharing culture, although in Type D companies, only 1 (20 percent) of 5 respondents disagreed with statement *ks2*. This could be due to the nature of Type D's working activities, which involve consulting, education and training. It could be interpreted further that these types of company (Type D) do encourage and practice knowledge sharing, as their jobs in consulting, educating and training others involve transferring their knowledge from and to each other. Overall, the result of the Pearson Chi-Square analysis between *ks2* and types of company revealed no statistically significant difference ($\chi^2=16.723$, $df=12$, $p=.160$), indicating that types of company do not actually appear to totally change based on the opinions of *ks2*. In summary, these findings portray the current scenario of knowledge sharing activities among knowledge

workers in the four types of Multimedia Super Corridor status company. However, it could be too early to suggest that this phenomenon is peculiar to the high technology companies such as Multimedia Super Corridor status companies. Nonetheless, the findings reveal the reality of the current knowledge sharing activities in the Multimedia Super Corridor status companies, which were expected to share more, especially in accomplishing their knowledge tasks.

In addition, it was also expected that knowledge workers in the small companies would share more, as they are close to each other compared to workers in a larger company. However, another noteworthy finding revealed in Table 6.4.2 (e) was that more than half of respondents (61 or 60.0 percent) from the small companies still disagreed that there was a knowledge sharing culture in their companies (*ks2*). Further analysis was also conducted to see whether there was a statistically significant difference between size of companies and *ks2* at the 5% level. No significant difference was found ($\chi^2=14.774$, $df=16$, $p=.541$). This is in agreement with the work done by Archivili et al. (2003) and Von Krogh et al. (1998), which concluded that the size of the company does not matter to whether the knowledge workers want to share their knowledge or not: "trust" is what matters (see for example Chapter 2, Section 2.4.3.10).

In contrast, this finding does not match with the work done by Sveiby (1997), who found that the smaller the company, the closer the relationships among its workers. In this regard, the researcher will no longer focus on the size of the Multimedia Super Corridor status companies for further analysis, but will look more into the knowledge workers' personal characteristics and their views on what factors are likely to make them share more with others, as prescribed by Archivili et al. (2003).

Table 6.4.2(d)
Analysis Showing Knowledge Sharing (ks2) by Type of Companies (N=19, n=171)

Level of Agreement on ks2	Type of Companies* (N= 19)								TOTAL	
	A (N=12) (n= 98)		B (N=1) (n= 20)		C (N= 5) (n=48)		D (N= 1) (n= 5)			
	f	%	f	%	f	%	f	%	F	%
Agreed	39	40.0	3	15.0	22	45.8	4	80.0	68	39.8
Undecided	2	2.0	-	-	-	-	-	-	2	1.2.0
Disagreed	57	58.0	17	85.0	26	54.2	1	20.0	101	59.0
TOTAL	98	100.0	20	100.0	48	100.0	5	100.0	171	100.0

* Type A = Software Development, Internet Based Business and Content Development;
 Type B = Production, Post and Animation;
 Type C = Data Centre, Support Centre and Heavy User;
 Type D = Consulting, Education and Training

Table 6.4.2(e)
Analysis Showing Knowledge Sharing (ks2) by Size of Companies (n=171)

Analysis Showing Knowledge Sharing (ks2) By Size of Companies (n= 171)												
Level of Agreement on ks2	Size of Companies										TOTAL	
	10-100 kw* (n=101)		101-200 kw (n=7)		201-300 kw (n=12)		301-400 kw (n= 17)		More than 500 kw (n= 34)			
	f	%	f	%	f	%	f	%	f	%	F	%
Agreed	38	38.0	3	43.0	7	58.0	7	4.01	13.0	38.0	68	39.8
Undecided	2	2.0	-	-	-	-	-	-	-	-	2	1.2
Disagreed	61	60.0	4	57.0	5	42.0	10	59.0	21.0	62.0	101	59.0
Total	101	100.0	7	100.0	12	100.0	17	100.0	34	100.0	171	100.0

* kw = knowledge workers

Table 6.4.2(f)
Pearson Chi-Square Analysis between Knowledge Sharing and Role, Age of Respondents, Types and Size of Company

Variables		χ^2	df	p
Role of Respondents	ks1	4.710	9	.859
	ks2	11.982	12	.447
	ks3	7.676	12	.810
	ks4	21.362	12	.045*
Age of Respondents	ks1	2.645	6	.786
	ks2	21.356	8	.006*
	ks3	13.055	8	.110
	ks4	17.758	8	.023*
Types of Companies	ks1	5.908	9	.749
	ks2	16.723	12	.160
	ks3	13.366	12	.343
	ks4	13.243	12	.352
Size of Companies	ks1	26.585	12	.009*
	ks2	14.774	16	.541
	ks3	47.142	16	.000*
	ks4	76.133	16	.000*

Overall, the findings on knowledge sharing from the questionnaire survey indicate that the respondents have realised the importance of sharing knowledge and show a positive attitude towards doing so, even though knowledge sharing was not considered as part of company culture. In this regard, it could be summarised that to date, companies are yet to establish the right directions and guidance on how to practise and encourage knowledge sharing within and across departments. This could be due to the lack of encouragement by the senior staff and/or top management. These findings, however, contradict the qualitative findings reported later, which indicate that most respondents were not in favour of sharing knowledge with others. This is because, to them, knowledge has been considered as an individual asset and they feel that nobody should be allowed to steal it from them (see for example Chapter 7, Section 7.2.4). They want to keep their knowledge for themselves.

Thus, other than understanding what tasks knowledge workers would favour and involve themselves in the most, human resource management also needs to acknowledge the crucial requirements for the relevant system in supporting knowledge sharing, and to start to adapt it as a part of each company's culture. To do this, human resource management might

consider providing and/or creating a more competitive package in the form of a knowledge workers' personal development plan, performance appraisal system and rewards, as presented in the following sections.

6.4.3 Personal Development

As discussed in Chapters 2 and 3, personal development is one of the most important issues for knowledge workers, leading their careers towards success. According to the motivation theories, each individual has personal objectives and needs. Furthermore, the levels of these needs are varied and depend much on, for example, the individual's age. For instance, according to Soulsby (2000) older workers are less interested in training and career development compared to younger workers, due to their established personal fulfilment (achievement) and liberation (cited in Rocco et al., 2003: p. 155). In this view, an appropriate personal development plan for young knowledge workers would be considered as one of the important factors in ensuring the effectiveness and success of knowledge creation and sharing, as mentioned in the SECI Model.

With regard to this, it was shown in Table 6.4.3(a) that 85 (49.7 percent) and 25 (14.6 percent) of respondents agreed and strongly agreed with the statement *"I believe I could successfully undertake higher level tasks if there was more effective delegation"* (pd1). Overall, this gives the highest mean score for this theme, i.e. mean= 3.49. This demonstrates that most respondents were ambitious, high achievers and ready to take on challenges if they were delegated well within an important assignment.

Table 6.4.3(a)
Experience on the Personal Development (n=171)

Attributes	Level of Agreement					Mean
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
1. I believe I could successfully undertake higher level tasks if there was more effective delegation (<i>pd1</i>).	-	52 (30.4)	9 (5.3)	85 (49.7)	25 (14.6)	3.49
2. The team in which I work provides a supportive learning environment (<i>pd2</i>).	4 (2.3)	65 (38.0)	9 (5.3)	63 (36.9)	30 (17.5)	3.29
3. The company provides me with a well structured training and development programme (<i>pd3</i>).	18 (10.5)	108 (63.2)	7 (4.1)	23 (13.5)	15 (8.8)	2.47
4. Company allocates a generous amount of time for my training (<i>pd4</i>).	18 (10.5)	115 (67.3)	5 (2.9)	20 (11.7)	13 (7.6)	2.39
5. After the training programme, I had the necessary skills to do the job more efficient (<i>pd5</i>).	10 (5.8)	78 (45.6)	5 (2.9)	69 (40.4)	9 (5.3)	2.94

Note: 1 (Strongly Disagreed), 2 (Disagreed), 3 (Undecided), 4 (Agreed) and 5 (Strongly Agreed)

When asked whether the team provides a supportive learning environment (*pd2*), all respondents seemed to give an almost equal number of answers for disagreement (65; 38.0 percent) and agreement (63; 36.9 percent). The same result was also found on statement *pd5*; 78 (45.6 percent) of the respondents disagreed and 69 (40.4 percent) agreed that they could do a better job after taking the training programme. Another notable finding was that 108 of the respondents (63.2 percent) reported high disagreement with the statement, “*The company provides me with a well structured training and development programme*” (*pd3*). A similar finding was also found in response to statement *pd4*, where 115 of the respondents (67.3 percent) disagreed with the statement “*The company allocates a generous amount of time for my training*”.

In another case, when further analysis was conducted on responses to the statement “*I believe I could successfully undertake higher level tasks if there was more effective delegation*” (*pd1*) by age of the respondents (see Table 6.5.3(b), it was seen that 79 (72 percent) of the total numbers of those who agreed (n=110) were aged between 20 and 29. Furthermore, when further tests

were carried out, no statistically significant difference was revealed between age and *pd1* ($\chi^2 = 11.868$, $df = 6$, $p = .065$). This implies that knowledge workers of all ages have similar opinions of *pd1*.

Table 6.4.3(b)
Analysis Showing Personal Development (*pd1*) by Age of Respondents (n=171)

Analysis Showing Personal Development (<i>pd1</i>) By Age of Respondents (n=171)								
Level of Agreement on <i>pd1</i>	Age of Respondents						TOTAL	
	20-29 years old (n=110)		30-39 years old (n=52)		40-49 years old (n=9)			
	f	%	f	%	f	%	F	%
Agreed	79	72.0	27	52.0	4	44.4	110	64.3
Undecided	6	5.0	2	4.0	1	11.2	9	5.3
Disagreed	25	23.0	23	44.0	4	44.4	52	30.4
Total	110	100.0	52	100.0	9	100.0	171	100.0

Thus, this supports the earlier literature and reflects that as most of the respondents are considered young (see Section 6.3, Table 6.3), they are energetic and dynamic in seeking new opportunities and challenges. This could perhaps also be linked to the earlier findings about experience on the latest assignment, which indicated that the jobs and/or tasks given to knowledge workers should allow them to add more value to their own knowledge and learning processes.

However, when looking at whether the companies provide a well-structured training and development programme (*pd3*) and allocate a generous amount of time for training and development (*pd4*), it was found that most respondents disagreed; 108 (63 percent) for and 115 (67 percent) for *pd4*.

Table 6.4.3(c)
Analysis Showing Personal Development (*pd3*) by Type of Companies (N=19, n=171)

Level of Agreement on <i>pd3</i>	Type of Companies* (N= 19)								TOTAL	
	A (N=12) (n= 98)		B (N=1) (n= 20)		C (N= 5) (n=48)		D (N= 1) (n= 5)			
	f	%	F	%	F	%	f	%	F	%
	Agreed	18	18.4	3	15	17	35.4	-	-	38
Undecided	5	5.1	-	-	2	4.2	-	-	7	4.1
Disagreed	75	76.5	17	85.0	29	60.4	5	100.0	126	73.7
TOTAL	98	100.0	20	100.0	48	100.0	5	100.0	171	100.0

* Type A = Software Development, Internet Based Business and Content Development;
Type B = Production, Post and Animation; Type C = Data Centre, Support Centre and Heavy User; Type D = Consulting, Education and Training

Another finding from the analysis on *pd3* by type of company, as shown in Table 6.4.3(c), revealed that the majority of respondents from all types of company reported high disagreement with the statement “*The firm provides a well structured training and development programme*” (*pd3*). This is further supported by Pearson Chi-Square testing, which revealed no statistically significant difference between types of company and *pd3* ($\chi^2 = 15.314$, $df = 12$, $p = .225$). These findings are not surprising, as most of the participating Multimedia Super Corridor companies are small in size. It may be the case that their limited financial support does not allow them to run training programmes effectively. Nonetheless, it would be expected from the human resource management perspective that having a good personal development scheme would encourage knowledge workers to participate in knowledge management actively, which would help them to remain in the company. This is in agreement with the point that Sook Hwang (2003) and Salisbury (2003) emphasised: personal development such as training could enhance the learning capability of knowledge workers and at the same time might reassure knowledge workers that their career paths are moving towards a successful and secure future.

Table 6.4.3(d)
Pearson Chi-Square Analysis between Personal Development and Age of Respondents and Types of Company

Variables		χ^2	df	p
Age of Respondents	<i>pd1</i>	11.868	6	.065
	<i>pd2</i>	7.702	8	.463
	<i>pd3</i>	23.267	8	.003
	<i>pd4</i>	21.842	8	.005
	<i>pd1</i>	6.296	9	.710
Types of Companies	<i>pd2</i>	19.743	12	.072
	<i>pd3</i>	15.314	12	.225
	<i>pd4</i>	21.045	12	.050

6.4.4 Performance Appraisal

Apart from the above points and the earlier review, performance appraisal has become another crucial issue in relation to the management of knowledge workers (Bassi and Van Buren, 1999; Martinez, 1998; Pearson, 1999; Suk Choi, 2000). Performance appraisal is the formal system applied for assessing the overall performance of knowledge workers within a

company. The result of good assessment deserves an appropriate return such as salary increment, promotion, a better office space, bonuses etc. However, poor assessment results would allow knowledge workers to be offered help to improve themselves. It can also be useful in identifying training needs and determining employees' compensation schemes, e.g. increments. Therefore, knowing how knowledge workers view their current performance appraisal systems may help the company to make further adjustments in accordance with the needs of both knowledge workers and the company.

In this section, another important finding was revealed, as shown in Table 6.4.4(a). Many respondents indicated that they did not agree that informal performance appraisal systems should replace the current formal performance appraisal systems (*pa1*) (Disagreed = 92 or 53.8 percent). The rest were divided between agreeing (35; 20.5 percent) and strongly agreeing (33; 19.3 percent) with the replacement. Furthermore, in response to the statement *"I am given clear and realisable objectives for the development of my skills and knowledge "*(*pa4*), 93 of the respondents (54.4 percent) disagreed, while 48 (28.1 percent) agreed. This implies that even though the respondents do not favour replacing the formal appraisal system with the informal type, they are not clear about the objective of the existing performance appraisal system, especially in the case of their skills and knowledge development.

Table 6.4.4(a)
Experience on the Performance Appraisal (n=171)

Attributes	Level of Agreement					Mean
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
1. Informal, frequent discussion with my colleagues about my performance is more helpful than formal appraisal (<i>pa1</i>).	1 (0.6)	92 (53.8)	10 (5.8)	35 (20.5)	33 (19.3)	3.04
2. My performance is appraised fully at agreed regular intervals (<i>pa2</i>).	10 (5.8)	71 (41.5)	9 (5.3)	68 (39.8)	13 (7.6)	3.02
3. Sufficient time is allowed for proper appraisal to be provided (<i>pa3</i>).	7 (4.1)	78 (45.6)	7 (4.1)	65 (38.0)	14 (8.2)	3.01
4. I am given clear and realisable objectives for the development of my skills and knowledge (<i>pa4</i>).	4 (2.3)	93 (54.4)	13 (7.6)	48 (28.1)	13 (7.6)	2.84

Note: 1 (Strongly Disagreed), 2 (Disagreed), 3 (Undecided), 4 (Agreed) and 5 (Strongly Agreed)

Perhaps, this could be another perspective that human resource management in the Multimedia Super Corridor status companies should look at. In this view, the current formal performance appraisal system may need to be adjusted and/or revised towards fulfilling the current needs of knowledge workers. Apparently, if the companies do not provide clear assessment for those who upgrade their skills and knowledge, this might have a negative impact on the knowledge workers. Apart from discouraging them from seeking more knowledge, the companies could lose them altogether. These workers might be inclined to move to another company that will value the skills and knowledge that they possess.

Table 6.4.4(b)
Analysis Showing Performance Appraisal (*pa1* and *pa4*) by Age of Respondents (n=171)

Level of Agreement on <i>pa1</i> and <i>pa4</i>		Age of Respondents (n=171)						TOTAL	
		20-29 years old (n=110)		30-39 years old (n=52)		40-49 years old (n=9)			
		f	%	f	%	f	%	F	%
Agreed	<i>pa1</i>	40	36.0	28	54.0	-	-	68	40.0
	<i>pa4</i>	39	35.4	19	36.6	3	33.3	61	37.0
Undecided	<i>pa1</i>	10	9.0	-	-	-	-	10	6.0
	<i>pa4</i>	7	6.4	6	11.5	-	-	13	7.6
Disagreed	<i>pa1</i>	60	55.0	24	46.0	9	100.0	93	54.0
	<i>pa4</i>	64	58.2	27	51.9	6	33.3	97	55.4
TOTAL for <i>pa1</i> and <i>pa4</i>		110	100.0	52	100.0	9	100.0	171	100.0

When further analysis was conducted on performance appraisal (*pa1*) and (*pa4*) by age, role, years of working and type of company, other noteworthy results were revealed as shown in the following tables. Table 6.4.4(b) for example, shows that 60 (55.0 percent) of the 110 respondents who disagreed with *pa1* were between 20 and 29 years old. Additionally, all respondents in the 40 to 49 years age category disagreed with *pa1* (9 or 100 percent). These statistically significant differences were supported by the Pearson Chi Square result, which shows the relationship between the ages of the respondents and *pa1* ($\chi^2=20.047$, $df=8$, $p=.010$). A similar result was also found with regard to the ages of the respondents and *pa4* ($\chi^2=28.415$, $df=8$, $p=.000$). This implies that both categories, young and senior knowledge workers, are of the similar opinion that companies should not replace the current system of performance appraisal, but need to provide a clearer and/or better assessment of workers' skills and knowledge. However, in the category of 30 to 39 years old, 28 (54 percent) of the total respondents ($n=52$) favoured the need to change the current performance appraisal system to an informal type. This could be due to the disagreement with statement *pa4* by 27 respondents in this age group (51.9 percent).

As shown in Table 6.4.4(c), more than half of the total numbers of information technology officers disagreed with *pa1* (70 or 56.9 percent) and *pa4* (73 or 59.4 percent). The same pattern was found in non-information technology managers, the majority of whom also disagreed with *pa1* and *pa4*. The similarities of these findings are further supported by the Pearson Chi Square results, which revealed a statistically significant difference between the role of knowledge workers and *pa1* ($\chi^2=11.937$, $df=12$, $p=.451$) and *pa4* ($\chi^2=10.519$, $df=12$, $p=.570$). However, a noteworthy descriptive finding in the case of information technology managers, it seems the percentages of those who agreed and disagreed were almost equal. This reveals that information technology managers have an almost balanced

view on the issue of replacing the current appraisal system and providing clear objectives relating to skills and knowledge development.

Table 6.4.4(c)
Analysis Showing Performance Appraisal (*pa1* and *pa4*) by Role of Respondents (n=171)

Level of Agreement on <i>pa1</i> and <i>pa4</i>		Role of Respondents (n=171)								TOTAL	
		IT Officers (n=123)		Non IT Officers (n=8)		IT Manager (n=34)		Non IT Manager/Administration (n=6)			
		f	%	f	%	f	%	f	%	F	%
Agreed	<i>Pa1</i>	44	35.8	6	75.0	17	50.0	1	16.7	68	40.0
	<i>Pa4</i>	43	34.9	3	37.5	13	38.3	2	33.3	61	37.0
Undecided	<i>Pa1</i>	9	7.3	-	-	1	2.9	-	-	10	6.0
	<i>Pa4</i>	7	5.7	-	-	6	17.6	-	-	13	7.6
Disagreed	<i>Pa1</i>	70	56.9	2	25.0	16	47.1	5	83.3	93	54.0
	<i>Pa4</i>	73	59.4	5	62.5	15	44.1	4	66.7	97	55.4
TOTAL for <i>Pa1</i> and <i>Pa4</i>		123	100.0	8	100.0	34	100.0	6	100.0	171	100.0

This may be because, as information technology managers, they have been trained to have a comprehensive understanding of the vision and mission of their companies. Thus, whether or not to replace the current system due to its unclear objectives regarding skills and knowledge may not be their main concern, as long as the tasks are done properly. In this regard, a further conclusion could be made that these information technology managers still do not impart their information regarding the provision of clear objectives for the assessment of skills and knowledge development to their staff (i.e. information technology officers). Thus, it is no wonder that this group reported higher disagreement with *pa4*. Therefore, the question of whether information technology managers really support knowledge sharing could be another issue to look at. It could also be related to the role of leadership and/or top management, as mentioned earlier.

Based on a Pearson Chi-Square analysis between years of working in the Multimedia Super Corridor status companies and *pa1*, no statistically significant difference was found ($\chi^2 = 1.031$, df = 4, p = .905). The same relationship was also revealed between years of working in the Multimedia Super Corridor status companies and *pa4* ($\chi^2 = 8.062$, df = 4, p = .089). Thus,

there is no reason to suspect that the identified findings are influenced by lengthy periods of working in the Multimedia Super Corridor status companies. However, a noteworthy outcome of the cross tab analysis could be worth further exploration. Furthermore, in terms of how many years respondents had been with their companies, as shown in Table 6.4.4(d), it was expected that majority of the respondent who disagreed with *pa1* and *pa4* would be considered new in the Multimedia Super Corridor status companies, i.e. between 1 to 5 years of service history. They might think that changing the current system was unimportant, but due to their relative lack of familiarity with the current system, they might need further refinement on that matter, such as clearer objectives in relation to the development of skills and knowledge. In contrast, those who have been working for more than 6 years may have found that they clearly grasp the objectives of the system, and thus consider that it is not necessary to replace the current system.

Table 6.4.4(d)
Analysis Showing Performance Appraisal (*pa1* and *pa4*) by Years of Working in the Multimedia Super Corridor Status Companies (n=171)

Level of Agreement on <i>pa1</i> and <i>pa4</i>		Years of Working in the Multimedia Super Corridor Status Companies (n=171)				TOTAL	
		1-5 years (n=160)		6-10 years (n=11)			
		f	%	f	%	F	%
Agreed	<i>Pa1</i>	63	39.3	5	45.5	68	40.0
	<i>Pa4</i>	54	33.8	7	63.6	61	37.0
Undecided	<i>Pa1</i>	10	6.3	-	-	10	6.0
	<i>Pa4</i>	13	8.1	-	-	13	7.6
Disagreed	<i>Pa1</i>	87	54.4	6	54.5	93	54.0
	<i>Pa4</i>	93	58.1	4	36.4	97	55.4
TOTAL for <i>Pa1</i> and <i>Pa4</i>		160	100.0	11	100.0	171	100.0

Another noteworthy finding is shown in Table 6.4.4(e). All types of company reported their disagreement with *pa1* and *pa4*, indicating that replacing the current system of performance appraisal is not seen as a particularly major requirement in any of these types of company, but further adjustment is needed (*pa1*: $\chi^2 = 7.312$, $df = 12$, $p = .836$ and *pa4*: $\chi^2 = 8.612$, $df = 12$, $p = .736$). In this section, it could be summarised that for the

purpose of having an effective implementation of knowledge management, human resource management is requested to review the current performance appraisal system. Even though this finding is not in accordance with the qualitative results (in which most of the respondents indicated that they would prefer a more informal and flexible system), the need to fulfil the current needs of knowledge workers is still rather important. Therefore, the provision of clear objectives for the current assessment of knowledge workers' skills, knowledge and ability is the priority for human resource management now.

Table 6.4.4(e)
Analysis Showing Performance Appraisal (*pa1* and *pa4*) by Types of Companies (n=171)

Analysis Showing Performance Appraisal (<i>pa1</i> and <i>pa2</i>) by Types of Companies (n=171)											
Level of Agreement on <i>pa1</i> and <i>pa4</i>		Type of Companies* (N= 19)								TOTAL	
		A (N=12) (n= 98)		B (N=1) (n= 20)		C (N= 5) (n=48)		D (N= 1) (n= 5)			
		f	%	f	%	f	%	F	%	F	%
Agreed	<i>Pa1</i>	40	40.8	6	30.0	19	39.5	3	60	68	40.0
	<i>Pa4</i>	37	37.7	8	40.0	16	33.3	-	-	61	37.0
Undecided	<i>Pa1</i>	6	6.1	1	5.0	3	6.3	-	-	10	6.0
	<i>Pa4</i>	9	9.2	2	10.0	2	4.2	-	-	13	7.6
Disagreed	<i>Pa1</i>	52	53.1	13	65.0	26	54.2	2	40.0	93	54.0
	<i>Pa4</i>	52	53.1	10	50.0	30	62.5	5	100.0	97	55.4
TOTAL for <i>Pa1</i> and <i>Pa4</i>		98	100.0	20	100.0	48	100.0	5	100.0	171	100.0

* Type A = Software Development, Internet Based Business and Content Development;
Type B = Production, Post and Animation; Type C = Data Centre, Support Centre and Heavy User; Type D = Consulting, Education and Training

Table 6.4.4(f)
Pearson Chi-Square Analysis between Performance Appraisal and Age, Role of Respondents, Years of Working and Types of Company

Variables		χ^2	df	p
Age of Respondents	<i>pa1</i>	20.047	8	.010*
	<i>pa4</i>	28.415	8	.000*
Role of Respondents	<i>pa1</i>	11.937	12	.451
	<i>pa4</i>	10.519	12	.570
Years of Working	<i>pa1</i>	1.031	4	.905
	<i>pa4</i>	8.062	4	.089
Types of Company	<i>pa1</i>	7.312	12	.836
	<i>pa4</i>	8.612	12	.736

6.4.5 Rewards

In relation to the performance appraisal system mentioned above, rewards are one of the end results of excellent performance. In this section, the researcher set out to investigate knowledge workers' views on rewards, as shown in Table 6.4.5. It has been found that the highest support was given to team-based reward (*rw1*) with 64 (37.4 percent) and 53 (31 percent) of respondents agreeing and strongly agreeing with it. In this case, it could be that most respondents realised the importance and need for team-based rewards. However, when the question of whether team-based reward has been fully recognised and practised by the company (*rw4*) was presented to the respondents, it was revealed that many respondents disagreed 89 (52 percent) and strongly disagreed 25 (14.6 percent) with this statement.

Table 6.4.5(a)
Experience on the Rewards (n=171)

Attributes	Level of Agreement					Mean
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
1. The team as a whole should be rewarded for good work (<i>rw1</i>)	4 (2.4)	43 (25.1)	7 (4.1)	64 (37.4)	53 (31)	3.70
2. The interest of the work I do compensates for long hours and a stressful workload (<i>rw2</i>)	9 (5.3)	73 (42.7)	21 (12.3)	50 (29.2)	18 (10.5)	2.97
3. The offer of a bit more money with another employer would not seriously make me think of changing my job (<i>rw3</i>)	28 (16.4)	70 (40.9)	11 (6.4)	49 (28.7)	13 (7.6)	2.70
4. Teamwork in this firm is fully recognised and rewarded (<i>rw4</i>)	25 (14.6)	89 (52)	6 (3.5)	45 (26.3)	6 (3.5)	2.70
5. I am fairly rewarded for the amount of effort I put in the job (<i>rw5</i>)	20 (11.7)	82 (48.0)	12 (7.0)	44 (25.7)	13 (7.6)	2.70

Note: 1 (Strongly Disagreed), 2 (Disagreed), 3 (Undecided), 4 (Agreed) and 5 (Strongly Agreed)

Another noteworthy finding was that 70 (40.9 percent) of the respondents disagreed and 28 (16.4%) strongly disagreed with the statement "*The offer of a bit more money with another employer would not seriously make me think of changing my job*" (*rw3*). This is inconsistent with the work done by Despres and Hiltrop (1995) and Hunter et al (2002), who found that reward is indeed a crucial element for retaining knowledge workers. In this case, the respondents did not think much about changing jobs for extra money.

However, a contrasting finding emerged during the in-depth interviews (see for example Chapter 8, Section 8.4). The next response was also gathered for *rw5* concerning whether they are fairly rewarded by the company. It was found that many of them disagreed (82; 48.0 percent) and strongly disagreed (20; 11.7 percent) with the statement "*I am fairly rewarded for the amount of effort I put in*". In fact, respondents also reported dissatisfaction with the interest level of the work they did, indicating that it did not compensate for their long hours (*rw2*): 9 (5.3 percent) strongly disagreed and 73 (42.7 percent) disagreed with this statement. Overall, these figures seem to show quite a lot of dissatisfaction on the part of the respondents. Thus, as with the performance appraisal system, analyses by age, role, years of working and type of company were carried out in order to increase the detail of analysis of the results.

In this view, Table 6.4.5 (b) shows the high percentage of level of agreement for each category of age in *rw1* ($\chi^2 = 9.350$, $df=10$, $p=.499$). In contrast, similarly high scores for disagreement were also found in *rw3* ($\chi^2 = 21.597$, $df=8$, $p=.006$), *rw4* ($\chi^2 = 9.256$, $df=8$, $p=.321$) and *rw5* ($\chi^2 = 24.780$, $df=8$, $p=.002$). In addition to the statistically significant differences in *rw3* and *rw5*, it was expected that young knowledge workers aged between 20 and 29 would not stick to one company for too long and were not being fairly rewarded for the effort they had made. In the case of *rw4*, no statistically significant difference was found according to the age of respondents. This indicates that most respondents, irrespective of their age categories, have similar levels of disagreement with *rw4*. Furthermore, another noteworthy finding is that knowledge workers between 40 and 49 years old still have the intention to leave if they get a better offer! In the case of *rw2* ($\chi^2 = 16.792$, $df=8$, $p=.032$), only knowledge workers between the ages of 30 and 39 reported low levels of disagreement, with 14 (26.9 percent) disagreeing with this statement. The significant difference between age of respondents and *rw2* implies that the interest level of the

work done by workers in this age group does compensate for their long hours and stressful workload, but that this is not the case for young and senior knowledge workers. This suggests that young workers and older workers can move jobs in order to advance in their careers, but mid-career workers need to consolidate their positions; thus, they do not move.

Table 6.4.5(b)
Analysis Showing Rewards (*rw1*, *rw2*, *rw3*, *rw4* and *rw5*) by Age of Respondents (n=171)

Level of Agreement on <i>rw1</i> , <i>rw2</i> , <i>rw3</i> , <i>rw4</i> and <i>rw5</i>		Age of Respondents (n=171)						TOTAL	
		20-29 years old (n=110)		30-39 years old (n=52)		40-49 years old (n=9)			
		f	%	f	%	f	%	F	%
Agreed	<i>rw1</i>	70	63.6	40	76.9	7	77.8	117	68.4
	<i>rw2</i>	34	30.9	31	59.6	3	33.3	68	39.7
	<i>rw3</i>	30	27.3	29	55.8	3	33.3	62	36.3
	<i>rw4</i>	22	20.0	26	50.0	3	33.3	51	29.8
	<i>rw5</i>	31	28.2	23	44.2	3	33.3	57	33.3
Undecided	<i>rw1</i>	6	5.5	1	1.9	-	-	7	4.1
	<i>rw2</i>	13	11.8	7	13.5	1	11.1	21	12.3
	<i>rw3</i>	10	9.1	1	1.9	-	-	11	6.4
	<i>rw4</i>	5	4.5	1	1.9	-	-	6	3.5
	<i>rw5</i>	8	7.3	4	7.7	-	-	12	7.0
Disagreed	<i>rw1</i>	34	30.9	11	21.2	2	22.2	47	27.5
	<i>rw2</i>	63	57.3	14	26.9	5	55.6	82	48
	<i>rw3</i>	70	63.6	22	42.3	6	66.7	98	57.3
	<i>rw4</i>	83	75.5	25	48.1	6	66.7	114	66.7
	<i>rw5</i>	71	64.5	25	48.1	6	66.7	102	59.7
TOTAL for <i>rw1</i> , <i>rw2</i> , <i>rw3</i> , <i>rw4</i> and <i>Rw5</i>		110	100.0	52	100.0	9	100.0	171	100.0

Furthermore, in Table 6.4.5(c), even though teamwork is yet to be recognised and rewarded (*rw4*) ($\chi^2 = 9.092$, df =12, p=.695), all knowledge workers, regardless of role, still agreed that teamwork should be rewarded accordingly (*rw1*) ($\chi^2 = 12.383$, df =12, p=.650). In the case of *rw3*, even though there was no significant difference between the statement and the role of knowledge workers ($\chi^2 = 15.838$, df =12, p=.199), a noteworthy

finding was also found. It reveals that 75 of the total number of respondents ($n=98$) who disagreed with *rw3* are information technology officers. Meanwhile, information technology managers reported almost equal levels of agreement and disagreement with *rw3*. It may be that the commitment of the information technology managers to complete and/or handle the tasks given to them and a feeling of getting established in the current company mean that they do not think of a move to another company. The message here could be that the risk of losing information technology managers if they are given a better offer is not severe compared to that for information technology officers.

As shown in Table 6.4.5(d), 1 to 5 years of service history in the current Multimedia Super Corridor status companies is the norm for most respondents ($n=160$); thus, as expected, they are the group that contributes most to the higher levels of agreement with *rw1* ($\chi^2 = 2.104$, $df=5$, $p=.835$) and disagreement with *rw3* ($\chi^2 = 6.384$, $df=4$, $p=.172$). For instance, 108 of the 117 who agreed with *rw1* were from this group. The same pattern was found in *rw3*, in that 93 of 98 who disagreed were knowledge workers who had only been working for their companies for 1 to 5 years. The important issue to look at does not only relate to the numbers of those who agreed and disagreed with these variables. The service history of 1 to 5 years of most respondents provides noteworthy evidence that the current scenario of knowledge workers in the Multimedia Super Corridor status companies is that they may not be attached to one company for life.

Table 6.4.5(c)
Analysis Showing Rewards (*rw1, rw2, rw3, rw4 and rw5*) by Role of Respondents (n=171)

Analysis Showing Attitudes (rw1, rw2, rw3, rw4 and rw5) by Role of Respondents (n= 171)											
Level of Agreement on <i>rw1, rw2, rw3,</i> <i>rw4 and rw5</i>		Role of Respondents (n=171)									
		IT Officers (n=123)		Non IT Officers (n=8)		IT Manager (n=34)		Non IT Manager/Administration (n=6)		TOTAL	
		f	%	F	%	f	%	f	%	F	%
Agreed	<i>Rw1</i>	80	65.0	7	87.5	26	76.5	4	66.7	117	68.4
	<i>Rw2</i>	49	39.9	2	25.0	14	41.2	3	50	68	39.7
	<i>Rw3</i>	39	31.7	4	50.0	16	47.1	3	50.0	62	36.3
	<i>Rw4</i>	33	26.8	1	12.5	15	44.1	2	33.3	51	29.8
	<i>Rw5</i>	41	33.3	4	50.0	10	29.4	2	33.3	57	33.3
Undecided	<i>rw1</i>	7	5.7	-	-	-	-	-	-	7	4.1
	<i>rw2</i>	15	12.2	-	-	6	17.6	-	-	21	12.3
	<i>rw3</i>	9	7.3	-	-	2	5.9	-	-	11	6.4
	<i>rw4</i>	4	3.3	-	-	2	5.9	-	-	6	3.5
	<i>rw5</i>	8	6.5	-	-	4	11.8	-	-	12	7.0
Disagreed	<i>Rw1</i>	36	29.3	1	12.5	8	23.5	2	33.3	47	27.5
	<i>Rw2</i>	59	48.0	6	75.0	14	41.2	3	50.0	82	48
	<i>Rw3</i>	75	61.0	4	50.0	16	47.0	3	50.0	98	57.3
	<i>Rw4</i>	86	69.9	7	87.5	17	50.0	4	66.7	114	66.7
	<i>Rw5</i>	74	60.2	4	50.0	20	58.8	4	66.7	102	59.7
TOTAL for <i>rw1</i> <i>rw2, rw3, rw4 and</i> <i>rw5</i>		123	100.0	8	100.0	34	100.0	6	100.0	171	100.0

Table 6.4.5(d)

Analysis Showing Rewards (*rw1*, *rw2*, *rw3*, *rw4* and *rw5*) by Years of Working in the Multimedia Super Corridor Status Companies (n=171)

Level of Agreement on <i>rw1</i> , <i>rw2</i> , <i>rw3</i> , <i>rw4</i> and <i>rw5</i>		Years of Working in the Multimedia Super Corridor Status Companies (n=171)				TOTAL	
		1-5 years (n=160)		6-10 years (n=11)			
		f	%	f	%	F	%
Agreed	<i>rw1</i>	108	67.6	9	81.8	117	68.4
	<i>rw2</i>	62	38.8	6	54.5	68	39.7
	<i>rw3</i>	56	35.0	6	54.5	62	36.3
	<i>rw4</i>	48	30.0	3	27.3	51	29.8
	<i>rw5</i>	50	31.3	7	63.6	57	33.3
Undecided	<i>rw1</i>	7	4.4	-	-	7	4.1
	<i>rw2</i>	21	13.1	-	-	21	12.3
	<i>rw3</i>	11	6.9	-	-	11	6.4
	<i>rw4</i>	5	3.1	1	9.1	6	3.5
	<i>rw5</i>	12	7.5	-	-	12	7.0
Disagreed	<i>rw1</i>	45	28.0	2	18.2	47	27.5
	<i>rw2</i>	77	48.1	5	45.5	82	48
	<i>rw3</i>	93	58.1	5	45.5	98	57.3
	<i>rw4</i>	107	66.9	7	63.6	114	66.7
	<i>rw5</i>	98	61.2	4	36.4	102	59.7
TOTAL for <i>rw1</i> , <i>rw2</i> , <i>rw3</i> , <i>rw4</i> and <i>rw5</i>		160	100.0	11	100.0	171	100.0

From the perspective of type of company, there was a statistically significant difference between types of companies and *rw1* ($\chi^2 = 26.306$, $df=15$, $p=.035$). Table 6.4.5(e) provide evidence for a lower level of agreement with *rw1* by respondents in Company D. For example, only two respondents from this group agreed, out of the five who participated. However, the respondents from Type D companies were limited in number and may not be representative of the whole population, although their views on this matter should still be considered. Thus, when they reported 100 percent disagreement with *rw4* ($\chi^2 = 31.713$, $df=12$, $p=.002$), it could be indicative that these knowledge workers do not consider that rewarding teamwork is a good idea; thus, the presence and recognition of teamwork within their companies is not their main concern.

Furthermore, in the case of *rw3* ($\chi^2 = 13.858$, $df = 12$, $p = .310$) and *rw5* ($\chi^2 = 18.252$, $df = 12$, $p = .108$), it seems that all types of company reveal high levels of disagreement. These mean that all knowledge workers, regardless of the types of companies they are from, would be willing to leave their current company for a better offer. The high proportion of knowledge workers who are not satisfied that they are being rewarded fairly, as shown in their responses to *rw5*, might also contribute to this intention. Markedly higher levels of disagreement were found in Type D companies ($n=5$ or 100 percent), Type C companies ($n=30$ or 62 percent) and Type B companies ($n=15$ or 75 percent). These findings are clarified further in the in-depth semi-structured interviews, as presented in Chapter 7 and 8.

To conclude, it seems that even though teamwork is yet to be fully recognised by the Multimedia Super Corridor status companies, all respondents view rewarding teamwork as an important variable. A similar finding also emerged in the in-depth semi-structured interviews. It has been considered that team-based rewards are more important than individual rewards. A further explanation of this is presented in Chapter 8 on the changing roles of human resource management. Apart from that, most participating knowledge workers report that they are unfairly rewarded for their efforts. This may be why they are inclined to leave their current companies for a better offer, although this might not always be the case.

Table 6.4.5(e)
Analysis Showing Rewards (*rw1*, *rw2*, *rw3*, *rw4* and *rw5*) by Types of Companies (n=171)

Level of Agreement on <i>rw1</i> , <i>rw2</i> , <i>rw3</i> , <i>rw4</i> and <i>rw5</i>		Type of Companies* (N= 19)									
		A (N=12) (n= 98)		B (N=1) (n= 20)		C (N= 5) (n=48)		D (N= 1) (n= 5)		TOTAL	
		F	%	f	%	f	%	f	%	F	%
Agreed	<i>rw1</i>	65	66.3	14	70.0	36	75.0	2	40	117	68.4
	<i>rw2</i>	40	40.8	6	30.0	22	45.8	-	-	68	39.7
	<i>rw3</i>	39	39.8	7	35.0	16	33.4	-	-	62	36.3
	<i>rw4</i>	35	35.8	3	15.0	13	27.1	-	-	51	29.8
	<i>rw5</i>	36	36.7	5	25.0	16	33.4	-	-	57	33.3
Undecided	<i>rw1</i>	5	5.1	1	5.0	1	2.1	-	-	7	4.1
	<i>rw2</i>	11	11.2	3	15.0	7	14.6	-	-	21	12.3
	<i>rw3</i>	8	8.2	-	-	3	6.3	-	-	11	6.4
	<i>rw4</i>	4	4.1	1	5.0	1	2.1	-	-	6	3.5
	<i>rw5</i>	10	10.2	-	-	2	4.1	-	-	12	7.0
Disagreed	<i>rw1</i>	28	28.6	5	25.0	11	22.9	3	60.0	47	27.5
	<i>rw2</i>	47	48.0	11	55.0	19	39.6	5	100.0	82	48
	<i>rw3</i>	51	52	13	65.0	29	60.5	5	100.0	98	57.3
	<i>rw4</i>	59	60.2	16	80.0	34	70.8	5	100.0	114	66.7
	<i>rw5</i>	52	53.1	15	75.0	30	62.5	5	100.0	102	59.7
TOTAL for <i>rw1</i> , <i>rw2</i> , <i>rw3</i> , <i>rw4</i> and <i>rw5</i>		98	100.0	20	100.0	48	100.0	5	100.0	171	100.0

* Type A = Software Development, Internet Based Business and Content Development; Type B = Production, Post and Animation;
Type C = Data Centre, Support Centre and Heavy User; Type D = Consulting, Education and Training

Table 6.4.5(f)
Pearson Chi-Square Analysis between Rewards and Age, Roles of Respondents, Years of Working and Types of Company

Variables		χ^2	df	p
Age of Respondents	<i>rw1</i>	9.350	10	.499
	<i>rw2</i>	16.792	8	.032*
	<i>rw3</i>	21.597	8	.002*
	<i>rw4</i>	9.256	8	.006*
	<i>rw5</i>	24.780	8	.321
Role of Respondents	<i>rw1</i>	12.383	15	.650
	<i>rw3</i>	15.838	12	.199
	<i>rw4</i>	9.092	12	.695
Years of Companies	<i>rw1</i>	2.104	5	.835
	<i>rw3</i>	6.384	4	.172
Type of Companies	<i>rw1</i>	26.306	15	.035*
	<i>rw2</i>	18.252	12	.108
	<i>rw3</i>	13.858	12	.310
	<i>rw4</i>	31.713	12	.002*

Apart from that, most participating knowledge workers report that they are unfairly rewarded for their efforts. This may be why they are inclined to leave their current companies for a better offer, although this might not always be the case. Apart from that it was found also the duration of service by most knowledge workers participating in the study ranges from 1 to 5 years. This indicates that knowledge workers may not stay long in one company and will keep moving to other companies. There may be various reasons for this. In the light of this, the review in Chapter 4, describing the shortage of knowledge workers in these companies, could be accurate. Thus, the direction of the current study to investigate this matter further would be worthwhile. Furthermore, the issue of whether the interest level of the work can compensate for this unfair rewarding system should also be acknowledged. This is due to the almost equal proportions of respondents who agreed and disagreed with each variable, as shown in Table 6.4.5(b), (c), (d) and (e).

6.4.6 The Future of Knowledge Workers

The above knowledge regarding the tasks suitable for most knowledge workers and their views on knowledge sharing, personal development, performance appraisal systems and reward schemes leads us to the next issue; that is, what the future of knowledge workers might be. The information gathered in this section may be very useful for the Multimedia Super Corridor status companies and any related agencies in offering a better understanding of how best to manage knowledge workers in this current knowledge economy. One must accept that the failure to manage this type of worker effectively and to utilise their valuable knowledge efficiently would be a loss to any company. Therefore, considering the future of knowledge workers in the Multimedia Super Corridor status companies, the highest mean score was found for the statement “*I expect to work for a number of companies in my career*” (*f1*) (*mean*= 3.29). It was shown in Table 6.4.6(a) that 69 (40.4 percent) and 27 (15.8 percent) respectively agreed and strongly agreed with *f1*. It was also revealed that nearly 40 percent of respondents disagreed with *f1*.

Table 6.4.6(a)
Experience on the Future of Knowledge Workers (n=171)

Attributes	Level of Agreement					Mean
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
1. I expect to work for a number of companies in my career (<i>f1</i>).	10 (5.8)	54 (31.6)	11 (6.4)	69 (40.4)	27 (15.8)	3.29
2. I am comfortable with the culture and values of this company (<i>f2</i>).	11 (6.4)	58 (34.0)	11 (6.4)	66 (38.6)	25 (14.6)	3.21
3. If I do not continue to gain promotion, it will be made obvious that I should leave the company (<i>f3</i>).	9 (5.3)	75 (43.9)	11 (6.4)	51 (29.8)	25 (14.6)	3.05
4. I would prefer to stay with this company for as long as possible (<i>f4</i>).	27 (15.8)	71 (41.5)	11 (6.4)	51 (30.0)	11 (6.4)	2.70

Note: 1 (Strongly Disagreed), 2 (Disagreed), 3 (Undecided), 4 (Agreed) and 5 (Strongly Agreed)

This is supported by the next finding, which reveals that 71 (41.5 percent) and 27 (15.8 percent) of the respondents respectively disagreed and

strongly disagreed with the fourth statement, *"I would prefer to stay with this firm for as long as possible"* (f4), while nearly 40 percent agreed with this statement. This implies two possibilities. First of all, there is a strong possibility that knowledge workers will not stay in the same company for a long period of time. Alternatively, there is also a small possibility that knowledge workers will remain in the company, although this might not be very likely. In another case, when a further statement was given, *"If I do not continue to gain promotion, it will be made obvious that I should leave the firm"* (f3), many of them disagreed (75 respondents or 43.9 percent) and strongly disagreed (9 respondents or 5.3 percent). In terms of being comfortable with the current company working culture and values (f2), almost equal numbers of respondents disagreed (58 respondents or 33.9 percent) and agreed (66 respondents or 38.6 percent). This would suggest that not being promoted and being unhappy with the company's culture and values might not be the main reasons why knowledge workers move on to another company.

In this light, further analyses were conducted on f1, f2, f3 and f4 according to the respondents' age, role, years of working and type of company. In this regard, as shown in Table 6.4.6 (b), more than 50 percent of knowledge workers aged between 20 and 29 years old, and those between 40 and 49 years old, agreed that they would leave to work for another company (f1) and disagreed with the suggestion that they would stay with the current company long-term (f4); 65 percent and 33.3 percent. Furthermore, 65 of 96 respondents who agreed with f1 were from the 20 to 29 age group. Similarly, 71 of 98 respondents who disagreed with f4 were also from this age group. These differences were further supported by the Pearson Chi-Square analysis, which revealed a statistically significant relationship at the 5% level between age and f1 ($\chi^2 = 21.809$, $df=8$, $p=.005$) and f4 ($\chi^2 = 19.513$, $df=8$, $p=.012$).

On the other hand, even though 23 out of the total number of respondents who agreed with *f1* come from the 30-to-39 age group, this still only represents 44.3 percent of the total number of 52. This shows that not all respondents in this group intend to leave their companies. No wonder, then, that when further analysis was conducted on *f2*, it was revealed that 30 respondents from this group agreed that they are comfortable with the current company's culture and values. Furthermore, even though there was no significant difference between age of respondents and *f2* ($\chi^2=10.749$, $df=8$, $p=.216$), it comes as quite a surprise that those knowledge workers aged 40 to 49 years old do have the intention to work for other companies in the future. This is quite an extraordinary phenomenon, as this group is usually considered to be comprised of senior staffs that are already well established. These findings again support those found in Section 6.4.5(b), as discussed earlier.

Table 6.4.6(b)
Analysis Showing Performance Appraisal (*f1*, *f2*, *f3*, *f4* and *f5*) by Age of Respondents (n=171)

Level of Agreement on <i>f1</i> , <i>f2</i> , <i>f3</i> and <i>f4</i>		Age of Respondents (n=171)						TOTAL	
		20-29 years old (n=110)		30-39 years old (n=52)		40-49 years old (n=9)			
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>F</i>	%
Agreed	<i>f1</i>	65	59.1	23	44.3	8	88.9	96	56.2
	<i>f2</i>	58	52.7	30	57.7	3	33.3	91	53.2
	<i>f3</i>	50	45.4	22	42.3	4	44.5	76	44.4
	<i>f4</i>	32	29.0	26	50.0	4	44.5	62	36.3
Undecided	<i>f1</i>	7	6.4	4	7.7	-	-	11	6.4
	<i>f2</i>	7	6.4	3	5.8	1	11.1	11	6.4
	<i>f3</i>	6	5.5	4	7.7	1	11.1	11	6.4
	<i>f4</i>	7	6.0	2	3.8	2	22.2	11	6.4
Disagreed	<i>f1</i>	38	34.5	25	48.0	1	11.1	64	37.4
	<i>f2</i>	45	40.9	19	36.5	5	55.6	69	40.4
	<i>f3</i>	54	49.1	26	50.0	4	44.5	84	49.1
	<i>f4</i>	71	65.0	24	46.2	3	33.3	98	57.3
TOTAL for <i>f1</i> , <i>f2</i> , <i>f3</i> and <i>f4</i>		110	100.0	52	100.0	9	100.0	171	100

Analysis by role of respondents in Table 6.4.6(c) reveals that more than 50 percent of all knowledge workers in all roles agree with $f1$ ($\chi^2 = 16.963$, $df=12$, $p=.151$). In relation to this, the higher level of disagreement by knowledge workers in most of the types of role was also found in response to item $f4$ ($\chi^2 = 16.616$, $df=12$, $p=.165$). Looking at the results for $f2$ ($\chi^2 = 8.286$, $df=12$, $p=.762$) and $f3$ ($\chi^2 = 10.799$, $df=12$, $p=.546$), as shown in the same table, it appears that even though knowledge workers, regardless of role, are comfortable with their current company's culture and values, they still do not intend to stay very long. Once again, it appears that failure to be promoted is not the main matter. Similar results were also found in Table 6.4.6(d). Knowledge workers from both categories in terms of years working in the Multimedia Super Corridor status companies reported an intention to work for a number of companies in the future ($f1$) ($\chi^2 = 3.427$, $df=4$, $p=.489$). Again, the majority (88) of the total respondents who agreed that they expected to leave their companies in the future ($n=96$) had been working in the Multimedia Super Corridor status companies for between 1 and 5 years.

Table 6.4.6(c)
Analysis Showing Performance Appraisal (*f1, f2, f3 and f4*) by Role of Respondents (n=171)

Level of Agreement on <i>f1,f2,f3</i> and <i>f4</i>		Role of Respondents (n=171)								TOTAL	
		IT Officers (n=123)		Non IT Officers (n=8)		IT Manager (n=34)		Non IT Manager/Administration (n=6)			
		F	%	f	%	f	%	f	%	F	%
Agreed	<i>f1</i>	68	55.3	7	87.5	17	50.0	4	66.7	96	56.2
	<i>f2</i>	61	49.6	6	75	20	58.9	4	66.7	91	53.2
	<i>f3</i>	57	46.3	2	25	13	38.2	4	66.7	76	44.4
	<i>f4</i>	40	32.5	4	50	14	41.2	4	66.7	62	36.3
Undecided	<i>f1</i>	7	5.7	-	-	4	11.7	-	-	11	6.4
	<i>f2</i>	8	6.5	-	-	3	8.8	-	-	11	6.4
	<i>f3</i>	6	4.9	1	12.5	4	11.7	-	-	11	6.4
	<i>f4</i>	7	5.7	-	-	3	8.8	1	16.6	11	6.4
Disagreed	<i>f1</i>	48	39	1	12.5	13	38.3	2	33.3	64	37.4
	<i>f2</i>	54	43.9	2	25	11	32.3	2	33.3	69	40.4
	<i>f3</i>	60	48.8	5	62.5	17	50	2	33.3	84	49.1
	<i>f4</i>	76	61.8	4	50	17	50	1	16.6	98	57.3
TOTAL for <i>f1, f2, f3</i> and <i>f4</i>		123	100	8	100	34	100	6	100	171	100

Table 6.4.6 (d)
Analysis Showing Performance Appraisal (*f1, f2, f3 and f4*) by Years of Working in the Multimedia Super
Corridor Status Companies (n=171)

Level of Agreement on <i>f1,f2,f3</i> and <i>f4</i>	Years of Working in the Multimedia Super Corridor Status Companies (n=171)				TOTAL		
	1-5 years (n=160)		6-10 years (n=11)		F	%	
	f	%	F	%			
Agreed	<i>f1</i>	88	55.0	8	72.7	96	56.2
	<i>f2</i>	82	51.2	9	81.8	91	53.2
	<i>f3</i>	72	45.0	4	36.4	76	44.4
	<i>f4</i>	56	35.0	6	54.5	62	36.3
Undecided	<i>f1</i>	11	6.9	-	-	11	6.4
	<i>f2</i>	11	6.9	-	-	11	6.4
	<i>f3</i>	11	6.9	-	-	11	6.4
	<i>f4</i>	10	6.3	1	9.1	11	6.4
Disagreed	<i>f1</i>	61	38.2	3	27.3	64	37.4
	<i>f2</i>	67	41.9	2	18.2	69	40.4
	<i>f3</i>	77	48.1	7	63.6	84	49.1
	<i>f4</i>	94	58.7	4	36.4	98	57.3
TOTAL for <i>f1, f2, f3</i> and <i>f4</i>		160	100.0	11	100.0	171	100.0

Finally, with regard to the types of company, the highest level of agreement with the statement about working for a number of companies (*f1*) was found from knowledge workers in Companies of Type A (52 or 53.1 percent out of n=98). This was followed by 16 out of n=20 respondents from type B companies and all participating knowledge workers from Type D companies (5 or 100 percent). Meanwhile, knowledge workers in Type C companies (n=48) were almost equally distributed between those who agreed (23 or 48 percent) and disagreed (22 or 45.8 percent). These differences were supported by the significant relationship between types of company and *f1* at the 5% level ($\chi^2 = 22.569$, $df=12$, $p=.032$). Although this was the case, the descriptive findings show that regardless of their company's background, knowledge workers retain the possibility of leaving to work for another company.

Table 6.4.6(e)
Analysis Showing Performance Appraisal (*f1, f2, f3 and f4*) by Types of Companies (n=171)

Level of Agreement on <i>f1, f2, f3</i> and <i>f4</i>		Type of Companies* (N= 19)								TOTAL	
		A (N=12) (n= 98)		B (N=1) (n= 20)		C (N= 5) (n=48)		D (N= 1) (n= 5)			
		F	%	f	%	f	%	f	%	F	%
Agreed	<i>f1</i>	52	53.1	16	80.0	23	48	5	100.0	96	56.2
	<i>f2</i>	53	54.1	5	25.0	29	60.4	4	80.0	91	53.2
	<i>f3</i>	42	42.9	8	40.0	25	52.1	1	20.0	76	44.4
	<i>f4</i>	37	37.8	4	20.0	21	43.8	-	-	62	36.3
Undecided	<i>f1</i>	7	7.1	1	5.0	3	6.2	-	-	11	6.4
	<i>f2</i>	6	6.1	1	5.0	4	8.3	-	-	11	6.4
	<i>f3</i>	6	6.1	3	15.0	1	2.1	1	20.0	11	6.4
	<i>f4</i>	8	8.2	1	5.0	1	2.1	1	20.0	11	6.4
Disagreed	<i>f1</i>	39	39.8	3	15.0	22	45.8	-	-	64	37.4
	<i>f2</i>	39	39.8	14	70.0	15	31.3	1	20.0	69	40.4
	<i>f3</i>	50	51.0	9	45.0	22	45.8	3	60.0	84	49.1
	<i>f4</i>	53	54.1	15	75.0	26	54.2	4	80.0	98	57.3
TOTAL for (<i>f1, f2, f3</i> and <i>f4</i>)		98	100.0	20	100.0	48	100.0	5	100.0	171	100.0

* Type A = Software Development, Internet Based Business and Content Development;
Type B = Production, Post and Animation;
Type C = Data Centre, Support Centre and Heavy User;
Type D = Consulting, Education and Training

Table 6.4.6(f)

Pearson Chi-Square Analysis between the Future and Age, Role of Respondents, Years of Working and Types of Company

Variables		χ^2	df	p
Age of Respondents	<i>f1</i>	21.809	8	.005*
	<i>f2</i>	10.749	8	.216
	<i>f4</i>	19.513	8	.012*
Role of Respondents	<i>f1</i>	16.963	12	.151
	<i>f2</i>	8.286	12	.762
	<i>f3</i>	10.799	12	.546
	<i>f4</i>	16.616	12	.165
Years of Working	<i>f1</i>	3.427	4	.489
Types of Company	<i>f1</i>	22.569	12	.032*

Overall, it has been shown that the many of the participating knowledge workers in the questionnaire survey did not necessarily plan to stay very long in their current employment. Furthermore, most of them are young knowledge workers between 20 and 29 years of age. This finding is in agreement with earlier work that reported that young knowledge workers would not stay long in one company (Amar, 2002; Drucker, 1988 and 1998; Horribe, 1999; Thite, 2004). In fact, the same finding also appeared during the in-depth semi-structured interviews. It has been seen that the average duration of knowledge workers' employment at one company is two to three years. The norm of one to five years working in Multimedia Super Corridor status companies of most participating knowledge workers further supports this finding.

These findings, however, could be considered alarming for the Multimedia Super Corridor status companies. It appears to be challenging for the Multimedia Super Corridor status companies to keep their good knowledge workers and manage them effectively. Companies may not want to lose such workers, as this could have a damaging effect on a company's situation. This scenario begins when the knowledge workers who are provided with expensive training programmes suddenly leave the company within two years. Therefore, the expectation of the company to utilise their rental brain-workers while they are still with the company should be met at the maximum level. In this regard, perhaps knowledge

management with the assistance from human resource management should play a crucial role in making the most of knowledge workers' creative and innovative ideas.

Furthermore, leaving for another company may not be due to failure to gain promotion or dissatisfaction with the company's culture and values. Nonetheless, this supports the earlier findings related to reward (see for example *rw2* and *rw3* in Section 6.4.5. This demonstrates that reward could be considered also as the main concern for knowledge workers in terms of deciding whether to remain in one company or not. However, there could also be other influencing factors and/or reasons, which were pointed out during the in depth semi-structured interview as seen in Chapters 7, 8 and 9.

6.5 Summary

This chapter 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. Thirdly, findings on human resource management issues related to the management of knowledge workers in the local context are explored. In describing these findings, several conclusions have been made. The survey summarises 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) officers with less than five years of working experience in

the current Multimedia Super Corridor status company. This provides evidence that most of the respondents are young officers. 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. This is further elaborated in Chapter 8.

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 Multimedia Super Corridor 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. It seems that most knowledge workers are agreed on the importance of having a strong team-based working environment within a company. This finding is comparable to the interview findings, which are discussed further in the coming chapters. Ironically, the survey also provides findings on how knowledge workers view the need and importance of sharing knowledge with each

other. The findings of this survey and the in-depth semi-structured interview results suggest that in practical terms, this type of “working culture” does not exist at the present time. This could be due to cultural barriers, as revealed in the in-depth interview results. Further discussion on this matter is presented in Chapter 7 and Chapter 8. Also, personal development plans such as training have been found to serve as crucial elements enhancing knowledge workers’ learning capability and self-improvement, an opportunity that does not appear to be sufficiently evident in the current companies.

Other than that, there is not much evidence that respondents would prefer a more informal appraisal system. However, further refinement is needed on the objectives of the current assessment of knowledge workers’ skills and development. In fact, there is a clear indication of the importance of rewards in the retention of knowledge workers. However, there may be other substantial reasons, which have been explored during the in-depth semi-structured interview. The researcher’s personal perception of this issue is that due to their young age, knowledge workers believe that there will always be a better opportunity in the future. Therefore, this raises another issue for human resource management, i.e. how to utilise their knowledge effectively while they are working in the company. There may be no intention to keep these knowledge workers for long within one company. Alternatively, human resource management could create a working environment that will encourage knowledge workers’ loyalty to the current company.

Looking at the overall findings within the context of Multimedia Super Corridor status companies, one can see that there will be also a need for human resource management to hand in hand with knowledge management. In simple terms, knowledge management cannot be effective without support from human resource management. In the same way,

human resource management may not meet its objective in managing knowledge workers without inculcating the values of knowledge management, i.e. appreciating knowledge as the main asset for the success of the 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 Chapter 5. Thus, an in-depth semi-structured interview is needed to uncover the ideas that arose during the questionnaire survey, and is presented in Chapters 7, 8 and 9.

CHAPTER SEVEN

Knowledge Workers and the Knowledge Management: Qualitative Findings

7.0 Introduction

As discussed in Chapter 5 on research methodology (see Section 5.4.1), the questionnaire survey is limited in the sense that there is a lack of control over the questionnaire completion process by the researcher, low response levels, a lack of control over who actually completes the questionnaire, and few checks on incomplete questionnaires (Hakim, 1987 and Oppenheim, 1992). The questionnaire emphasises the measurement and analysis of causal relationships between variables rather than the exact processes happening within the minds of the respondents (De Vaus, 2002; Hakim, 1987; Hussey and Hussey, 1997; Tull and Hawkins, 1990). Therefore, in-depth semi-structured interviews are helpful to supplement the information gathered from the survey and to gain further insights. Furthermore, this approach allows the researcher to use her judgement to analyse the meanings. Normally, this process is partly interviewer-led and partly informant-led (Hillary and Peter, 1999: p. 8). It provides enough freedom for the respondents to steer the conversation and bring in all sorts of tangential matter which, for them, has a bearing on the main subject (Hakim, 1987).

For these reasons, a series of interviews was undertaken during the fieldwork in Malaysia between May and July 2003. Respondents comprised 78 individuals from diverse backgrounds within the 30 participating companies, as described in Chapter 5, Section 5.4.2.5. The details of the interviews scheduled and administered are presented in Chapter 5 (see Section 5.4.2). The main purpose of the interview survey was to explore and explain in greater depth the issues raised by the results of the questionnaire survey. Thus, the structure of this chapter is rather similar to

the structure of Chapter 6, except that the focus will be more on the several main issues and/or themes developed during the transcribing and coding process. The discussion of the results includes some quotes from the interviewed respondents. As the respondents wish to remain anonymous, they will be identified as respondent number 1 (R1), respondent number 2 (R2) and so on in this chapter. Similarly, their companies will be identified as Company 1 (C1), Company 2 (C2) and so on.

This chapter starts with background information on the respondents. This is followed by issues relating to knowledge workers and knowledge management, which will be discussed concurrently with the literature review. In this regard, issues on knowledge workers comprise the overall views on the characteristics of knowledge workers from the local context. Issues on knowledge management will cover the overall views brought up by the respondents in terms of their understanding of and attitude towards the concept. Meanwhile, issues on human resource management and the government development agency will be presented in Chapters 8 and 9.

7.1 Participating Respondents

This research involves 78 respondents and as described in Chapter 6, their demographic variables are crucial in order to allow the researcher to know and understand them better, especially in terms of linking these findings with other studies and the earlier literature review. As regards gender, position and age, 47 of the respondents were female, whereas the remaining 31 respondents were male. In terms of their position, 26 of the total participants were computer programmers, young officers, software engineers, system analyst etc. This was followed by 15 who represented top management with different types of working experience, and the remaining 37 participants were in middle management positions related to business development and strategy, information technology activities and human resources.

All participants fitted the definition of knowledge workers put forward by the Multimedia Development Corridor and were thus considered as being able to meet the main requirement for this study. Furthermore, the respondents' ages ranged from 20 and 59 years. 31 of the 78 respondents were aged between 30 and 39, while 19 respondents were between 20 and 29 years old. Only two respondents were aged between 50 and 59 years. The rest were aged between 40 and 49 (26 respondents). Considering the education attained by the respondents, 41 respondents had bachelors' degrees, 18 respondents had postgraduate qualifications, 15 respondents held a certificate or diploma, while 4 respondents had pursued formal secondary education (SPM). In addition, of the 78 respondents interviewed, 39 were Malays, 28 Chinese, and 11 Indians.

7.2 Issues on Knowledge Workers: Understanding the Characteristics of the Knowledge Workers from the Local Context

As described in the earlier review, the emergence of knowledge workers in the new age, i.e. the knowledge based economy, is undeniable, and understanding their characteristics well has now become the pre-requisite for managing them effectively (Amar, 2002 and 2004; Darr, 2003; Drucker, 1988 and 1998; Horribe, 1999; Hunter et al., 2002; Newell et al., 2002; Scarbrough et al., 1999; Thite, 2004). In fact, knowledge workers have been seen as the new generation that will lead towards the continuous success of the company as well as the nation (see for example Amar, 2002 and 2004; Drucker, 1988 and 1998; Horribe, 1999).

Therefore, for the purpose of understanding this group of workers, the researcher needs firstly to describe the characteristics of knowledge workers from the local context, before looking at further issues on knowledge management and human resource management. Thus, this section focuses on further discussions of the findings regarding the

characteristics of knowledge workers from the local context. This group of workers is seeking new challenges because of their dislike of repetitive work and the desire for a high level of learning. Because of that, they tend to do what they like, they desire freedom and flexibility, they are frequently “headhunted” and finally, their willingness to share knowledge is still questionable and has an unpredictable character.

7.2.1 Seeking New Challenges because of Dislike of Repetitive Work and Enthusiasm for Learning

During the semi-structured in-depth interviews, the researcher normally started out with a question relating to the respondents’ background. Despite the considerable array of interview questions and earlier survey findings that do not present this scenario, the analysis of the current transcripts has revealed that many of the respondents do not have the same academic and working background as their current jobs. The researcher decided therefore to study this issue in further depth and to discover the reason behind this. Interviews with knowledge workers revealed that most of the respondents have a positive attitude towards “seeking of new challenges”. A sample of respondents (numbers 1, 5, 12, 20, 21, 23, 27, 31 and 33) described their views that having a different working background is not a barrier to exploring new types of job and allows them to seek new challenges. Questions were asked regarding why they had changed their career paths, what difficulties they faced in changing career and what they had done to overcome those difficulties. Several quotes derived from the transcripts are given below to show why they look for new challenges. R1 stated why she had changed her career from Accountancy to Finance and HR Management. She said:

“Because I graduated from Australia, I joined the Australian ACCPA [Australia Certified Public Accountant]. So, in order to get that, I needed to sit for an exam and then obtain work experience. From the accounting firm I got three years’ working experience, so at that point in time, I thought this was very hectic. When I reached a senior level, I was exposed to quite big

companies and these companies had a lot of subsidiaries... So I was like tired (laughs), then I needed to change [career]. I wanted to seek new challenges from the commercial view.” (Page 2, line 22-38, Finance and HR Manager with 7 years’ working experience)

She further explained why she did so by describing the following example:

“This is because in audit, you do not know what is really happening. You only come in once in a year and some listed companies you do internally whereby you go in twice a year maybe. But when you do a walk-through with them, like I see a lot of companies that have different types of procedures, which I was most interested in. I wanted to be part of it and to give my opinions or probably to change to better procedures or whatever then...at that point that was what I wanted to do...” (Page 3, line 1-9)

When asked about her new working environment, R1 admitted that she had had to face difficulties in her new information technology world. However, having people to guide her in coping with the new information technology world and her willingness to learn new things has helped her to accommodate her new working environment easily. She stated that:

“...when I first started, it was really new to me....so every day I tried my best to get some feedback from him [boss]. Because whenever we met on this project, there were new terms arising and that’s very embarrassing when they are brought up in the meeting and you ask them directly ‘what are you talking about?’ So, I actually took time to jot it down and tried to understand what they are saying. If I can’t gather that, then I will see them personally afterwards ...” (Page 4, line 15 -18)

The same feedback on the intention to seek a new challenge was also given by R5, an ex-accountant who is currently involved in the information technology industry as a Business Development Manager:

“I’m from an accounting background. I was an accountant and now, as a programmer, I am what we call ‘handling two positions’, one is a System Analyst and another one is a Business Development Manager... organising the company to plan for the future ...” (Page 2, line 26-28, Business Development Manager, with 10 years’ working experience)

When asked why they liked changing jobs and/or careers, several reasons were mentioned by the respondents. For instance, one of the participants (R12), the Secretary-cum-Business Officer in a small production company, said the urge for her to realise her dreams has led her to change her career path. As she explained:

“I joined here in 2000 and like it very much. Previously, I was from a big conglomerate company and I was the private secretary. The tasks were quite limited and not challenging at all. Here, I can do my own presentations, I can give my ideas and I like doing that. I feel independent because I can go without my boss to present my proposals on behalf of the company. Furthermore, I can go for price negotiation as well. The boss just tells me the minimum price that he would prefer. In the previous company, nobody noticed you; when you were about to be noticed, suddenly they changed the management and there was lots of red tape. I think people say ‘you would like to be a big fish in a small pond’ rather than ‘a small fish in a big pond’. Here, I’ve been given freedom and trust. What else do I want ...” (Page 1, line 8-28, Secretary-cum-Business Officer, with 6 years’ working experience)

In supporting the above statements, R20 (a Director of Marketing and Business Development) also pointed out his view on changing career paths and highlighted the importance of knowledge workers getting new jobs and adapting to a different work place. He said:

“I have worked in a lot of different companies... [and]... I think of it as an advantage, because you learn more and more each time. As long as you feel that, you know, you have managed to achieve something in the company while you are there, that’s important. I think if you just stay and work in one company all your life, you will only get a certain vision of the world. So, I would encourage people, if they come, to work for a few years and then... [try something else]. They go and do that. It’s better because one will be a better all-rounder. In fact, we have cases where people have done it and come back here again...” (Page 1, line 13-20, Director of Marketing and Business Development, with 10 years’ working experience)

The earlier quotes illustrate that many knowledge workers are challenge seekers. This could also relate to why the knowledge workers are headhunted, as presented in Section 7.2.3. This is in agreement with the earlier findings of the questionnaire survey (see Chapter 6, Section 6.4.1 and 6.4.3) and supports the work done by Amar (2002), Darr (2003), Drucker (1988 and 1998), Horribe (1999), Scarbrough et al. (1999), Tampoe (1992) and Newell et al. (2002). The most recent articles by Amar (2004), McGregor et al. (2004) and Yuri and David (2004) highlighted that the good thing about this attitude is that knowledge workers are capable of taking on challenging tasks. The earlier examples explained how an accountant can do a human resource job as well as working with business strategies. Another good example could be the computer programmer who was involved in sales at the same time and made a profit for the company.

However, there is a proverb saying “Jack of all trades, master of none”, which means that you may know a bit about everything, but you may not have the opportunity to become an expert and/or specialist in what you are doing. This could also be a loss to the company, as when it comes to complicated cases or system programming, the company might need to hire a specialist in order to solve the problem. Therefore, it could be assumed that even though knowledge workers prefer challenges, this does not mean that they should necessarily avoid all repetitive work. This is because such repetitive work could allow knowledge workers to become experts, and in this way both the workers and the company could benefit. Furthermore, Table 7.2.1, provides an example of an interview session which took place in the respondent’s office. What made it interesting to the researcher was that his intention to leave the company supported the earlier questionnaire survey findings (see Chapter 6, Section 6.4.6).

Table 7.2.1
Interview with R23
(Page 5, line 6-29, Manager Strategic Support & Legal with 6 years' working experience)

Question 1: Did you make a full use of your knowledge here?

R23 : I would say, having the basic knowledge that I have, I will be able to handle all kinds of arrangement that come in. And if I'm in doubt, I always call up our panel of lawyers or if I'm still thinking that I still need some depth on the area, I will probably sign myself up for a seminar and then go there and ask the expert...

Question 2: If you were given a better opportunity in the future, would you have any intention to leave?

R23: Yes of course.

Question 3: Why?

R23: I think what I would be looking at is career advancement - that is number one. Then the area of work that the new job would offer me. The next thing of course is the monetary compensation. I think these are the three things that I'm looking at. Because, to be honest with you, I have been here for four years but I don't see myself progressing as much as I would like to.

Question 4: Can you tell me more about that?

R23: I think the current job is challenging but I think I'm bored with my current position. I don't have enough support, and if you don't have enough support, all the things will come to you. You can't delegate, you know. Then, at the same time, you can't go out and look for more things to do, you know what I mean. So that is probably my only complaint.

The above interview indicated the reasons why knowledge workers are keen to seek new challenges, namely career advancement, i.e. job satisfaction, and monetary compensation. This supports findings from Chapter 6 (see for example Section 6.4.5 and 6.4.6). It also reveals that knowledge workers have a higher level of willingness to learn in order to achieve their ambitions. In agreement with these understandings, it was found that knowledge workers must be self-motivated and show initiative when seeking new challenges. This is confirmed by the earlier study conducted by Kubo and Saka (2002) on *"Managing Japanese Knowledge Workers"*. They identified human resource development as one of the three key factors to motivate their workers. This means that knowledge workers' self-enhancement requires training, which has not been closely examined in Chapter 6. Here, the in-depth semi-structured interviews provide information about training, which along with compensation and reward is a key factor for retaining knowledge workers. With regard to

this, Amar (2002), Smith and Rupp (2002), Drucker (1988 and 1998) also emphasised the importance of opportunities for personal growth, which are vital to a group of people who are perpetually seeking new knowledge.

In fact, the recent article on *"Motivating Knowledge Workers to Innovate"* by Amar (2004: p. 100) argued that the job itself, the outcomes of the job and the organisational system are the main sources of work motivation. In this view, perhaps the job and the organisational system of the above respondent's company, which discouraged self-improvement, were why he was looking to leave the company. In addition to this, as an example of a good knowledge worker herself, R27, the Manager of a Research Department in a big company with more than 500 workers, reported the need for knowledge workers to have multiple skills, saying:

"A good knowledge worker needs to have self-initiation and to work more out of the box. Meaning that, if I give them one instruction, they can either give me the exact expected output or they can give more than that. The best is if they can give more than that of course. But I don't think that in two or three years they can achieve that level... []...when you ask questions, people who are really passionate about their work can think of more than one perspective. For instance, in developing a new system application you need to think, say you are a hacker and say you are a user of that kind of things..." (Page 5, line 21 – 32, Manager with 10 years' working experiences)

In the light of this, R5 supported the above statement when he emphasised the need for knowledge workers to have self-directed learning opportunities. He stated:

"... you know, in computer technology, you need to improve yourself. You cannot depend on your studies only. You must improve it all the while...I do it on my own..." (Page 2, line 20-22, Business Development Manager with 10 years' working experience)

With regard to this willingness to learn, a Software Engineer who had two different degrees in statistics and economics pointed how long it had taken her to learn information technology as her new task. She stated:

“I would say about a year. Basically we have training for three months. But after the training, we are still inexperienced in this field, so as we learned, we got assignments, we learned step by step, slowly, and then you do progress: after six months on words, a person can catch up when they are exposed to that field. As you learn, keep on practising, there is no problem with that...” (R31, page 3, line 15-33, Software Engineer with 5 years’ working experience)

However, not all respondents showed an eagerness to change jobs. The researcher found that R21 and R33 were in disagreement with the idea of leaving or moving to a new company. They thought that working in a big and stable company was good enough. They did not consider that changing companies would be beneficial to their careers. This is because they had already been given challenges within their current companies, and this was the main reason why they wanted to remain where they were:

“...ever since I was sent to the UK, I have been travelling around with C20 ... I have been travelling in the C20 world for one country to another, covering Saudi Arabia, Scotland, the US and Japan...[so].... I think that is one of the beauties of working with C20. You get an opportunity to be trained on the job in the various fields that you were originally trained in. Having done that, you also get experience in various corporations.” (R21, page 3, line 17-20, Business Development Manager with 30 years’ working experience)

Here, the respondent welcomed learning but felt that his current employer offered this. In a similar case, R33 had the same view to that stated above, when the researcher asked him about leaving the company for a better offer. He said:

“No, not in the least. The thought hasn’t crossed my mind of looking for other jobs. I think, culturally, C33 is a company which offers a lot of opportunities to its employees. There is a lot of flexibility in terms of what you want to do. For example, though this is my tenth year in C33, the roles that I have done

may be six...So basically I moved from frontline sales to back office, becoming the main manager...[]... there is no increment though you'd been given different roles. In C33, salary has got nothing to do with the role you are in. There is a certain relationship but they are not strongly linked. And I was happy with all these roles. In fact I asked most of these roles. So all employees got these opportunities..." (R33, Page 1, line 3-10, Business Development Manager with 10 years' working experience)

These quotations imply that knowledge workers will only leave the company that they work in if they feel that there are no more challenges, if they are doing repetitive work and if insufficient support is given for self-improvement. As most of them are young, aged between twenty and thirty-nine years old, they could be considered as generation X and Y, as described by Amar (2002 and 2004). According to him, these generations are accustomed to facing challenges independently. Thus, they are not afraid of facing challenges and are always ready to be creative and innovative in solving problems and making decisions.

In another case, knowledge workers will not leave the company if they have been provided with internal promotion and allowed to create their own career paths and seek challenges, as mentioned by R21 and R33. The size of the company and being well established could be other factors that encourage knowledge workers to stay in the same companies. In this regard, the opportunities provided within the bigger companies for knowledge workers to lead their own career paths mean that they are less likely to leave the company. This picture could bring bad news to the small companies, as the best knowledge workers from these companies are likely to look for any opportunity to join bigger companies due to their promising career prospects and benefits.

7.2.2 Tend To Do What They Want and What They Like; Desire Freedom and Flexibility

With regard to the above, the researcher also found that knowledge workers not only seek new challenges, but also tend to dislike repetitive work irrespective of the type of company they are working in. They prefer the freedom to do what they want and what they like. For instance, R63 was offered a good position in a big multinational company on his return from the United State of America after his degree programme. However, just 6 months ago, he left the job and joined a company employing fewer than 60 workers. According to him, it was not the company that bothered him but the job itself, and this is in agreement with what has recently been written by Amar (2004). In this view, R63 commented:

"To me it is more about what you want to do. My ultimate goal is what I want to do. If I join a company, this company would have to provide me with the opportunities to do things, not my way, but things that I like and enjoy doing it. Maybe the company cannot give me a good salary, but when I joined the company, I have this - the desire everyday to come to work and to do this, I want to make thing happen now and I will make something, for example. At the end, maybe I can sell it (the pattern and/or program) and see whether other people are also doing it... [Thus the total satisfaction is more than everything...]. To me, I spend maybe half of my day here and when I go back home, I have to feel that I have done something good in my life. So, my ultimate goal is that. If not this company, then it is another company; we may not know and cannot say ..." (R63, page 5, line 10-22, System Engineer with 2 years' working experience)

Thus, the above suggests that what knowledge workers require most are freedom, flexibility and also perhaps flat management (i.e. less company constraints) in completing their tasks. This was confirmed when the researcher visited a large and prestigious company for an interview appointment with its Information Technology Manager. The researcher observed a very relaxed office environment. There were no strict procedures required in order for the researcher to meet the IT Manager. He himself answered the phone when the conversation took place. When

asked about this, R2 mentioned that:

"We are free to talk to bosses anywhere, you know. Not all managers have their own secretaries; they are freely accessible. I think we have prudence ..." (Page 5, line 5-6, IT Manager with 7 years' working experience)

As a matter of fact, the researcher had also been told that his staff were free to do what they liked as long as they stuck to the company's working ethics and deadlines. He further added:

"...Those good in networks are very much confined. They may not be good in business. Thus, there will be another group who are good in business, so we encourage them to do their research [work] according to their skills..." (Page 6, line 1-3)

In a similar case, when asked questions about the problems encountered when managing knowledge workers and encouraging them to share knowledge, the Human Resource Manager (R6) of a small information technology company commented:

"No we don't [have problems in managing knowledge workers]. We have a flat company. We keep it quite flat as much as possible, so that means if you want authorisation, you just have to go one step further. You don't need to go from assistant manager to manager and so on. That will kill skills, ability and innovation. So we just make it flat, you know. And then, our co-founders, like all these big guns, they actually sit on the same floor. They don't want to go into a room. So basically, we are on the same level and struggle together..." (Page 7, line 4-12, HR Manager with 14 years' working experience)

The earlier statement implies that practicing flat management is pertinent in keeping knowledge workers longer in the company. This is in agreement with the earlier review that flat management encourages teamwork, reduces bureaucracy, offers more opportunities for self-development and provides higher levels of job satisfaction among knowledge workers (Powell, 2002). In this regard, the above respondent continued:

“Knowledge workers hate hierarchy because they feel they don’t need to report to anyone, if possible. Thus, you have to trust them. Something about knowledge workers - you don’t have to give them a book of set rules telling them what to do. They already know what not to do. You must give them that trust, there is more to trust. I think that’s how we manage to keep our turnover very low...” (Page 7, line 21 –24)

In fact, the Research Director of one of the leading information technology companies admitted the need to be flexible and provide freedom for his knowledge workers. He said:

“My working hours are very flexible. C2 likes flexibility and freedom. That’s why I’m working here. Sometimes, I go back at eight, nine or even twelve midnight. Sometimes ...[later]...than that...” (R10, page 3, line 8-11, Research Director with 17 years’ working experience)

In this case, according to him, all knowledge workers have their own ‘*amanah*’ (trusted duties and responsibilities) to carry out. It is their desire to perform the duties entrusted to them and fulfil their responsibilities as expected by the company. Thus, knowledge workers are conscientious and do not need to be told to do their work. He explained:

“You have to know yourself. It is never written. C2 does not have a lot of rules. C2 does not check you. It gives you resources, trust and flexibility and some guidelines with the assumption that you are responsible and willing knowledge workers; you have to discover this by yourself...” (Page 3, line 13-17)

Generally, these findings conform to the earlier results stated in Chapter 6 (see Section 6.4.1) regarding the desire of knowledge workers to be given freedom in completing their tasks rather than just being provided with challenging tasks. In relation to this, once again the concept of trust and commitment has been considered to be the crucial element in understanding this group of workers more effectively (see for example Archivili et al., 2003 and Hislop, 2003). This is because freedom, flexibility and flat management can only be applied and/or provided when knowledge workers are trusted and/or have the commitment to complete

their duties and fulfil their responsibilities accordingly. However, more empirical research is required in order to provide further robust findings on this matter.

7.2.3 Normally 'Headhunted'

Apart from the above, from the local point of view, a further characteristic of knowledge workers is that they are frequently headhunted. Currently, the Malaysian government, with the help of the Ministry of Human Resources, is busy preparing a competitive package to ensure that its "brain gain" programme is successful, as discussed further in Chapter 10. This is because now is the time for Malaysian knowledge workers who are working abroad to come back to Malaysia and serve their country. The same thing is applied to Malaysian knowledge workers who are already in the country, in the hope that they will remain instead of leaving. This is particularly relevant in the case of the Multimedia Super Corridor status companies that have recently reported that they are facing a shortage of knowledge workers (see for example Chapter 4, Section 4.3). In relation to this scenario, when further analysis of the transcripts was conducted, another noteworthy finding was revealed by the respondents, in that knowledge workers were targets for headhunting.

According to human resource managers who participated in this study, their own experiences confirmed that knowledge workers are often "headhunted". Therefore, if the headhunting activities are still widely practiced, this could have a negative impact on the "brain gain" programme that has just been launched by the Malaysian government. Even if the country is successful in bringing back Malaysian knowledge workers from abroad, when it comes to job offers within the same cluster of companies, as in the Multimedia Super Corridor, these headhunting activities still occur. Thus, the "brain gain" programme may not meet its

end objective if no action is taken to stop such activities. Further discussion on this matter in relation to the recruitment of knowledge workers is presented in Chapter 8, Section 8.2.

One respondent who was identified as having high self-esteem was willing to share with the researcher his thoughts on the “rights” of knowledge workers, and highlighted how headhunting is common for knowledge workers. Being Vice President in a company of more than 1000 workers, R11 emphasised the need to create a problem-solving environment for knowledge workers, so that their job performance would be maximised. He pointed out:

“Personally, I’m a strong believer in employability. From day one of my working life, I have never believed in ‘cradle to the grave’ employment, you see. Because I believed that’s how I would build my career, you know, and some people think that I job hop. I have job hopped, because I believe in employability. I mean, that is why I want to share beyond this company, because I saw that I was one of the few knowledge workers that were managing our own careers... A knowledge worker must be able to be stretched and offered challenges with different kinds of problem, and yet I was able to solve problems beyond the expectations of the stakeholders. What I believe is that knowledge workers are very fluid and mobile. These are the principles of knowledge workers, because they know they are very knowledgeable, they know that they are very fast learners, they know that they can contribute beyond the norm, so they become mobile...” (R11, page 2, line 6-17, Vice President with 18 years’ working experience)

This statement presents evidence that knowledge workers will not necessarily be permanently placed in one company. In a similar case, another respondent revealed that he had been headhunted during his lectureship. He is now the Chief Technology Officer of a company with less than 100 workers. He said:

“I work here as a Chief Technology Officer. I think I have an interesting background. I enjoyed university teaching and it was a great place to be. But, there was a time when the company said to me, because I worked with the company as a consultant...

There was a guy said to me 'I have heard all about you and would like to have lunch with you, because I think maybe you can help me with something...[offered a new job]...I need somebody who can really see the future'..."(R13, page 4, line 28-34, Chief Technology Officer with 10 years' working experience)

When further questions were asked about why he had been headhunted, this respondent replied that he is nobody's person, and that he knows he is futuristic, dynamic and capable of being very strategic. When asked about his strengths, he affirmed that:

"I don't think I came from intelligent camp. I just work hard, yes really work hard. So, I think my key strength is not having a brilliant mind but is being able to think strategically and, you know, being able to combine business and technology together (multiple roles)..." (Page 5, line 2-4)

Similarly, R22 had also been headhunted while doing his job and is now an Area Civil Representative. He said:

"I was doing work for C7 as a consultant and I was asked if I would to have a job with them. So I was, if you like, 'headhunted' at that time..." (Page 3, line 11-12, Area Civil Representative with 15 years' working experience)

It can be seen from the above that knowledge workers are usually headhunted due to the knowledge that they have and the additional qualities that they possess, such as being strategic, dynamic and specialising in certain tasks. Usually, these activities are carried out in order to elicit recruitment to higher positions. However, in the Multimedia Super Corridor cluster, seniority is not regarded as the main criterion for being headhunted. These findings again support the earlier discussions on the future of knowledge workers in Chapter 6 (see Section 6.4.6). This is in agreement with Drucker (1999), Lock (2003), Horribe (1999) and Sveiby (1997), who have predicted that knowledge workers will not stick with a company for a long period of time unless they are satisfied with what they are doing.

However, some questions remain to be answered. If these knowledge workers are really mobile, how long do they normally stay in one company? And if they do not stay long in one company, do they need to be managed differently from others who stay longer? In answering these questions, it is worth mentioning an example of a quote gathered from one of the respondents. A Senior Officer at a Consultant Company (R9) with 7 years' working experience reports:

“I would say in the information technology world, the average time frame people stay in the IT environment is about two and half years..” (Page 3, line 14, Senior Consultant (R9) with 7 years' working experience)

If this is the average answer for all knowledge workers, then the next issue that may result from this statement is that the companies are reluctant to send their knowledge workers for further development. As mentioned in Chapter 6 (see Section 6.4.6), this is because the companies will not want to spend money on training someone who may leave later on. However, if the companies do not spend money on such training, knowledge workers are still likely to leave for better knowledge-enhancing opportunities. Thus, this conflict needs to be resolved by asking a question about how a company should utilise its knowledge workers while they are still there. This may be an area that knowledge management and human resource management should examine.

7.2.4 Willingness to Share Knowledge and Having Unpredictable Characters

Regarding the above view, it is necessary to understand the willingness of knowledge workers to share their knowledge in order to ensure the effectiveness of knowledge management, as described in Chapter 2. This is because knowledge is the driving force in today's economy; thus, knowledge workers are expected to share knowledge with others in the company. At the same time, it is important that companies find a way to

tap into this knowledge base in order to preserve and expand their core competencies. In this regard, accessing existing knowledge and creating new knowledge is pertinent, as the core competencies are based on the skills and experiences of people who do the work, and may not exist in physical form (Manville and Foote, 1996; Nonaka and Takeuchi, 1995). In the SECI Model put forward by Nonaka and his colleagues, stress has been placed on the management of knowledge by capturing a company's know-how and know-what through socialisation, externalisation, combination and internalisation. As argued by Gurteen (1998), these processes encourage knowledge workers to become more productive, creative and innovative. And innovation, according to Rodan (2002: p. 152), is crucial to a firm's competitiveness in the current global economy era. Thus, this section explores the theme of the willingness of knowledge workers to share their knowledge, as was raised during the in-depth semi-structured interview.

However, the interview findings revealed results that were quite contradictory to those that emerged from the questionnaire survey (see for example Chapter 6, Section 6.4.2), in that many Malaysian knowledge workers are still somewhat reluctant to share their knowledge. Further discussion on this matter is also provided in the knowledge management section (see 7.3.1). Here, R23, the Manager of Strategic and Legal Support of a big company with more than 500 workers, briefly describes the current scenario of knowledge sharing among knowledge workers in his workplace and the role of the top management:

"...A lot of the time it is a communication breakdown. Not because people do not want other people to know, but basically, they don't want people to jump into it and say 'Oooh...this is where we are going'. They [top management] don't want to alert people so much. We are not actually in a fast changing era at the moment so I don't think we are hundred percent there yet. The awareness level is still low..." (Page 4, line 35-40, Manager of Strategic and Legal Support, with 6 years' working experience)

R44, the Head of Information Technology Department who is working in the same company as the above respondent, commented that the Malaysian knowledge workers still needed to adapt to such sharing activities. She realised the importance of sharing knowledge with others as being crucial for self-development and the company's success, which is similar to the questionnaire survey's findings. However, she disclosed that:

"There are a few people who are not really willing to share knowledge. We are not willing to share. I do not know whether it is the culture or is a part... [of our life]... compared to westerners. To them, knowledge is freely obtained and is very much open. They are willing to share anything when they develop something new. They just give without us asking for anything in return, for example. That is really sharing; they share as much as possible. But then, we here still have this kind of feeling 'this is my weapon, I know, if I tell anyone, I won't have a job the next day or whatever'... something like that, you know. Our people's mentality is still not into sharing as much. We tend to keep things to ourselves..." (Page 5, line 3-10, Head of Information Technology Department, with 6 years' working experience)

With these understandings, this section may be summarised by stating that as knowledge workers are challenge seekers and higher achievers, they may dislike repetitive tasks and prefer freedom as well as flexibility in completing their tasks. In fact, it has been pointed out that managing them with fewer company constraints would help them to contribute more to the company's success. In this view, what knowledge workers would appreciate more is the opportunity to develop themselves in accordance with the rapidity with which new knowledge is currently emerging. A company that cannot provide such opportunities may face a situation in which it eventually loses its talented knowledge workers.

However, it was revealed that even if a company could provide all the above-mentioned factors, there is still evidence that knowledge workers might not stick to the same company for very long. The average duration of employment with a single company is between 2 and 3 years. Apart from

that, it is a common trend nowadays that knowledge workers are headhunted within the Multimedia Super Corridor status companies due to their exceptional knowledge and intellectual power. Thus, this activity could contribute to a situation in which knowledge workers do not stay long in one company. This could have both positive and negative impacts on the individual knowledge workers, the companies and the Multimedia Development Corridor. Knowledge workers, by being headhunted, will be offered better pay and higher status.

However, in the long run, these knowledge workers will not be able to become established and consistent in their work life. For instance, according to the recent article written by Carnnitte (2004), "being head hunted might be flattering, but it does not always mean you should take the job..."(p. 27). This is because the candidate will never know exactly what is happening in the new company and why exactly he or she is being headhunted. Thus, careful networking might be necessary to save the candidate from getting into a difficult job situation. Carnnitte (2004) further argued that the wrong movement could seriously damage the long-term career of the worker. Furthermore, the negative impact on the company will be felt through the loss of its top workers, together with their knowledge. However, this could actually be a good thing for the Multimedia Super Corridor cluster, leading to greater knowledge transfer within the cluster. In some ways, though, this situation is likely to result in an unproductive working environment. Knowledge workers may be less inclined to share, as they believe they will leave the company sooner or later.

With regard to all these points, human resource management should be aware of the future challenges of managing knowledge workers effectively in the local context. Even though knowledge management has been

suggested as one of the solutions that will match the current needs of knowledge workers, in terms of managing their knowledge, there are still other steps that need to be taken by human resource management, especially with regard to discouraging or at least limiting headhunting activities, as discussed further in Chapter 8, and supporting the successful implementation of knowledge management within the company. This is because the headhunters believe that “headhunting is an opportunity, and will continue to find talented knowledge workers and make offers, informing everybody’s interest in sight” (Winterburn, 2000: p. 25). The following section will proceed by discussing the findings on knowledge management issues within the Multimedia Super Corridor status companies in Malaysia.

7.3 Issues on Knowledge Management

If the Multimedia Super Corridor is meant to be a journey of excellence in pursuit of the achievement of Vision 2020, there is a need to prepare Malaysian knowledge workers by providing support as they adapt to the new way of capturing knowledge. Furthermore, building “*The Knowledge Society*”, according to Norsaidatul et al. (1999), demands new and better ways of learning, education and knowledge sharing among workers within this advancing technology. Hence, the aim of this section is to explore the current issues relating to the readiness of knowledge management implementation in Malaysia. In addition, these issues need to be examined by the Multimedia Super Corridor status companies as a whole, as well as by knowledge workers, the Multimedia Development Corporation and even the government. Therefore, the following discussion of knowledge management issues from the local context is divided into several main themes. These are knowledge sharing among knowledge workers, preferred methods for knowledge sharing, cultural hindrance to knowledge management implementation, whether knowledge

management suits large companies more than small ones, and finally the overall view of the issue that there is not much comment on knowledge management, due to the fact that few companies are currently practicing it.

7.3.1 Knowledge Sharing Among Workers

This section provides further analysis of knowledge sharing among knowledge workers, as mentioned earlier (see Section 7.2.4 and 6.4.2). The researcher would say that most of the respondents acknowledged the importance of sharing knowledge with others, irrespective of types of knowledge, as described in early reviews such as the work of Blackler (1995), Nonaka and Takeuchi (1995), Newell et al. (2002) etc. However, this level of sharing is not accomplished in reality. This finding is in keeping with the questionnaire survey findings discussed earlier. R3, R18, R19 and R27 have pointed out more on this matter. R18, who is the Head of an R&D Department in a company with more than 500 workers, had been trying hard to inculcate this sharing culture in his company, as he told the researcher:

“Now... sharing of knowledge, this is one of my strong points. I suppose it is because of the different cultures. In the sense that a different culture is experienced overseas as a PhD student... [there was]...a knowledge-sharing platform. You bring along your coffee mug to a meeting room... [However]...here they do not have it. I don't think many people see the value of sharing knowledge yet...” (Page 2, line 5-23, Head of R&D Department with 15 years' working experience)

When asked further about the recognition that he received from the company, he was a bit reluctant to answer the question because to him, what is more important is building bridges with other researchers, rather than any reward. He continued by saying:

“Let me share with you that it is extra work. It is not really officially recognised by the management in the sense that there is no budget allocated to me. There is no resource given in organising it but it is beneficial, in the sense that I get to know at least at a very top level what each of these technologies means. At least I know enough to help the group. Actually we do help

them to build bridges with the other research committees in their own areas..." (Page 2, line 31-35)

Similarly, an Information Technology Manager (R27) who is within the same company as R18 admitted that workers should share their knowledge for the sake of the success of the company:

"Yeah, I do share a lot because I expect them to share their knowledge with me. So, I need to share mine with them. So, usually when I go to my manager's meeting, you know what happens... because I have two teams like I said. Two teams, but the issues are different. The technical side is different from the deployment. So, even though I'm in the meeting with the development team, I do share what is happening on the deployment side so that they are aware of their deadlines. Even though they are not really doing that task, so it doesn't matter if I don't tell them, I do tell them so that they can feel they are a part of the business..." (Page 4, line 22-27, IT Manager of a Research Department with 10 years' working experience)

Another Assistant Human Resource Manager (R19) of a big conglomerate supported the need to share knowledge among staff, as she said:

"It is a very hard question to answer because you can have ten people in the same room and it is a story of 'rambut sama hitam, hati lain-lain'². So to say, one thousand and seven hundred are all alike, I can't tell you, but as a culture, if I need to work on something and I need information, I know where to go and whom to ask for it." (Page 3, line 15 -25, Assistant HR Manager, with 6 years' working experience)

However, when asked whether their staff really share knowledge, R19 continued by saying that:

"...I need to stress my point: Malaysians have to change. They need to change the idea of being selfish about information and also I think the Malaysian mentality is a big shame. Again the thing that we need to change is our mind set...We need to get away from our thinking that Malaysians are just a little speck in the whole world, they're not... you find that, we are not so bad. We may not be at the top but neither are we at the bottom..." (Page 4, line 10-17)

² This is a Malaysian proverb which means 'everybody could have the same hair color (i.e. black), but this didn't mean they are similar in every particular'

In another case, a good example of why some of the staff are not comfortable with sharing knowledge is due to the ability and speed of learning by the slow learners. This hinders the process, as described by the following example in Table 7.3.1.

Table 7.3.1

Interview with R3, page 3, line 5-21, Systems Analyst with 3 years' working experience

Question: Do you have any difficulties in sharing knowledge with others or delegating any work to your co-workers or colleagues?

R3: ...I would say we do have some problems; as individuals, they have their own qualities. So some of them are slow and some are fast. So of course my problem is with those who are slow learners. I cannot transfer the knowledge, because they are slow at picking up and it takes lot of time.

Question: So, when it comes to sharing knowledge, do you prefer the fast or the slow learner? And why it is so?

R3:... of course the fast learners. Because one of the factors, time, is very important ... [consideration]...you know. You have to complete [a project] within a specific time. So if it is going to extend beyond my time, thus it will trigger another issue.

Question: Can you elaborate more on this?

R3: Actually you can quote the theory and philosophy of 'IT is equal to speed'. Everything you need is speed, to catch up with the knowledge of IT and all that.

Question: So this is good, perhaps, for the MSC companies, as they are known as high tech companies; what do you think they might need for survival in this competitive world? What would you say here?

R3: I would say they might need to set the requirements higher for the MSC companies. So you won't be hearing some companies 'dot com go dot gone' or it will affect the economy of IT business a lot...

This shows that knowledge workers are dealing with the speed of changes in the world. Refusal to share knowledge with others could also be due to the belief that their knowledge is considered as their own asset, and thus that nobody is allowed to tap it from them.

7.3.2 Preferable Method for Knowledge Sharing

The other noteworthy finding is that when the researcher asked the respondents how best we can share knowledge with others, many of them said they would prefer "sharing by seeing" or "learning by seeing", as described by R2, R31 and R73. R2, an Information Technology Manager explained that the sharing activities normally took place during meetings that they conducted. Meetings might be for staff only and/or between staff

and managers. He reports:

"If you talk about how we share knowledge, we have weekly meetings where all the heads of the sections sit down with the Chief Executive Officer for over three hours. So during that, we share a lot of things, we discuss, share problems, experience and all that ... you can classify that as a community of practice. We also have our business partners ... [so]... we form a very strong network with them. So we may tap knowledge from there..." (R2, page 4, line 21-24, IT Manager, with 7 years' working experience)

Next a Software Engineer (R31) who has worked for 5 years, commented that knowledge sharing is best done with peers. She said:

"Sometimes we have a project which basically may be something that has been done by other colleagues. Of course we discuss what the best approach is. We have peer discussion. We do exchange opinions and so forth. We do have meetings, which used to be, hmmm...fortnightly. We have all in the team, basically the one separated by region. We all go in and have a discussion. Someone will have a problem with their assignment and we address it accordingly. Besides peer discussion, we do have meetings with our project manager. I find it very useful and it does help..." (Page 5, line 6-10, Software Engineer, with 5 years' working experience)

These findings are similar to the questionnaire survey results, in which team-based work was given the highest score with regard to starting and/or implementing knowledge management. This could be due to the Malaysian working culture, where workers trust their peers, who are closer to them, rather than bigger groups. This is in agreement with what has been emphasised by Chaharbaghi et al. (1995), Sharp et al. (2003) and Wiig (1999b) that team-based work protects workers from becoming isolated and allows the existence of an open working climate, encouraging more creativity and innovation. In fact, workers seem to appreciate knowledge sharing when they are specifically asked to do so, especially in the context of formal meetings. From the SECI perspective, even though the earlier finding revealed that knowledge workers do not share much, the current finding indicates the potential of team-based work as the best element in terms of starting and encouraging socialisation and externalisation

activities among them. In this view, combination and internalisation would become supporting elements in order to ensure the effectiveness of the first two activities and finally to contribute towards the successful implementation of knowledge management. Another comment was also given by R73, a Chief Technology Officer with 12 years' working experience. He said:

"In my opinion, the best way of sharing is by taking the 'hands on' approach. Reading papers on, for example, 'how to work a test meter' is not the best and quickest way to learn. It is much easier for someone with knowledge of test meters to show somebody else... [learning by seeing]..." (Page 4, line 12-25, Chief Technology Officer with 12 years' working experience)

The above quotation shows that from the local point of view, it appears that in spite of having modern technology, knowledge workers still prefer to use the traditional methods of sharing knowledge, rather than doing so via high technology. Thus, the belief that knowledge management is all about modern technology may no longer be accepted. In reflecting this, managing knowledge must be seen as an informal setting and/or process that can encourage the transfer of knowledge among workers without depending too much on modern technology (Davenport et al. 1998; Wiig, 1999b; Nonaka and Takeuchi, 1995). This finding implies that even though Multimedia Super Corridor status companies are considered as high tech companies, the preference for knowledge sharing is still given to real-life interaction. This finding, however, could be related to the next issue, which is cultural influence on the implementation of knowledge management.

7.3.3 Cultural Hindrance to Knowledge Management Implementation

In line with the earlier understanding, the researcher asked the respondents why they preferred the traditional way of sharing knowledge, i.e. meeting and talking face to face, rather than utilising high technology. Many of them explained that due to the Malaysian working culture (see, for example, Chapter 4, Section 4.4.1), based on factors such as *gotong*

royong (mutual help), *Ummah* (united society) and respect for leaders, face-to-face contact is seen to be preferable, and also allows them to detect whether the person they are talking to is really sincere in wanting to share knowledge with them. This is similar to the comment made by R44 (Head of Information Technology Department) in Section 7.2.4 above. This implies that knowledge workers will only share their knowledge when they meet and are told to do so, formally. This is what a Knowledge Management Manager in a company with more than 500 workers (R15), said:

“Well, like I said, culture is a hindrance. I mean, it is a challenge for us. We have that...[sharing]... programme but like I said it is a bit slow. We have implemented it for the past three years, I head the KM unit...and...we have an intranet and a resource centre but still we don't have much there, not much contribution from them...[knowledge workers]...” (R15, page 4, line 17-20, Knowledge Management Manager with 11 years' working experience)

However, in several cases, there are companies that utilise high technology for knowledge-sharing purposes, but still report that it is not very popular among knowledge workers (see further examples discussed in Section 7.3.5). One company had just set up its intranet services and admitted that culture does have a big influence here. Respondent 32 said:

“hmmm...because of my position I do know a lot of cultures. I would say, I would be the person who knows most about how the working culture is, because I deal with them, but then, a lot of it, I could not or will not communicate with third parties because this is within the company. So, if you ask me about the culture here, well for IT workers, yes they do share a lot. We do share a lot. That's why we have the intranet: if we have any questions or problems, we put it on the intranet and everybody can access the intranet just internally” (R32, page 2, line 10-15, HR Manager with 8 years' working experience)

The above quotations indicate that culture does play a crucial role in encouraging knowledge workers to share or not share their knowledge. In the usual case, culture tends to inhibit effective knowledge sharing (McDermott and O'Dell, 2001: p. 76) and is a factor of differentiation that

affects the performance of knowledge management (Susana et al., 2004: p. 95). Having said this, perhaps human resource management could give some help in terms of supporting and/or adjusting the implementation of knowledge management activities in accordance with the current company culture. This is because it has been argued that it would be difficult to change the company's working culture in order to match the needs of knowledge management implementation (McDermott and O'Dell, 2001). Thus, encouraging and supporting the company's social interaction culture could be another important task for human resource management in ensuring the success of knowledge management implementation (Connelly and Kelloway, 2003). In this case, as mentioned in Chapter 2 (Section 2.4.3.8), creating an egalitarian culture that promotes a friendly working environment would be a significant part of the new role of human resource management (Greengard, 1998; Heller et al., 1998; Marra, 2004).

7.3.4 Knowledge Management Suitability for Big Companies

Another notable issue that arose from the interviews was that knowledge management might only suit big companies as opposed to small companies. The reasons for this are that only big companies require knowledge management, as it ensures that all staff are aware of the current activities of the company. However, in small companies, this type of management is not deemed important or necessary, since employees see each other frequently. The General Manager (R25) of a Multimedia Super Corridor company with less than 80 workers commented on this:

"Knowledge management ... is very difficult and has a broad view. It seems that a large company can implement it, but how about small companies? Having something like an intranet within a company should provide more platforms for introducing knowledge management" (Page 5, line 23-26, General Manager with 7 years' working experience)

Even though not many respondents commented on this matter, the researcher acknowledges the importance of raising this issue, which is similar to what has been revealed in the recent OECD's Policy Brief Report (2004). The report stated that, "Firms manage their knowledge resources differently depending on their size...large companies on average used more knowledge management practices than small ones and in a different way..." (p. 3). In this regard, the researcher feels that there is confusion among the respondents over what knowledge management is about and what benefits it brings to the company. As seen in Chapter 2, knowledge management is not only related to high tech implementation in the bigger companies. It is more about the capability of companies and workers to support, encourage and appreciate the process of knowledge transfer within and across departments.

The company may not need to have a separate knowledge management centre to govern all these activities. In fact, knowledge management is not specifically about having the company's library as a data centre only. It is more than that (see for example Chapter 2, Section 2.4). Therefore, the important issue is whether the company really needs to have knowledge management as a new way to manage its knowledge workers' knowledge. This is because even though many respondents revealed that they are yet to implement knowledge management practice due to the lack of awareness, their companies are still doing well in completing any project given. Even though this is the current picture of the practice of knowledge management in the Multimedia Super Corridor status companies, continuing to encourage and support knowledge workers to pursue the best quality is still the most serious matter that we need to look at. It is now becoming the next important role of the human resource management. They have to create awareness of the benefits of knowledge management to the company and its workers.

7.3.5 Insufficient Knowledge of Knowledge Management

On the above understanding, another unexpected issue was the lack of comments on knowledge management by a large proportion of the respondents. This led to the next finding: that some respondents did not even know what knowledge management is about. Most of them had heard about it, but were not sure of its exact meaning. This was highlighted by R1, R10, R26, and R57. In one case, the respondent thought that knowledge management was similar to other terms such as ISO Certification, and that it was one of the branches of Total Quality Management (TQM). One Company Director (R26), when asked whether his company had implemented knowledge management, said:

“Not exactly that way, we have to take things in kind of stages here. The first thing that we had to get was the ISO Certificate, so that was basically getting people to follow the system. Now, we are also looking at a higher level of risk management, that is quality management - the TQM (total quality management) would fit in, and I think the next level is basically building up knowledge databases for people to actually work. That would also be one of the upcoming steps...” (Page 4, line 17-20, Company Director, with 10 years’ working experience)

Further confusions were detected when the same question was asked to this Director’s Assistant HR Manager. She told the researcher that they had yet to implement knowledge management but already had an intranet in service. This shows confusion over knowledge management as a technology-driven issue. She mentioned:

“From the presentation given on knowledge management by one of the outside speakers three months ago, frankly speaking I was quite busy on the day, so I didn’t really absorb a lot. So, please tell me what exactly knowledge management is...” (R57, page 4, line 3-6, Assistant HR Manager, with 4 years’ working experience)

In a different case, staff admitted that knowledge management is yet to be practiced even begin their large company, consisting of more than 1000 staff. The Research Director (R10) reports:

"C2 still has some difficulties in measuring...[the impact of knowledge management]. Knowledge management is not that successful here. It is very important how to measure..." (Page 4, line 5-6, Research Director, with 17 years' working experience)

In another interview session, R1, a Finance and Human Resource Manager, admitted that she does not have a clear understanding of what knowledge management is about. She pointed out:

"...I'm not sure whether I understand the knowledge management concept, but maybe you could explain to me whether my understanding is right or not...hmm... we have a group of programmers and we are not only developing software for external parties but we also try to develop internal programs to enhance our knowledge as well. If I'm not mistaken, we actually came out with an e-library programme and we can actually post almost anything in there. It was completed, but as for now, sad to say, it is not fully utilised by our staff. I think, it is something to look forward to..." (Page 6, line 3-10, Finance and Human Resource Manager with 7 years' working experience)

Overall, the relative lack of comments on knowledge management could be due to the different understandings of the definition of knowledge management. This is confirmed by the latest article written by Susana et al. (2004: p. 94), which states that, "Defining the concept of knowledge management is difficult. This is due to the fact that this subject has been studied by several disciplines and from different approaches." However, knowledge management still holds the same meaning: that is, managing the effectiveness of knowledge transfer among knowledge workers. Therefore, as discussed in the earlier section, human resource management should play an important role in providing information about knowledge management and policy that could encourage knowledge workers' participation.

7.3.6 Assumption of Knowledge Management as a Formal-Based System

With regard to the findings discussed in Section 7.3.5, many respondents view knowledge management as a formal-based system whose implementation requires up-to-date information technology. Even with this understanding, only a few companies claimed to have implemented knowledge management. Some of the respondents were not sure what knowledge management was all about and the rest said they did not implement knowledge management, as they were only small companies. R34, R22 and R15, who are from the same company, described their experience of being in one of the companies that had already implemented knowledge management due to its multinational ownership of. The System Analyst (R34) said:

“Now, about a few years ago, this company’s head office, the old head office: we changed completely, turned upside down, and we are now a commercial company. We have to sell our knowledge to customers and we also sell our knowledge to non-company customers. And we have to make a profit; we have to ask them for a fee. We have to charge them and it is up to the customer whether we can convince them that our knowledge is worth paying for. We can add value to that business so that they are willing to pay us. So, it has been a big change in this company...and... people were interested, were willing to pay for our knowledge, so that we are adding value. So exactly what you are looking at, is the thing about we went through ...” (Page 2, line 30-45, System Analyst, with 5 years’ working experience)

R22 also supported this by saying:

“We have a knowledge-based system, where we file all knowledge documents, I think it is called the KLNet (Pseudo) in the local shared drive where we can access knowledge that all the people have put in or you put in yourself. So we have a knowledge-based system in the department and you can just put stuff in there when you finish the project or when you’ve got something which is interesting, photographs for example. So it is a big system. And this just only being implemented very soon ...” (R22, page 2, line 17-23, Area Civil Representative with 15 years’ working experience)

Furthermore, in another example, a Knowledge Management Manager (R15) revealed that her company would be considered as one of the pioneers of knowledge management practice. She said:

“Yes...in fact C21 is, I would say, the first company to have a knowledge management activities structure in Malaysia. And in fact, people come to us to benchmark us what we have done so far ok...hmm...well...but of course we are still at the early stages, compared with the developed countries; we are still at the infant stage...compared to the multinational companies... but hmm...in terms of knowledge acquisition in what we have in the support off our Chief Knowledge Officer...I’m reporting to the Chief Knowledge Officer...and on top of that, we have the CEO...and the CEO is the one driving...that really supports us...so that’s why our job is quite easy for us to embark on any activities that we want because the support given to the department is very encouraging ...” (R15, page 3, line 1-10, Knowledge Management Manager, with 11 years’ working experience)

These quotations illustrate that knowledge management is understood in a rather confused manner by many respondents, who see it purely as a formal-based system that primarily highlights the need for information technology. Although this is the case, the majority of Multimedia Super Corridor status companies are still reporting that they do not practice and utilise it. From another perspective, Multimedia Super Corridor status companies are considered to be the leading high tech companies in this nation, but have yet to fully implement knowledge management, be it as a formal-based system or just a process. According to the resource-based and knowledge-based theories, this scenario could represent a loss to any company that does not appreciate knowledge as an important asset.

7.4 Summary

This chapter attempts to provide answers to research questions number 1, 2 and 3. Overall, the results of the interviews seem to confirm the findings of the questionnaire; there are similarities between the companies and respondents to the questionnaire survey as well as the in-depth semi-

structured interviews. Most of the companies involved are small, and most respondents are young, aged between 20 and 39 years with 1 to 10 years of working experience.

Knowledge workers prefer to share in small peer groups, i.e. through team-based work, rather than in larger groups across departments. These findings confirm the characteristics of knowledge workers, as described by several authors including Amar (2002 and 2004), Darr (2003), Drucker (1998 and 1988), Horribe (1999) and Thite (2004). They are young and tend to be challenge seekers. Because of that, these workers may not enjoy repetitive tasks. They are also unique in terms of hoping that they will have freedom in completing their tasks. In this case, similar to Chapter 6, teamwork, employees' empowerment and involvement i.e. freedom and flexibility, information systems, and top management support in practising flat management are important to keep knowledge workers performing well. However, most respondents in the questionnaire survey and in-depth semi-structured interviews revealed that sharing knowledge is yet to become a part of their working practice in Malaysia, except when they are explicitly required to act as team members. Thus, human resource management should consider how the company could utilise team-based work effectively.

Furthermore, it has been found that most knowledge workers prefer the traditional ways of doing things and sharing knowledge, rather than utilising information technology devices. In relating these findings to the SECI Model by Nonaka and colleagues, it could be inferred that the idea of sharing knowledge among knowledge workers in team-based work could be very useful in ensuring the effectiveness of knowledge management practise. Here, perhaps socialisation and externalisation are the most suitable platforms for encouraging such activities. At the same time, combination and internalisation processes can still be encouraged for the

purpose of meeting the current needs of knowledge workers in the Multimedia Super Corridor status companies. If Malaysia wants to create an e-government, this particular aspect must be comprehensively understood. It is possible that Malaysia is currently being too hasty in following the developed countries and the essential prerequisites for knowledge workers in the country are being overlooked. Support and encouragement should be given to this group of workers first, rather than ignoring them.

Apart from that, due to the lack of awareness of the concept of knowledge management and its benefits to the company, most of the respondents in the current study did not appear to know or understand what knowledge management is about. Many of them saw knowledge management as a formal-based system to deal with the latest technology, which is not in keeping with the definition applied in the current study. However, even though this was the belief held by many respondents, not many companies were reported to be implementing knowledge management with that understanding.

Furthermore, confusion was raised over the issue of whether large companies are more suitable environments in which to implement knowledge management than small companies. This shows that even though Multimedia Super Corridor status companies are considered as high tech companies, there is still a need for some policies or incentives in order to support these companies in their quest to become efficient knowledge-based companies and ultimately to meet the current needs of Malaysia's Knowledge Based Economy (see for example Chapter 4, Section 4.2.3).

With regard to the above, it can be concluded that this new group of workers does have distinct characteristics. Thus, this confirms the need for

a better way of managing them and the knowledge that they possess during the time that they are with a particular company. Again, this offers a good opportunity for human resource management to assist knowledge management to meet its end objective, which is to bring the optimum success to the individual worker as well as the company. Perhaps, further adjustments to the role of human resource management could make it much more effective. Therefore, the next chapter will describe further matters relating to the new role of human resource management in the knowledge-based era and provide answers to research question number 4.

CHAPTER EIGHT

Managing Knowledge Workers in a Knowledge-Based Economy: The Changing Role of Human Resource Management

8.0 Introduction

As found in chapters 6 and 7, human resource management can play a crucial role in supporting the knowledge management of knowledge workers in the Multimedia Super Corridor status companies. It has been further argued that human resource management is now in an excellent position to support knowledge management (Greengard, 1998; Thite, 2004; Yahya and Goh, 2002). Human resource management can design competitive compensation and reward systems that nurture as well as encourage knowledge sharing among knowledge workers. Other than that, human resource management has the potential to educate employees about knowledge management and its benefits to the company (Bollinger and Smith, 2001: p. 14). Also, it would be expected that human resource management would need to make an adjustment to its main role as a service provider, moving instead to a more strategic business-oriented function. Furthermore, human resource management is trusted to provide a good working environment where workers can interact freely. The interaction process that human resource management promotes may contribute to the smooth transfer of knowledge among the workers. It helps individual knowledge workers and companies to utilise these outputs and achieve the company's objective: a sustainable competitive advantage.

Therefore, in this section, several important themes are developed from the transcripts, which are related to the above understandings. These themes have been seen as highlighting various aspects of human resource management, such as the current difficulties faced by the HR managers in

keeping their good knowledge workers; the most preferable method for recruiting knowledge workers; training as a support tool for knowledge management implementation as well as for retaining good knowledge workers; compensation, benefits and rewards for knowledge workers, and finally further suggestions on the opportunities for new challenges and planning their own route maps, opportunities for work-life balance and the consideration of flat and flexible management.

8.1 Current Difficulties Faced by the Human Resource Manager

Firstly, many respondents reported that they faced the possibility of losing their best knowledge workers. Thus, a discussion was carried out to discover how companies could keep their best knowledge workers in order for them to ensure continued company success. The following samples of interview sessions with R11, R32 and R21 offer a further explanation of the difficulties faced by organisations and the need to keep good knowledge workers. At the same time, they claimed that the current efforts still do not fulfil the country's needs. R11, who is the Vice President of a company with more than 1000 workers, emphasised the new role of human resource management, which is to fully utilise the knowledge of the top workers while they stay in the company. It is no longer a matter of keeping them for life. He said:

“... this is the measure, so if we truly believe in going back to the principle of knowledge workers, if knowledge workers are learning so fast, they can contribute very...very significantly. Then these people are in demand and they are highly mobile. So, forget about keeping them forever. Then, the philosophical question that you need to answer is 'How long should I rent his brain?' This is because you are only renting a knowledge worker's brain power...” (Page 6, line 4-8, Vice President with 18 years' working experience)

As the earlier statement shows, this is the challenge faced by many human resource managers nowadays. R11 suggested that human resource management should change from the old belief in keeping knowledge

workers for life, towards the issue of how to utilise their knowledge effectively while they are still within the company. He continued by saying:

“Now, that is where the challenge lies, because very often we think ‘I offered you a permanent job and you are supposed to stay here’. But the point here is that you are only renting a person’s brain-power. This means that during his stay with you, you need to gain his loyalty a hundred percent. You need him to contribute beyond what he was supposed to deliver. You need not only that, but also the fact that you know that he [the worker] is just rented brainpower. But you also need to find a way to transfer his knowledge to others...Much of the HR in our country is so backward...” (Page 6, line 9-15)

This quote illustrates that there is a need for a new HR role in managing this new group of workers, which is in agreement with the study carried out by Yahya and Goh (2002). Their study revealed that knowledge-based companies require a different management approach to that of non-knowledge companies. In this case, human resource management may be unique in that it has to transform itself from an ordinary service provider to take on the role of a strategic business partner and fulfil the needs of this new group of workers (Lengnick-Hall and Lengnick-Hall, 2002; Hunter and Beaumont, 2002; Solimon and Spooner, 2000; Ulrich, 1998). Returning to R11, when asked what he really meant by “backward”, he mentioned that:

“They [HR people] are still very much administrators. HR managers don’t have strategic perspectives of what HR is supposed to do. As a result, they tend to do the personnel administration. But they forget that if I’m renting a super brain here, and I know that the super brain is so good, then other people also want to make him a better offer ... [and]...I am not in the game to be beaten. You may offer twenty thousand in Malaysian money per month and I can give thirty thousand. There is no end to that...” (Page 7, line 1- 5)

Further to that, he suggested, companies should look into this matter seriously, as one day they would lose their good knowledge workers and this would have a negative effect on the company in particular and on the nation in general, as he said:

“So, good HR managers who manage knowledge workers must accept the fact that they are going to lose their best knowledge worker sooner or later. The question, while he is there, is how you extract all the value and how you institutionalise that knowledge. So if HR is not good, when these people leave, the company will become a forgetting organisation. So, good HR managers must be managers who are able to build a skill pool and capability management framework. This is something that, if you ask me, among the Malaysian HR Managers, I don’t think people have even reached there yet...” (Page 7, line 5-10)

In another interview session, R32, the Human Resource Manager in a data centre, had the same view as above. When the researcher asked her “What is the most challenging task in human resource management at the moment?” she said:

“...the most challenging issue right now is to compete with other IT companies while sustaining your best staff. Because, I can tell you from now onwards...Malaysia is becoming the hub of the Asia Pacific region... That’s why there are a lot of data centres right now... [and]...there are not many people specialised in setting up data centres and working in data centre environments. For example, Bank CBS (pseudo) needs 2000 people for its data centre and Bank STS (pseudo) needs almost 500 people. So how does this actually work? ...The fastest way for them is to have a data centre ...[and]... to ‘headhunt’ others, so the best way is to take these people over there, with higher pay and positions...” (Page 4, line 5-11, Human Resource Manager with 8 years’ working experience)

Losing good knowledge workers would have an adverse impact on the company. In this case, R32 continued:

“For us... [this is not productive]...because we have already invested so much time in training and everything for them. So we always have to make sure that we are competitive enough with the outside market in order to retain all these good staffs. Sometimes, it just makes me wonder whether it is wise to retain them, because the cost is sometime so high. But you wouldn’t want to lose them because you depend on these people to sustain your project as well. So it is a ‘bread and butter’ matter here. And I think it is getting to a stage where the market is not very healthy ...for those ‘hoppers’, you will always see the same pattern. That is why it is becoming a burden on the company and me as well...” (Page 4, line 12-21)

This scenario is critical, particularly if companies are in the middle of certain projects. It is not only about money, time and the contract. The company's image is damaged if they cannot deliver the project on time. According to some researchers, such as Lengnick-Hall and Lengnick-Hall (2002: pp. 71-75) and Amar (2002: pp. 24-25), losing good knowledge workers will have a serious long-term impact on the company as a whole. For example, others may no longer trust the company to deliver their projects on time. Thus, human resource management needs to solve or at least reduce this problem by implementing new ways of managing these workers. In this case, human resource management needs to focus on people as the most essential resource. In the light of this, R21, a Business Development Manager, also admitted that the current focus of the company should be more on people rather than just the company. He said:

“Yes, although I think there are certain elements where HR today responds differently compared to say fifteen to twenty years ago. Today I have a feeling that ... [in HR]... some eighty percent of the attention is placed on people and twenty percent on the company. And this is my personal perception, as opposed to the past where fifty percent was on the company and fifty percent on the people. So there is a better match...and I think this company has become more dynamic in that sense...” (Page 5, line 9-11, Business Development Manager with 30 years' working' experience)

Thus, if people are going to be the focal point of any company, planning and recruiting by the human resource department is the most crucial element in getting the right people and putting them in the right place, at the right time, with the right price, in the hope that they will remain longer within the company. This is because having the right workers will increase the likelihood that they will stay in the company. Furthermore, according to the earlier review, if workers are satisfied with what they are doing, then they will stay longer with the company, although the level of compensation might also become an influential factor in this decision. Much evidence to support this has been gathered in Chapter 6 (see Section 6.4.5) and Chapter 7 (see Section 7.2.2).

The overall understanding is that the first role that needs to be played by human resource management is to overcome these difficulties with hiring and keeping good knowledge workers. With regard to this, and from the strategic point of view, even though a company may not have enough knowledge workers, this does not mean that the hiring process should be informal, ignoring the quality of the workers. This is because if the company cannot get the right workers, the problems of losing knowledge workers will continue to occur. Therefore, human resource management plays a very important role in recruiting knowledge workers and keeping them in the company. In order to achieve this, a competitive package for hiring knowledge workers should be offered in order to fit with the current needs of the business scenario. Further discussion on this matter is presented in Chapter 10 (see Section 10.1.4).

8.2 “Internal Contacts”: Most Preferable Method of Recruiting Knowledge Workers in the Multimedia Super Corridor Status Companies

In this section, another important issue was found, concerning the preferred method for recruiting knowledge workers in the Multimedia Super Corridor status companies. From the qualitative findings, it was revealed that many of the Multimedia Super Corridor companies are more likely to use “internal contacts” in order to hire new knowledge workers. Therefore, it is common for a knowledge worker to move from one company to another upon invitation (i.e. as a result of being headhunted) or perhaps through their own personal contacts. This is especially likely to happen after the knowledge worker has worked for some time in one company and has been noticed for his or her quality of work by personnel or top management from other companies. From there, the invitation and negotiation process begins. In some cases, this is done through their former bosses, but most of the time, their bosses do not know. If they find out, then they will generally offer better compensation, which only rarely succeeds

(the knowledge worker will not go to another company if his or her bosses have made a better offer and promises). This is why the scenario illustrated in Table 8.2 (a) is quite common to the Multimedia Super Corridor cluster. R1, the Finance and Human Resource Manager, R6, the Human Resource Manager, R3, the System Analyst and R20, the Director of Marketing & Business Development described this matter further.

Table 8.2(a)

Interview with R1 (Page 5, line 10-17, Finance and Human Resource Manager with 7 years' working experience)

Question: What if in the future, you have a very big project? Tell me how you would go about it.

R1: Do you mean how well we approach recruiting people?

Question: Yes, can you elaborate on this?

R1: There are quite few methods, I would say. We can always advertise normally in the newspaper or job centre, or maybe using 'word of mouth', which is quite effective. Do you know why? Because when you are in the IT line, I would say it is not a big world. It is a small world, so once we know what skills we require, it is quite easy to actually approach somebody and get them to join the organisation...

The above statement was also supported by R6, who agreed that internal contacts would be more beneficial to the company in terms of recruiting their knowledge workers. She reports that:

"The best way to go about it is through networking. That's always the best. Most of our staff here are engaged through networking. Basically, through someone, and when we find that the person is good we start talking to them. The other thing we do...[is]...the agency search. That means that you engage an agency to find the staff. Number three is through our web page. We just advertise there, but we get so many people applying, even with unrelated qualifications... [so]...basically, networking is the best way..." (Page 4, line 1-8, Human Resource Manager with 14)

Among the benefits of networking are that it may shorten the learning curve and allow the work to proceed faster. It is not a matter of being too demanding, but normally, someone who has been hired through internal contacts has gained a good reputation in his or her previous company and is renowned for his or her expertise within the IT industry. This is because, as described by R3, the System Analyst in Chapter 7 (see Section 7.3),

sharing knowledge with a slow learner will take more time, and is not productive for the company. Furthermore, R6 continued:

“...as an employer, because we are now in a very competitive industry, the shorter the learning curve, the better for us. And at the same time, we want to be able to actually have a competitive edge...” (Page 4, line 10-11)

Table 8.2 (b) below shows that R20 is very keen on recruiting people through internal contacts. When asked about what would happen to those who do not have any internal contacts, he was initially reluctant to answer the question. However, when the researcher asked again, he admitted the fact that those with internal contacts were at an advantage.

Table 8.2(b)
Interview with R20 (Page 2, line 5-24, Director of Marketing and Business Development with 10 years’ working experience

Question: How do you recruit staff? R20: Okay, we fortunately already have a process for recruitment in place, so when we look for new staff, we have a very specific process. Every job has a description and job grade. So, it is clearly laid out. When we are looking for somebody...that person [head of department] has to fill in a request indicating why they are looking for a new person and if the person meets all the requirements. Then they actually go out to hire through agencies or direct...[however]...we are keen on internal communication: there is a bonus scheme if you recommend somebody for the post. Question: What makes you prefer to do so? R20: Because when you rely purely on an interview, I think it can only cover maybe about fifty to seventy percent of the person’s characteristics. Where other things are ignored, like trust and other such issues, you really need to know over time. For example, if you have an employee, especially a long-term employee in the company, who recommends somebody, you are obviously able to rely on the information more. Question: You are right, but please accept my apologies for saying this. It seems to me to be a pity for those who do not have any internal contacts R20: I think it is fine. Fortunately, we have people here for...I think some of them have been here for four years or more. Question: What will happen to those who don’t have networking? R20: Yes, definitely, it is difficult. Question: Do all the internal candidates fit into the needs of the company? R20: Yes; it is not necessary, you know. We would still base our decision on the interview as well, but <u>an internal recommendation will always have added value</u>.

From the above findings, it would be expected that most of these Multimedia Super Corridor status companies would keep headhunting their knowledge workers from each other's internal contacts. Even though this practice does have some positive aspects, as mentioned in Chapter 7 (see Section 7.2.3 and 7.2.4), in the researcher's opinion, it will still tend to create an unhealthy competitive environment. This is due to the competition between the Multimedia Super Corridor status companies to attract the best knowledge workers within the cluster. This may end up by giving knowledge workers themselves less opportunity to settle down and specialise in a particular field. Also, it will create a cycle where ever-higher pay is offered to valued candidates, which is sometimes unaffordable. It is likely that the top management will be relatively unconcerned about the impact of this attitude for Multimedia Super Corridor status companies as a whole. For them, as long as the job is done and the project is completed successfully, that is the most important point. Hence, there will be a resistance to the existing objectives of setting up Multimedia Super Corridor status companies that are to play a role in the global high tech industry and to bring Malaysia towards success, as described in Chapter 4.

The overall impact of this method of recruitment will only be beneficial for a short time. As other companies may give better offers with higher job satisfaction, this will encourage knowledge workers to keep moving rather than staying with the same company. Other than that, it could also create a lack of equal opportunities among talented knowledge workers, who may represent the best fit for the current vacancy. Just because a candidate does not know anybody in the company, he or she may not be accepted. In this case, the blame must not be put on the knowledge workers who "job hop" but on the companies who encourage this type of attitude. At the end of the day, the project will not be completed; the company loses profit and the knowledge worker is no longer satisfied with what they are doing, as they

have to keep moving. This will then downgrade their job and affect their work performance, as they cannot focus on one project anymore.

Furthermore, this situation may even have an impact on a national scale, if knowledge workers are offered positions abroad and settle down there with a better working environment. Therefore, one might argue that there should be a new policy among Multimedia Super Corridor status companies of not stealing others' workers, to counter this type of recruitment "headhunting". This will become the second important role of human resource management; that is, to build an agreement and/or a set of regulations dictating that if the service of a knowledge worker is needed, it must be negotiated through the company in which the knowledge worker is employed and not through the individual workers. This service is also known as "secondment". Extra payment and charges will be arranged for the company where the knowledge worker is based and also for the knowledge worker personally. An example of the secondment arrangement from the literature is presented in more detail in Chapter 10, Section 10.1.4. In this case, companies must consider the success of the Multimedia Super Corridor as a whole, not just focus on the individual company.

8.3 Training as the Support Tool for Knowledge Management

Implementation as well as for Retaining Knowledge Workers

It was also found that after recruiting a person who knows how to do the job, the company also needs to train them in order for them to adjust and cope with the company's needs faster. This is because training has been argued to be one of the most important factors in keeping knowledge workers within the organisation, as it allows them to keep abreast of the latest technologies and knowledge (Amar, 2002; Cohen and Backer, 1999; Morris et al. 2000, Rossett, 1999; Sleezer et al., 2002; Sook Hwang, 2003).

This was mentioned by R9, R20, R32, R38 and R69. R9, the Senior Executive of a Consulting Company, reports that:

“We have numerous training programmes, internal and external. So we have a lot of programmes. We have to meet certain hours; we call it continuous process education...we have to meet an average of - if I’m not mistaken - 120 hours in each year” (Page 3, line 20-22, Senior Executive of a Consulting Company with 7 years’ working experience)

As a continuous process, training is vital for workers’ development and career enhancement. However, when asked who decides on the training programme, R9 said that the “boss” (Head of the Department) was always the person who did so. He continued by saying:

“Normally, it is our head of department. They actually put us through because we have our own training, which is organised by the company. We also have external training at the beginning of each year...We are required to go for those training sessions each year...” (Page 4, line 1-2)

When asked about his feelings concerning the training programme organised by the company, he replied:

“That’s right, it is a way of keeping abreast with new things in the market. You know what is happening and so on. And also, it is an opportunity to improve, because we also have self-improvement courses like performance, presentation, negotiation skills and communication skills. We have all sorts of training actually. It is compulsory for consultants to go on the consulting course...” (Page 4, line 33-36)

When R20, the Director of Marketing and Business Development, was asked to comment on the training programme within the company, he claimed that organising training is currently the most challenging part of his job. He said:

“Right now, our big focus is on serious training. This is because I think ... [training is an] added value to our staff. This is in addition to what they get paid: training and knowledge. We are very keen on keeping good staff long-term. So, what we have is fairly a comprehensive training plan this year which starts from the departmental level ...and each of the departments has come out with what they think should be the strategies for this year in

terms of what technologies our people need to be good at...”
(Page 3, line 18-23, Director of Marketing and Business
Development with 10 years’ working experience)

The above implies that the decision to send workers for training is normally a collaborative one, involving all heads of departments, as described by R9. The reason for doing so, according to R20, was:

“... [to find] ...what the new areas for both soft and technical skills are. Then we map it in terms of the whole company... [to] make sure it links with the company strategy...so that is our role here...” (Page 3, line 25 -26)

Having done so, R32, who is the HR Manager for R20, commented on their training programme, as mentioned earlier by R20. She pointed out that:

“What I have got in my mind right now is to provide more incentives, especially in training. When talking about incentives, people normally look at training. Whether you provide training nowadays, you are going to lose. Why? A staff member will feel that he might only stay for two years. But after two years, if he doesn’t get any form of training, he won’t stay. Because he knows that in the market right now, especially in IT, the versions change so fast. So, if you are not going to upgrade yourself, you are going to exclude yourself from the market and it doesn’t make you look good. So, that is training... [as]...one incentive. So training will become a very crucial element in retaining the right person. So, we have a proper training plan and we will conduct Training Needs Analysis (TNA) at the end of the year. And then, from there, we will identify needs, and in short we make sure that every single member of staff in this company has attended some form of training for at least 48 hours per year. That is our training objective, and this training can be external as well as internal...” (Page 3, line 16-30, HR Manager with 8 years’ working experience)

The above implies that the company might encounter problems when knowledge workers leave the organisation due to being disappointed with the opportunity for self-enhancement. This supports evidence in the literature that training is a crucial aspect of knowledge workers’ self-improvement (Goh, 1998; Kubo and Saka, 2002; Ramsden et al., 2001; Rossett, 1999; Rowley, 2000; Salisbury, 2003; Sook Hwang, 2003). In fact, as a service provider and business partner of human resource management,

training is considered as one of the key contributing factors in the successful implementation of knowledge management, as well as a success factor for companies (see for example Chapter 2, Section 2.5.3.1). For example, regarding the Systems Applications Products (SAP) used for the supply chains in a company, one respondent revealed the importance of both knowledge (i.e. software) and business strategy. According to him, the continuous training of knowledge workers in both areas is crucial to ensure their competence in systems applications. Given that the versions of SAP keep changing, this up-to-date knowledge of SAP could also make this application competitive with others, such as Oracle and PeopleSoft. R77, the System Analyst, said:

"...in this regard [training knowledge workers], it is not only the software knowledge [i.e. SAP] but also the business knowledge that is important. I would say that we need a blend of knowledge. I can see that it is not easy to understand both types of knowledge, but training might be very helpful..." (Page 3, line 5-7 System Analyst with 7 years' working experience)

In this case, the decision about the investment in knowledge workers' training must be taken seriously in line with the company strategy. However, all money that is devoted to training knowledge workers must be money well spent. Here, R2 further says:

"There is always an argument about whether we should bind those people for whom we provide training. Because it will waste our money and all that... But that has not happened here much because we trust our employees. We provide them with a good environment. There is no reason why they would want to leave the job. These days, we go for RM5,000/= of most training. We will be bound by one year..." (Page 5, line 20-23, IT Manager with 7 years' working experience)

In another case, when the researcher tried to ask a question related to knowledge management implementation (i.e. the role of human resource management in supporting knowledge management), R38, an Administration Executive who only has three years' working experience, mentioned that training is the most important aspect in knowledge

management practice as well as in keeping good knowledge workers. Joining the current company fresh from university could make people feel the need to improve their knowledge and skills. She said:

“Training, I would say. This is because training costs are limited. There is X amount of budget that has been allocated only for training. If you send ten of your staff to attend the same training, compared to sending one person, it’s more cost effective. More people will get a ‘piece of the apple’ from that cost [of] X for others training. So, I would consider this as a tool in knowledge management...” (Page 4, line 1-10, Administration Officer with 3 years’ working experience)

Here, training allows the practice of “externalisation” among knowledge workers as promoted by the SECI Model (Nonaka and Konno, 1998). This is because when someone returns from training, it is his or her duty to impart and share the knowledge learned with others in the company. Ironically, in a different case, R69, a Computer Programmer, pointed out that even though his company is considered to be well established, he has not seen any significant knowledge-sharing activities among the staff except under his own initiative. There is no directive from the human resource management side. He said:

“Whether the system is in place to pass down knowledge, except through an IT system, I don’t know. In other words, I don’t see many people sitting alongside each other, where the senior person is training the junior person ...” (Page 3, line 28-30, Computer Programmer with 4 years’ working experience)

The above quotes illustrate the importance of training as one of the key needs for knowledge workers to upgrade their knowledge and improve themselves. This confirms the earlier finding that knowledge workers are challenge seekers and have great enthusiasm for the learning process. Instead of doing repetitive work most of the time, these workers are fond of doing things differently and gaining and using different forms of knowledge. Thus, training is one way for them to keep up-to-date with current knowledge. In fact, this finding is similar to the work done by Kubo

and Saka (2002) and Yahya and Goh (1998), in which human resource development was one of the important aspects. Linking this to the human capital theory, these findings signify the importance of training as one of the motivational factors in both retaining knowledge workers and encouraging them towards knowledge management implementation (Baker, 2000; Harris, 2001; Tymon and Stumpf, 2003).

Even though training has been identified as an important factor for knowledge management, there is still no clear direction on how to ensure that those who have been trained are willing to share their knowledge with others. Thus, this supports the need for a new role for HRM; that is, to be more strategic in planning and sending workers on training programmes. The plan must meet with the current needs of the business rather than embarking on training programmes merely because other companies have been doing so. HRM could also utilise the awareness of when knowledge workers are most likely to share. For instance, it might be helpful to consider externalisation processes as the best platform for encouraging knowledge sharing among knowledge workers, as mentioned in the earlier findings.

8.4 Compensation and Rewards for Knowledge Workers

In this section, it was revealed that compensation, benefits and rewards are still important factors in companies' retention of knowledge workers. R51, a System Engineer in a company that applied a basic rate pay system, gave the researcher his comments on this matter. He said:

"I can't comment on this because my expectation is much higher than what has been given..." (Page 3, line 5, System Engineer with 2 years' working experience)

On the other hand, R6, an Human Resource Manager, gave details of her experience of this matter and her company's provision of a pay system

called “incentive schemes”. In this view, the company still pays benefits to its workers, although other companies have stopped doing so, especially during the recession. She said that:

“...in terms of fear, of course this company is not so big. It may look big, but it’s actually not. We just came out through ‘masa susah’ (tough times) in 1997-98 and near 2000 ‘punya cerita’ (old stories)...but how we keep them is more through rewards. I believe that has more to do with reward and compensation: if you want to compare benefits, we are quite good in terms of benefits compared to other IT companies ...” (Page 8, line 16-20 , HR Manager with 14 years’ working experience)

She further said:

“Most companies take out life insurance from their benefits, because of cost issues. But we keep them in. We look after their life insurance, like the person’s hospitalisation and GP costs. We give little, since we cannot give loans. Because we are not so big, we give soft loans. Interest-free kind of thing. We give maternity gratuity; we offer them quite a standard package. ...” (Page 8, 21-26)

Similar to the above, R20, a Director of Marketing and Business Development, commented that his company also provides an “incentive scheme” for its workers by applying a specific reward scheme for employees. He said:

“We also have an employer with a sort of bonus-incentive scheme, different compensation and employee of the season. We do appreciate our people that way; especially being an IT Company, you know, your assets are your people so you know it is more important...” (Page 5, line 4-6, Director of Marketing and Business Development with 10 years’ working experience)

Furthermore, one respondent (R43) from a small information technology company pointed out that her company had developed a different scheme, which is seldom implemented in other companies. She named it “employee ownership”. She said:

“We actually have a different way of rewarding our staff. Although we are a small company, we have managed to inculcate a sense of belonging...by having what we call the ‘employee ownership’ scheme. Normally, during meetings, we call all our staff and explain to them that if the company performs well, then they will get bonuses accordingly. But not only that, the staff are also offered the chance to be members of the company’s board of directors, having their share in this company...In a way, the staff are encouraged to invest their knowledge” (Translated: Page 3, line 11- 17, Executive Secretary with 10 years’ working experience)

In general, when it comes to compensation and rewards, the management of knowledge workers in Malaysia is not much different from that found in other studies in the United State of America, the United Kingdom, Australia and other developed countries (see for example Despres and Hiltrop, 1995; Hunter et al., 2002). The “Five Hierarchies of Needs” theory, developed by Maslow, is indeed vital for knowledge workers’ self-satisfaction (Tampoe, 1992). However, it could be argued further that “basic rate schemes” are no longer suitable for the current needs of knowledge workers in the Multimedia Super Corridor status companies. This is because in relation to these workers’ main characteristics, these findings concur with what Despres and Hiltrop (1995) and Hunter et al. (2002) have found in their works. It has been emphasised that in order to retain knowledge workers efficiently, the companies need to provide a compensation system that is more flexible, process-oriented and team-based. Thus, providing “incentive schemes” as highlighted by many strategic authors could become the next role for the new, strategic form of human resource management (see for example Chapter 3, Section 3.3).

8.5 Opportunity for Continuing Challenges and Planning Own

Career Map

As seen in Chapters 6 and 7, knowledge workers are challenge seekers and dislike repetitive work, but this does not mean that they totally avoid such work. Having said that, this characteristic does suggest another important role for human resource management, and that is to provide the continuous opportunity for knowledge workers to develop their own career maps. However, from the qualitative findings, not many Multimedia Super Corridor status companies have implemented this type of policy, except for company C20 (Pseudo). This is not surprising, as the multinational company is well established and is comprised of more than 1000 workers. Thus, it is constructive to analyse the respondents' points of view, which could also act as a benchmark for other companies. According to R29, there has been a recent transformation in human resource roles. Being the most experienced senior in this company, he commented:

"From day one, when I joined this company ... there was a specific plan to develop people and the plan must of course fit the customers' needs, the company and the people's needs... in a particular case, I wanted to grow in technology and know-how... [thus] every opportunity, support and money was given to make that possible" (Page 4, line 7-10, General Manager with 19 years' working experience)

When asked when it became evident that the changes had taken place, he continued:

"I think it was only recently, some five years ago that this emphasis shifted from the company looking after the people to the people looking after their own development. That has pluses and minuses...there is more focus on individual needs and independent decision-making rather than what the company needs me to do all the time." (Page 4, line 12-15)

His opinion on what human resource management should do gave the researcher a clear idea about how the world is seen from his eyes.

"I would like to think that human resource [i.e. human resource management] should do both: first of all, it has to be a business partner because it has to be mindful of what the business needs are and what the challenges are for the future. Because if you are not, then you will be disorientated and you will become more and more isolated. And then, in my view, if human resource becomes distant, it is useless for the company. So you need to be responsive to the business needs. At the same time, I think human resource should be trying to be the mediator between business needs on the one hand and personal needs on the other. There is always a risk of these two aspects drifting away from each other. But the challenge for human resource is to provide a certain path that fits both. I think the idea of matching is always difficult but in terms of generality, I think strategically you can still grow..." (Page 4, line 22-33)

This supports the point mentioned earlier in the literature review that human resource management is now required to support the SECI Model in order to ensure the continuity of innovation in the Multimedia Super Corridor status companies. Here, Schuler (1989) supported the idea of strategic human resource management in providing an innovative working environment with features such as greater flexibility and encouragement of team-based work. Further to that, as shown in the Human Resource Triad (see Chapter 3, Section 3.3), Jackson and Schuler (2000) emphasised the need to ensure that strategic human resource management needs are aligned with the wider business strategy. This means taking steps such as involving human resource department in board meetings and/or top management meetings. Other than that, the model of knowledge mapping proposed by Soliman and Spooner (2000) could be used to further describe how strategic human resource management helps knowledge management practice to be applied effectively. This is discussed in the next section.

8.6 Introducing and Encouraging Work-Life Balance, Openness, Freedom and “Flat Management”

Human resource management in today's companies could become more efficient by introducing and encouraging a healthy work-life balance. This is because many interview participants, like R55 (Software Engineer), R42 (Business Development Manager) and R5 (Business Development Manager), when asked why their companies did not have a high turnover rate, gave remarks as below. R55 remarks that:

“...it has more to do with the culture, because we are quite young, with an average age of about 27 or 28 years. We have flexible hours; we don't really calculate the hours. If you have something to do in the morning, why not just come in a bit later, providing you just make the time up. So for us the flexi hours are good ... [because]...we normally stay late. So we don't have to be in at 9 o'clock sharp. It is very much a family kind of environment. We have a flat organisation here...” (Page 5, line 3-8, Software Engineer with 5 years' working experience)

In a similar case, R42 responded:

“... I also find that young people have more of a work-life balance attitude; the young people are more determined to maintain a healthy work-life balance than the old people. We tend to come to work and do our work and not take time off. But the young people...say, for instance, they are going away on the Saturday, they will take Friday off because they need to relax before they travel the next day...so young people have got a better attitude towards work-life balance than the old people like myself. We are more likely to feel that we have to please the boss...” (Page 3, line 20-27, Business Development Manager with 18 years' working experience)

In another case, R5 said:

“Actually my expectation of my employees is not what you'd call a very...I'm not expecting them to come to work from nine to five-thirty in the evening. Right now, my staff are not punctual. You can come in at ten or whatever. It is okay by me. They can leave earlier or even stay late at night. One of my staff has taken home a PC so they can do their work at home. The most important thing for me is that the things come out on the day they should come out. No excuse, if possible. I give them flexibility, but I expect things to come out on time: that is all...” (Page 2, line 4-11, Business Development Manager with 10 years' working experience)

In the next case, R6, a Human Resource Manager, pointed out that helping workers to feel settled in their working environment is the best way to encourage innovative and creative ideas. She said:

"We keep it close. That means we have flexible hours. We dress casually and we talk using first names. We share a lot of information. There is not even a single memo issued. We don't believe in that way of communication. We do everything through email, through so-called IT. Knowledge workers hate paper; they cannot be bothered with sending memos or signing here or there. They can't really handle that much, so we reduce that. We still have signing, we still have leave applications to get signed, but that is all. Anyway, we don't have that '*canggih*' (latest/modern system) yet. But we still keep people happy here..." (Page 4, line 19-27, Human Resource Manager with 14 years' working experience)

All these quotations indicate the need for a new management style for knowledge workers. This could be due to the changes in the labour market, especially when more women are going out to work, some of whom have children, yet they are all skilled workers. Furthermore, changes in the institutional environment, such as pressure by certain groups to attain social awareness, legislation and government interest, have led companies to make an effort to provide flexibility, freedom and work-life balance for their employees (Nadeem and Hendry, 2003: p. 46). This has occurred since the 1980s, when management realised that companies were no longer performing as they had once done (Sheridan and Conway, 2001). Among the issues for which knowledge workers show the greatest preference are the need for flexibility, freedom and work-life balance, empowerment, especially in decision-making, and career development and the opportunity for continuous learning.

In this case, flexibility, freedom and the work-life balance requirements of the knowledge workers do not equal total permission to do their work in their own way. They are known as numerical and functional flexibility and the desire to help employees to balance work and family responsibilities,

i.e. a “family-friendly” approach (Sheridan and Conway, 2001) and a “balanced approach” (Hacker and Doolen, 2003). In other words, the meanings of flexibility, freedom and work-life balance are more objective. They represent the break given to knowledge workers to finish their tasks by utilising their own knowledge, idea and creativity. The company should not tell them what to do, except in terms of setting the deadline. What workers need, according to Sheridan and Conway (2001), is both numerical flexibility and work-life balance. In association with this, Holt and Thaulow (1996: p. 7) also identified three basic needs that are required for employees’ flexibility. The first is related to salary and wages; the second is about flexible working hours and the third refers to emotional aspects and a healthy working environment.

With regard to this, flexibility, freedom and work-life balance, or whatever we name it, should be considered as one of the key strategic human resource management issues. Thus, it is necessary for management and HR to work together in partnership, smoothing the conflicts in order to achieve mutual flexibility (Sheridan and Conway, 2001) and synergistic performance (Hacker and Doolen, 2003). However, to date, there is still a missing link between management’s understanding of the human resource management policies and support for flexibility, freedom and work-life balance (Nadeem and Hendry, 2003; Hacker and Doolen, 2003; Sheridan and Conway, 2001 and Mayne, et. al, 1996). Thus, this could be also another important area relating to the needs of knowledge workers that needs further investigation.

8.7 Summary

To summarise, human resource managers still report on the difficulties of keeping top knowledge workers. Perhaps this is due to the current scenario within the recruitment scheme, which favours “word of mouth” recommendations. This creates an unhealthy working environment where many top knowledge workers have been “headhunted”. Thus, there could be a need for human resource management in the Multimedia Super Corridor status companies to take a second look at their current human resource management policies. This is because, according to Lengnick-Hall and Lengnick-Hall (2002: p. 171), the knowledge economy requires a different contribution from human capital (i.e. knowledge workers), and therefore a different kind of human resource management. Thus, the focus will be more on making it possible for people to leverage other types of resource, to create capabilities, and to nurture core competencies within a context that rewards both consistency and innovation, and values both persistence and flexibility. Unfortunately, human resource management can only provide a greater contribution to maintaining a creative tension by aligning talented people with established tasks (see for example Schuler, 1989 and Schuler et al, 1993). In this case, strategic human resource management needs to look at several important roles, such as how to overcome the difficulties in keeping their good knowledge workers by creating a new policy that will guard against “headhunting” through internal contacts within the Multimedia Super Corridor companies. Another significant step towards overcoming this difficulty is that strategic human resource management should embark on thorough, competitive training need analysis to allow knowledge workers to upgrade themselves. Furthermore, the interviewees in the present study also indicated that training was one of the most important factors for initiating knowledge management, together with support from the top management, alongside other factors raised in the questionnaire survey findings (i.e. team-based work and information technology structure).

Besides that, compensation and rewards, as expected, remain the preferred factors encouraging knowledge workers to share their knowledge and stay in the company. Therefore a more competitive compensation and rewards package should be offered specifically for workers in these Multimedia Super Corridor status companies and/or high tech companies, as this will also curtail “head-hunting” activities. In this regard, compensation packages that more fully appreciate knowledge workers’ knowledge and skills would be most welcomed. Furthermore, as described by Amar (2002), knowledge workers are challenge seekers, have high enthusiasm for learning and prefer freedom and flexibility, so it would be wise to suggest that strategic human resource management should consider all these issues and try to provide opportunities to fulfil the current needs of knowledge workers in particular and the company in general. In this view, an intensive pay system might be useful for the company.

The overall conclusion that can be reached is that the findings from this section confirm, in part, the earlier findings discussed in Chapters 6 and 7. Some redundant activities of knowledge management and human resource management can also be seen. This also concurs with what Yahya and Goh (2002) have found in their work *“Managing Human Resources Toward Achieving Knowledge Management”* that there is a relationship between the four key areas of human resource management (i.e. training, decision-making, performance appraisal, and compensation and rewards) and the five key areas of knowledge management (knowledge acquisition, knowledge documentation, knowledge transfer, knowledge creation and knowledge application). Thus, this provides a further indication that strategic human resource management and knowledge management should work hand in hand to achieve success in both personal and company objectives. From this, it may be suggested that with the help of strategic human resource management, Multimedia Super Corridor status companies could actively progress with an effective knowledge

management strategy. For example, according to Thite (2004) and Ulrich (1998), strategic human resource management could diagnose and meet the needs of both knowledge workers and the company, allow knowledge workers to be more creative and innovative (Anthony et al., 2002; Boxall and Purcell, 2002; Lado and Wilson 1994; Newell et al., 2002; Soliman and Spooner, 2000) and ensure the smoothness of knowledge transfer and the effectiveness of knowledge-based companies (Yahya and Goh, 2002). This then leads to the viability and sustained advantages of the companies, as described by Boxall and Purcell (2002).

CHAPTER NINE

Evidences on the Multimedia Development Corporation and Ways Ahead

9.0 Introduction

The Multimedia Super Corridor has now entered the second phase of its implementation, known as the “Multimedia Super Corridor Next Leap”, which will take place between 2004 and 2010 (MSC IS, 2004). After considering the success of its first phase, the Deputy Prime Minister announced the importance of continuing support to allow the Multimedia Super Corridor to become Malaysia’s growth engine for success in the information, communication and technology sector (Online Bernama, 2nd September 2004). In fact, the Multimedia Super Corridor area has recently been expanded to encompass Penang (i.e. the Pearl of the Orient of Malaysia), which is now known as the second Multimedia Super Corridor state (Online Bernama, 4th October 2004). The expansion of Multimedia Super Corridor areas as well as the growth rate of the Multimedia Super Corridor status companies has shown the importance of commitment by the Malaysian Government towards maintaining and achieving the Seven Flagship Applications as described in Chapter 4 (see Section 4.3). The success of all seven flagship applications will allow Malaysia to become the information, communication and technology hub of the region. Having said this, as a supporting partner of the establishment of companies’ operations within the Multimedia Super Corridor, the Multimedia Development Corporation plays a very important role in assuring the achievement of the above objective, perhaps not only in terms of an information, communication and technology hub for the region but also on a worldwide scale (see, for example, Online Bernama, 2nd September, 2004).

In this case, the Malaysian Government, the Multimedia Development Corridor and the companies should work continuously, as stated within the earlier review in Chapter 4 (see for example Section 4.3.6). Thus, this chapter highlights several further issues that emerged during the fieldwork and would further suggest that the Multimedia Development Corridor should improve its “one-stop super shop” role. It is hoped that improvements will provide more benefits to all involved parties, i.e. the Malaysian Government, the Multimedia Development Corridor and the companies themselves. In this regard, several important themes which are developed from the research have been chosen to act as subheadings within this chapter. The discussion begins by assessing companies’ reasons for applying for Multimedia Super Corridor status, followed by an examination of the assistance provided by the Multimedia Development Corridor, upgrading the R&D of Multimedia Super Corridor status companies, relocation matters, as mentioned by many participants, and finally suggestions for further refinement of the current definition of the term “knowledge worker” by the Multimedia Development Corridor.

9.1 Reasons for Applying for Multimedia Super Corridor Status Companies

It has been eight years since the Multimedia Super Corridor was introduced. With the benefits and assistances offered to the status holders, many information technology (IT) companies are now queuing for Multimedia Super Corridor status (see Chapter 4 for further details on the benefits and assistance available to Multimedia Super Corridor status companies). This is because, according to most of the respondents, being a Multimedia Super Corridor status company is a highly beneficial feature for a business. There are two main reasons for applying for this status, as revealed by many respondents, namely the benefits offered and the status itself. Most of the small companies are seeking the benefits offered. Meanwhile, the larger and more established companies are normally more concerned with the status. For example, R8, an Human Resource Manager of more than 500 workers,

revealed that his company was not looking for the benefits when asked why they had applied for Multimedia Super Corridor status, but only for the status, which would enable them to do more business in the future. He pointed out:

“Of course when you have the status you can go far actually...”
(Page 2, line 5, HR Manager with 13 years’ work experience)

When further questioned about the benefits offered by the status, he continued by saying:

“Benefit is one thing. Status is more important in terms of market requirements, especially when you are focusing on ICT and especially going for government contracts, so you must have that, since everybody else has it. We are quite well established, so for us the benefits are secondary. For a new company, those benefits are very important, like the tax benefits, the pioneer status and all that... but for me, those are secondary; status is more important...” (Page 2, line 7-11)

In a similar case, R24, who is a Business Development Manager of a company with less than 100 knowledge workers, pointed out the reasons for applying Multimedia Super Corridor status:

“Because it facilitates or rather it provides us with convenience. Number one, bringing in as many knowledge workers as smoothly as possible [i.e. trouble-free]. Number two, we are an R&D lab, we are bringing in a lot of equipment, components, and it is virtually an Multimedia Super Corridor company. It facilitates ‘kastam’ [i.e. immigration matters] and things like that. So we are able to bring this equipment and components in without duties. The other main advantage of Multimedia Super Corridor status which most other companies go for is their tax breaks; free for five years and then renewable on conditions ...”
(Page 3, line 1-10 , Business Development Manager with 12 years’ working experience)

He also mentioned the difficulties associated with not having the Multimedia Super Corridor status. He continued by saying:

“If we had to go through the normal channels and bring in knowledge workers, the processing time would be too long. The aggravation would be the worst. The same thing goes with importing components and equipment. It is not so much the money, we still to tying money somewhere we have to put in deposit and things like that, to tying those things. It is the ease of procedures in bringing in those things that help us” (Page 3, line 19-29)

This sample of selected quotations from the respondents further confirms the assistance provided by the Multimedia Development Corporation as presented in Section 9.2.

9.2 Assistances Provided by the Multimedia Development Corporation

To date, the most frequent form of assistance given by the Multimedia Development Corridor has been to facilitate foreign knowledge workers' immigration application procedures. One respondent noted that having Multimedia Super Corridor status made it easier to bring foreign knowledge workers into the company. She admitted further that she was not involved in any of the Multimedia Development Corridor programmes except the immigration aspect. She said:

"Well, in my line, the only thing that I used... [from]... the Multimedia Development Corridor... [is just]... for the work permits. I am not sure about the others [Multimedia Super Corridor status companies], whether they really use it. But for me, I purposely used it for work permits...In fact, as far as I am concerned, I have not come across any programme for human resource [i.e. human resource department] from the Multimedia Development Corridor..." (R74, Page 4, line 26-31, Human Resource Officer with 6 years' working experience)

Another respondent also mentioned that having the Multimedia Development Corridor to help them to deal with the immigration department has indeed made the job faster. Apart from that, he also reported that the Multimedia Development Corridor had supplied his company with knowledge workers via its "Internship Programme". He said:

"...they helped us in getting the foreign visas, quite fast I must say. Of course, there was a price we had to pay. That is a different story. It is quite fast so we do not have to deal with the immigration at all. They also have this programme where they have university students looking for jobs; they [the students] can go through the Multimedia Development Corridor...and the Multimedia Development Corridor will supply these graduates to us [Internship Programme]... We are quite pleased with that one as well. Once in a while they have a forum, I do not know whether that is related to our discussion today...they have certain topics now and then, you actually can go there and voice

out your concerns and sometimes it works and sometimes it does not ..." (R26, , Page 2, line 7-16, HR Manager with 13 years' work experience)

In this regard, not much has been written about the internship programme compared to immigration matters as presented in Chapter 4. Thus, the researcher made a further effort to understand what the respondent meant when he referred to this programme. When asked what this internship programme really entailed, he continued by saying:

"Actually I think we were awarded it in 1997, one of the earlier ones...and at that time, getting foreign workers to come here was quite difficult, but then the Multimedia Development Corporation cleared the way: it was a lot easier with them helping. I think ...if I look at the Multimedia Development Corporation, they have a lot more services available today than before. They have programmes now; we can hire new staff. Basically people who have graduated or may have lost their jobs can basically go to the Multimedia Development Corporation database and we can look through there and hire these people at a very reasonable price for a six-month period and so on, basically to try them and get experience at the same time. It is beneficial to both sides. So I think those kinds of things are new and they are quite good...[Internship Programme]. It is cheaper to use people here with the same skills that we need in 'Singgahsana'(Pseudo), for example. I can see a lot of improvements coming slowly to Malaysia, building up the database of people, working with the universities and so on." (Page 2, line 18-32)

From the earlier quotations, it can be seen that help with work permits and the internship programmes are the most frequent forms of assistance given to the Multimedia Super Corridor status companies. The question that is raised by this is: where are the other forms of support that should be offered to these companies, such as research grants, as outlined in the Ten Bills of Guarantees (see for further details, Chapter 4, Section 4.3.6)? Are these due to the Multimedia Super Corridor status companies' lack of awareness, because top management do not let their staff know about these benefits, or is the Multimedia Development Corporation yet to fully make an effort to encourage the involvement of the companies in any of these incentive programmes?

In this case, if it is true that the number of Multimedia Super Corridor status companies is expected to increase from 1,057 to 4,000 by the year 2010 (Online Berita Harian Newspaper, 14th July 2004), at the same time, there are still some companies who are asking for these limited assistances. What will then happen to them? Do the numbers of companies really concern the government? The researcher's view is that the government should limit the number of Multimedia Super Corridor status companies and help these companies, especially the smaller ones, to grow and become competitive and successful. That should be at the top of the government's agenda, to avoid seeing many failed companies in the future. Thus, a comprehensive investigation by the Multimedia Development Corridor is required to assess the current needs of the Multimedia Super Corridor status companies.

Furthermore, with regard to the knowledge workers required in Malaysia now, it is expected that by the year 2005, Malaysia needs to have 108,000 knowledge workers (Fong Chan Onn, 2003). Unfortunately, looking at the recent scenario, the higher education institutions are only capable of producing 15,000 to 22,000 ICT graduates a year (Online Berita Harian Newspaper, 17th Thursday, April, 2003). Within two years, the above target of 108,000 graduates seems unachievable. Therefore, serious consideration on the part of the Malaysian government with regard to supporting the Multimedia Development Corridor as it continues to assist Multimedia Super Corridor status companies in supplying knowledge workers must start by making the second strategy in the Strategic Plan - that is, to build a world class education system (KEMP, 2002) - a reality. Other than that, more efforts are needed in bringing back Malaysian knowledge workers from overseas to serve the nation and to add to the number of knowledge workers needed by the country. At the same time, efforts must be made to retain the existing number of knowledge workers that Malaysia has right now.

9.3 Anecdotes of the Failure of Multimedia Super Corridor Status Companies

In connection with the earlier discussion, though there are success stories among Multimedia Super Corridor status companies, the numbers of failed companies continue to increase. Thus, serious analysis is needed to understand why these companies have failed, as such failure has a negative impact on the end objective of having the Multimedia Super Corridor in Malaysia. For instance, it could erode trust that Multimedia Super Corridor status will lead companies towards success and help the nation to grow. Thus, it could lead to the view that having Multimedia Super Corridor status does not make a real difference to the outcome of a company. This could be a further area for future research in the Multimedia Super Corridor cluster.

Some respondents suggested that these Multimedia Super Corridor status companies could have become inactive due to reasons such as cash flow problems, ineffective joint venture companies, false applications for Multimedia Super Corridor status and the high maintenance cost of the status. Due to the limited evidence for the cash flow problem and ineffective joint venture companies, the only point that the researcher is able to discuss further is the matter of false applications for Multimedia Super Corridor status. Meanwhile, the high maintenance cost associated with Multimedia Super Corridor status may be related to issues of relocation, as presented in Section 9.4.

In the case of false application, it has been revealed that some of the companies do not comply with the prerequisites for becoming Multimedia Super Corridor status companies. It was reported that these companies would simply try to fulfil the conditions required by the Multimedia Development Corridor on a temporary basis. Once these companies had secured the status and the benefits offered, they would no longer

concentrate on doing R&D, for example. R8 commented:

“Here we can’t just apply for Multimedia Super Corridor status, you must have a product, you must have ... it has to be R&D and it has to be ICT. You know, a lot of companies just want to get the status but people in the Multimedia Development Corporation will not allow you to do so. Furthermore, when you are doing consulting, it is not considered maturical Multimedia Super Corridor status. So it is not just a question of applying: you must have the purpose and objectives. In the past, I’m quite sure there were still companies who were not genuine. They applied just for the sake of the name, without the backing part...and some of them did fail...” (Page 2 , line 25-31, Human Resource Manager with 13 years’ working experience)

When further checks were made on this matter with a representative from the Multimedia Development Corridor, it was revealed that:

“The thing is that when they came in [the failure companies], everything was ok, wonderful. Because it is projection - they said ‘we want to do this and we want to do that’, everything was fine. [So] we supported them [those companies]...then later they said ‘My contract didn’t go through. I can’t do this. I can’t do that. So we want to close operations’. So ok, that is fine. Some of them just surrender on their own...[so]... there would be a good study, you know. Because, if they fail, I just thought to myself that having knowledge workers within a company would be very helpful in terms of them being assets for the organisation. But if they fail, do they really make use of their knowledge, knowledge within the organisation or something else?” (R16, Page 5, line 9-16. Manager with 11 years’ working experience)

Having said that, the misuse of the status, for example in the case of fake R&D labs, would be counterproductive to the Multimedia Development Corridor and the nation, particularly in terms of the agenda to encourage and develop more R&D activities in the country. Therefore, the researcher is in agreement with the representative from the Multimedia Development Corridor that further investigation of the current scenario is required. This is to ensure that the high standard of Multimedia Super Corridor status companies matches that of the National Agenda, namely Vision 2020. This means that companies should not be given the status unless they are really serious about it and are willing to contribute towards the nation’s success.

9.4 Relocation of the Multimedia Super Corridor Status Companies to the Multimedia Super Corridor Areas

In relation to the high maintenance cost associated with being an Multimedia Super Corridor status company, the controversial issue of relocation was brought up by many respondents. It was revealed that most of the companies involved in this study objected to the policy of relocating all Multimedia Super Corridor status companies to designated areas such as Cyberjaya and Bukit Jalil Technology Park. When the researcher asked one respondent about the relocation matter, he seemed very interested in expressing his views about it. He said:

“You mean to relocate us to cyber cities... We are not a software house. If you are just a software house, you can easily move. All you need is twenty software engineers, who you can source locally, and you can have them in either Cyber Jaya or anywhere. Our business is more into hardware, not just software. We are involved in wireless technology. We require so many things. So it is too much of problems, too much hassles, to relocate all of our operations into multimedia super corridor designated cyber cities...We are not like other companies that just rent a small office, put in one PC, one phone line and nobody there. We are doing something real... Maybe if we had that kind of muscle we would be there as well...” (R24, page 5, line 3-13, Business Development Manager with 12 years’ work experience)

When asked about the appropriateness of having this kind of policy, he said further:

“...what they are trying to do (the Malaysian Government] ... with the Multimedia Super Corridor through Multimedia Development Corridor is to give it a push by organising it within the designated areas so that everybody can support each other. In doing so, they might have overlooked certain factors. Sometimes when you try to do this, you could unnecessarily strain those companies.” (Page 5, line 15-22)

He then provided an example:

“For example, one company used to be an Multimedia Super Corridor company. They did software programming and they had to relocate. Even though they did get the taxes and other benefits, after four years they just gave back the status and moved out because they could not survive and it did not make sense for them to artificially grow to be there just to conform. It is okay if you are a big company but if you are small, it is the

case that you would be fried up... it is difficult for you to make it..." (Page 5, line 26-31)

Here, R8, the Human Resource Manager pointed out the same thing:

"Now, they want us to move to the corridor, it is compulsory but unfortunately there are some delays. And this is definitely a bigger challenge for us..." (Page 5, line 13-14, HR Manager with 13 years' work experience)

In a similar case, R54 stated that idea of relocating the Multimedia Super Corridor status companies to Cyberjaya was impractical. He said:

"In the future, it might work, but the real business is in Kuala Lumpur. Our clients are in Kuala Lumpur..." (Page 4, line 27, Chief Operations Manager with 5 years' working experience)

These examples of comments on relocation matters revealed that most of the Multimedia Super Corridor status companies did not favour this idea. The financial cost seemed to be the main barrier, followed by the fear of losing their customers, many of whom were in Kuala Lumpur (Klang Valley). Other than that, the issue of whether this matter really benefits knowledge workers needs to be considered before moving one's company to the Multimedia Super Corridor areas. This is because most knowledge workers do not live within the Multimedia Super Corridor areas, and have to commute long distances to get to work.

9.5 Upgrading the R&D Facilities

Alongside the reasons for applying for Multimedia Super Corridor status, company failure and relocation matters, upgrading R&D facilities has emerged as another crucial finding of the current study. This is because according to the Ten Bills of Guarantees by the Multimedia Development Corporation (see Chapter 4 for example, Section 4.3), Multimedia Super Corridor areas promised superb facilities and technology. However, when referring these matters to the participants in the in-depth semi-structured interviews, the reality was different. One respondent, who was a representative of the Multimedia Development Corporation, said:

“ ...[in Cyberjaya] we have people to look after the regulations, air quality system, water quality...the guarantee by Tenaga Nasional [the Malaysian Electricity National Agency] is 99.99 per cent no power failure in Cyberjaya...” (R4, Page 4, line 17-18, Manager with 8 years’ working experience)

On the other hand, the Chief Operations Manager of a company with less than 60 knowledge workers argued that:

“Multimedia Super Corridor ‘memang’ (is definitely) a Cybercity, with all the programmes, ‘tak betul jugak’ (still they are not all true). They still have their ups and downs, I don’t know why. Even in Cyberjaya, they have power failures. I have a story about that: my data housing company is in Cyberjaya...99.99 percent? Ridiculous! This morning my server was down [and] could not ‘lah’ like this, because our clients were complaining...” (R4, Page 5, line 5-12, Chief Operations Manager with 5 years work experience)

These quotations support the recent statement given by the Prime Minister that Research and Development (R&D) in Malaysia is yet to reach a level that meets the needs of the Malaysian knowledge workers locally and abroad (Online Bernama Newspaper, 25th July, 2004). Thus, this could be one of the reasons why the Malaysian knowledge workers who are working abroad, such as in the UK, USA and Germany, are somewhat reluctant to go back to Malaysia and help the nation to grow. Other than money and/or remuneration packages, the facilities for R&D are also real concerns. In this context, the Prime Minister said:

“When I met Malaysians abroad, some of them came and whispered to me they have thought of coming back to serve the country. We need to convince them that the facilities available here are adequate for their needs.” (Online Bernama Newspaper, 25th July, 2004)

With regard to this situation, being the leaders in the high tech industry, Multimedia Super Corridor status companies should provide the best example by having outstanding R&D facilities. In this view, the Multimedia Development Corporation should encourage Multimedia Super Corridor status companies to apply for and/or utilise research grants as provided by the relevant government agencies. In relation to the current progress

towards achieving the National Vision Policy as indicated in the Third Outline Perspective Plan (OPP3), this effort may help Malaysia to become a knowledge-based society and enable it to attract more direct foreign investment to the country. The failure to do so would also affect one of the Strategic Plans of the “Brain-Gain Programme” as specified in the Knowledge-Based Economy Master Plan (see for example Chapter 4, Section 4.2.3), which is now progressively initiated and led by the Human Resources Ministry as well as the Ministry of Communication and Technology.

9.6 Respondents’ Perceptions of Knowledge Workers as defined by the Multimedia Development Corridor

The analysis of the characteristics of knowledge workers (see for example Chapter 7, Section 7.2), leads the researcher to the next issue, namely the definition of knowledge workers. This is because, as mentioned in Chapters 1 and 4, the definition of knowledge workers by the Multimedia Development Corporation in Malaysia differs from that used in other countries. Thus, there is a need to investigate whether the definition really suits the current Malaysian economy. Apart from that, it also allows further checks on whether Malaysia in general and the Multimedia Super Corridor in particular face a genuine shortage of knowledge workers. Therefore, this section provides the details of findings taken from the in-depth semi-structured interviews. In this regard, most respondents have asked a lot of questions about who exactly these knowledge workers are. This demonstrates that many knowledge workers do not even know that they are knowledge workers as perceived by the Multimedia Development Corporation. So, again, it is pertinent to assess these knowledge workers’ points of view on this matter in order to help the Multimedia Development Corporation to make further refinements accordingly.

In this view, after explaining the definition of knowledge workers as provided by the Multimedia Development Corporation, it was found that most of the respondents to the in-depth semi structured interviews disagreed with this definition. Several main reasons emerged for this disagreement: firstly, they were not comfortable with the requirement of five years' working experience as described by the definition. Secondly, they did not agree with the usage of the term 'information technology', and finally, they objected to the educational and multimedia background applied in the definition. Even respondents who agreed with this definition still pointed out the need for several amendments and could not accept it as it stands.

9.6.1 Disagreement with the Definition

It appears that respondents 2, 10, 63 and 22 had a common disagreement that the requirement for five or more years of working experience was not an acceptable element of the definition of a knowledge worker. R2 reports:

"A knowledge worker is somebody who can bring their knowledge and experience and add value to our operations. Such people are called knowledge workers already, but the person may not have a degree. Some have five years' experience or more ...the 'years' here is very objective. I would not say five years or more. A person might have worked for ten years but still not have the quality of experience, compared to another person who has worked for three years but with much more future exposure. So, to me a year of service is not accurate ..." (Page 2, line 25-32, IT Manager with 7 years' working experience)

R10, a Research Director, expressed his disagreement by saying:

"...and you said here that knowledge workers must have five or more years' experiences - I don't agree - and multimedia background - again, I don't agree. Actually, these are good for them, but not for a learning company (laughs). I know knowledge workers and I can disagree with this definition, because knowledge workers are deliberate and grow, ok...and they are alive and then they don't have multimedia, they don't have ICT, they don't have five years, they don't have a master's degree, they are winning knowledge workers...I know who is knowledge worker." (Page 1, line 24-35, Research Director with 17 years' working experience)

In a similar case, R63, who is a System Engineer in field operations, also provided the same reason as the above respondents.

“Generally, I disagree with the five or more years in professional experiences. These days, you should take account of how long they have been in one field. If I say I have been in the computer field for five years, does not mean that I am good at computers. It may be that you have some training or worked for a year and half. Then, the person really put in so much effort and is a good worker and has knowledge of the activity. So, it should not be judged on how long you have been doing it but how well you know the knowledge - that is rather pertinent, you know.” (Page 3, line 12-28, System Engineer with 2 years’ working experience)

However, R22 gave a different view on why he rejected the definition. He said:

“I would say five years in the career is quite low. Five years’ experience is no experience in my book. This has nothing to do with engineering, of course, as information technology is not suitable for us. I do not know whether you can call someone who has a graduate diploma or professional experience in multimedia a knowledge worker. It depends on the time if you got the time here but you do not...one of these items is here and then possesses is one of these qualification. I would say you have the combination of some of them. You know what I mean...this one here says ‘university degree in any discipline or graduate diploma or professional experience in multimedia’. So, it is probably inadequate...to be called a knowledge worker...” (Page 1, line 28-36, Area Representative Civil with 15 years’ working experience)

Furthermore, respondents 1, 6 and 31 had mixed reasons for their disagreement with the requirement of “five or more years together with education and multimedia background”, and “five or more years together with the information technology”. R1 said:

“...when I say ‘knowledge worker’, probably I misunderstand. I did not take consideration of ICT. But when I read this definition, it is more towards the technology knowledge. Also, I think five years’ experience must be on the high side. I think, roughly three years would give somebody a very good experience...” (Page 5, line 2-8, Finance and HR Manager with 7 years’ working experience)

R6 supports this by saying:

"Multimedia is more into graphical kind of things. It is like more animation, graphic designing and those kinds of things. We actually, in my company, do not hire those people with multimedia degrees. I think the perception of multimedia is wrong. What is IT all about? Especially when I have to hire these people, we would not hire those with so-called multimedia degrees because they do not fit our requirements, i.e. IT. Information technology degrees may be more suitable.... Furthermore, these five years or more of professional experience, I think is a bit long. Even two years there will be good enough. But then what would they want, if they have just come out from the university...a knowledge worker...I suppose so, what do we call this group then? So I tend to disagree a bit..." (Page 2, line 23 - 66, Human Resource Manager with 14 years' working experience)

A similar case was also reported by R31, who mentioned that being a knowledge worker is not just about having "multimedia" knowledge. He said:

"I can see a few things here; basically, I do not agree with that definition. Being a knowledge worker is not necessarily about having a multimedia background, it could be a lot more than that. That's not necessary in the IT field. Maybe my definition of knowledge is when you are in a field, you learn as you work in that field; you also can be a knowledge worker in anything. You can be knowledge worker in a humanities department. This definition is actually more towards IT, I would say. Furthermore, regarding, the five years; that's not necessary. A person could be knowledgeable...even after two or three years, some of them are more competent and they learn faster and become better..." (Page 2, line 25-33 Software Engineer, with 5 years' working experience)

In the case of respondents 21 and 32, it appears that they disagreed that information technology should be the main criterion for an individual to be considered as a knowledge worker. R21 mentioned:

"I think this definition is very specific and very much related to multimedia, information and communication, which are IT skills. IT does not encourage people with my sort of skills and in my field to be motivated to stay. There is no recognition and there is no reward...I would suggest that a nation as rich as Malaysia should not only concentrate on knowledge. You should be progressive and dynamic, you know, to think about a broader knowledge-based technology. I think we should look at

very industrial nations where there are plenty of examples of promoting a more mixed portfolio rather than concentrating on just one. Because this one in particular will not be sufficient to sustain growth..." (R21, Page 7, line 11-33, Business Development Manager with 30 years' working experience)

This is supported by R32, who pointed out that:

"The definition of knowledge workers, in my opinion, does not really reflect your level of education. Because here, you say a university degree...not necessary. A lot of knowledge workers are not necessarily in information technology. Knowledge workers, to me, are those who have some type of knowledge. The main concern is that if you are able to communicate, bring up points that we know or the knowledge that we do not know, you are a knowledge worker. But now, these people tend to relate knowledge workers with information technology only. When they think of a knowledge worker, okay it must be in the information technology line. But to me again, it is not necessarily in the information technology industry. It could be out of the information technology industry. It could be like what I said, as long as you have certain knowledge and then you are able to carry out the job and you can share with others, you are a knowledge worker...That is my opinion." (R32, Page 1, line 20-33, Human Resource Manager with 8 years' working experience)

Moreover, in several cases, it has been highlighted that if all university graduates are categorised as knowledge workers, then Malaysia should have an ample supply of knowledge workers. This is because the numbers of university graduates are increasing from year to year (see for example Chapter 4, Section 4.2.3). In this situation, R44, a Head of Information Technology Department, with more than 500 workers pointed out:

"Are we really sure that we do not have enough knowledge workers? Because, looking at the definition, by rights we should have more than enough. But the question here is, what exactly do knowledge workers do? Proceed with their knowledge practicality or something else...?" (Page 3, line 9-11, Head of IT Department with 13 years' working experience)

Based on her own experience, she further commented that if information technology is the main criterion for defining knowledge workers, then in her view, not all university graduates should be

considered knowledge workers. She said:

"I do not agree that everybody who has graduated or has a degree can be called a knowledge worker because there are so many graduates who do not have any idea about what ICT is all about...there are a lot, especially those who are diploma holders from all these institutions right now. They cannot contribute; they do not know anything. So, how come we can call them knowledge workers...?" (Page 3, line 15-19)

Next, when examining the quotations below, it is noteworthy to see that these respondents have commented on the relative lack of importance of educational background with regard to becoming knowledge workers. R2, an Information Technology Manager, said that a knowledge worker can be anybody who can bring added value to the company. So, whether they are highly educated or not is not a priority. He said:

"A knowledge worker is somebody who can bring their knowledge and experience and add value to our operations; such people are called knowledge workers already. The person may not have a degree or whatever...in this company we do not really emphasise academic qualifications. The most important thing for us at the end of the day is how you prove that you are really good..." (Page 3, line 20-24, IT Manager with 7 years' working experience)

Also, the situation of being theoretically expert is not enough for the individual to become a knowledge worker: practical knowledge is more important. R3, a System Analyst who was considered new in the workforce with about 3 years of working experience, shared his thoughts and experience from the perspective of being a knowledge worker:

"...Certification is not necessary. It very much depends on the individual. You can have a bachelor's degree in computer science but it does not mean that you are a knowledge worker. You might be good in theory but IT is more practical. It is more trial and error. You see, it might take you 3 years to complete your degree, and after that you come out but the environments that you are going to face are all different..." (Page 1, line 18-25, System Analyst with 3 years' working experience)

Another notable finding is that the researcher was able to meet with the Chief Technology Officer of a small Multimedia Super Corridor company, who does not even have “Sijil Pelajaran Malaysia” (SPM), i.e. a secondary education qualification, which is equivalent to General Certificate of Secondary Education (GCSE) in the UK. His capability to learn by himself through books, magazines and trial and error has made him good at information technology. In fact, he had been headhunted for his extraordinary programming knowledge. He commented:

“Looking at this, obviously this would not actually include me. Because first and foremost, it did not add the ‘or’ here rather than ‘and’. So it is kind of narrow to me. In fact, I did not even pass my Form Five (Secondary Highest Education or SPM), simply because I failed my ‘Bahasa Malaysia’ (Malay Language Subject). Not once: twice, actually. Whatever I did after that was pursuing not just happiness or making more money, but determination to actually be interested in the subject, learn as much as possible about that...” (R37, Page 2, line 23-67, Chief Technology Officer with 10 years’ working experience)

The overall analysis regarding the disagreements is that, firstly, the participants disagreed with the five years’ working experience as the main requirement to become knowledge workers. Some of them said that it was too long, while others argued that even five years’ working experience might not be enough. Many respondents suggested that two or three years of working experience could be reasonable. In relating this to the earlier review, understanding the knowledge work done by knowledge workers is firstly crucial in identifying who these knowledge workers are (Newell et al., 2002). As emphasised by Horribe (1999) and Drucker (1998), knowledge work involves workers who operate more intellectually in comparison to other workers, such as shop floor workers. Thus, the question of how long it should take to become a knowledge worker is a matter of debate, and may vary subjectively. Furthermore, if we look back at what has been written by Amar (2002), those who were born after 1997 are all considered as knowledge workers in his view, and are also known as Generation X and Y (The Nexters). Here, it could be further assumed that the length of the period

of working experience might not be particularly important, as long as knowledge workers can perform their jobs effectively.

Secondly, there was also disagreement with the use of the term “multimedia” and even “information technology”. This finding supports the point that was highlighted by Davenport and Prusak (2000). They believe that information technology is only an enabling tool and should not be the main requirement for evaluating how “knowledgeable” each worker is. In fact, according to Horribe (1999), knowledge workers are those who produce value using their brains rather than their hands. She further added that the economy has a lot of knowledge workers: not just computer programmers and analysts, but also data-centre operators, help desk technicians, assembly line workers on highly automated lines and the clerks that advise you on how to fill out your tax form. This group also includes some people who were knowledge workers long before we came up with the term, such as engineers, researchers, academics and professionals like doctors, lawyers and accountants.

Thirdly, education is not a major factor in becoming a knowledge worker, though Kelly (1990) and Helton (1988) believe that it should be. In reflecting Horribe’s (1999) point of view, Dominique (2002) and the most recent article written by Thite (2004), any worker who contributes to the success and smoothness of a company’s activities is known as an asset to the company, regardless of their educational background. What is more important is the willingness of the workers to learn and explore new knowledge for the sake of upgrading themselves in particular and the company in general. This is related to the Malaysian government’s current policy towards life-long learning. Under the Strategic Plan, the Malaysian government strongly encourages workers to practice life-long learning, even in the post-educational phase (KEMP, 2002). Therefore, defining knowledge workers according to their level of education may no longer suit the Malaysian working culture, as all workers could be considered as knowledgeable. In

the light of these findings, several alternatives for refining the current definition of knowledge workers have been suggested in Chapter 10, Section 10.3.

9.6.2 Agreement with the Definition

In contrast to the earlier findings, below are sample quotes from those respondents who agreed with the definition put forward by the Multimedia Development Corporation and realised the importance of working experience as well as educational background in becoming a knowledge worker. R41, a Training Manager with eight years of working experience, emphasised that this group of workers are professionals who have technical knowledge. She said:

“I think the definition of knowledge workers is still being reviewed, rather academically, but quite a few of the conferences showed that they are trying to find a definition. Basically, I would consider a knowledge worker as being very similar to this definition regarding experience in a professional/technical area. They have knowledge that is the key to your company or the industry...” (Page 1, line 23-29, Training Manager with 8 years of working experience)

In another case, the Chief Operations Manager (R54) of a company with less than twenty workers considered knowledge workers as those with information technology knowledge. He said:

“I don’t consider myself a knowledge worker, because I am ...[in]...the business line. When we consider knowledge workers in my office, we are talking about information technology staff One thing you should remember is that knowledge workers are basically more educated than the rest. So, you do not have things like unions. In fact, the salary range if you are a real knowledge worker with a degree, for the executive level, \$1,800 is a very bare minimum. Normally, we take fresh graduates at \$2,000 to \$2,200. Someone with one year’s experience can get up to \$3,500. I just recently recruited one...” (Page 1, line 10-15, Chief Operations Manager with 5 years’ working experience)

These agreements and disagreements with the definition of knowledge workers provided by the Multimedia Development Corporation demonstrate that the definition is not yet applicable to the rest of the Multimedia Super Corridor status companies. Thus, some new mechanism

is needed to refine the definition in order to fit with the current needs of Multimedia Super Corridor status companies as well as the country as a whole. Perhaps a new and more specific definition is required for this group of workers. In line with this, all views expressed were considered and suggestions were made for upgrading the definition, and three alternatives for defining knowledge workers from the local context are presented in the last chapter of this thesis (see Chapter 10, Section 10.1.1).

9.7 Summary

This chapter has highlighted the crucial issues that need to be considered by the Multimedia Development Corporation and by Multimedia Super Corridor status companies. The researcher does not have any intention to weigh up the Multimedia Development Corporation's capabilities in looking after the Multimedia Super Corridor status companies. The researcher believes that the Multimedia Development Corridor has done many great things so far, but its ability to become more efficient could still be further enhanced by the opinions revealed in the current study. First of all, it has been revealed that the companies have varied reasons for applying for Multimedia Super Corridor status. Small companies usually apply for the purpose of seeking benefits and assistance provided by the Multimedia Development Corridor, as mentioned in the Ten Bills of Guarantee. Meanwhile, larger companies need the status in order to further their progress in business areas, particularly in terms of gaining contracts from the public sector.

Secondly, even though these are the main reasons for applying for Multimedia Super Corridor status, many of the participating respondents reported that the facilitation of immigration matters for foreign knowledge workers and the internship programme are the most common forms of assistance given to them by the Multimedia Development Corporation.

Thus, there will be further remarks about other forms of assistance that have been allocated to the awarded Multimedia Super Corridor status companies as stated in the Ten Bills of Guarantee. Thirdly, the issue of failure of some of the Multimedia Super Corridor status companies has also been highlighted by the respondents. This could be due to the misuse of the status awarded to them, although perhaps further specific investigation is needed in order to have a clear understanding of why such failure occurs. In this regard, the best alternative may be to limit the numbers of Multimedia Super Corridor status companies and focus on the continued provision of support and assistance for the existing companies. This is because, as described earlier in Chapter 5 (see Section 5.4.1.1), most of the participating Multimedia Super Corridor status companies are small companies and still in the early stages of establishment. Thus, without continuous support and assistance from the Multimedia Development Corporation, these companies will struggle to perform well and might even fail after several years of operation.

In this regard, the fourth issue that needs to be considered seriously by the Multimedia Development Corporation is how best to continue to help these small companies to upgrade and improve their research and design (R&D) capabilities and facilities. This can be done by first raising these companies' awareness of the available support and assistance programmes, as described in Chapter 4 (see Section 4.3). Then, an awareness of the best practice of knowledge management with help from strategic human resource management could also be introduced and increased in order for the companies to appreciate the benefits of knowledge management implementation (see for example Chapter 3, Section 3.3). Also, it would be best if the Multimedia Development Corporation could delay its relocation plans until all Multimedia Super Corridor status companies are ready, perhaps in another five or ten years' time.

The final issue, which needs the most attention by the Multimedia Development Corporation, is to make the necessary refinements to the current definition of the term “knowledge worker”, which does not seem to be portraying the reality of the current business scenario. It was found that the current definition of knowledge workers prepared by the Multimedia Development Corporation needs further refinement, in order to fit the current needs of the business environment in Malaysia in general and Multimedia Super Corridor status companies in particular. Thus, several mechanisms for refining the definition of knowledge workers from the local context are suggested in Chapter 10 (see for example Section 10.1.1).

To conclude, the role of the Multimedia Development Corporation in working within the Malaysian government agenda to implement the Eighth Malaysian Plan (8MP), Third Outline Perspective Plan (OPP3) and Vision 2020 would increase the agency’s capability to meet the objectives of establishing the Multimedia Super Corridor as the nation’s mega project and the key driver for its success. Continuous assistance is also needed to allow the Multimedia Super Corridor status companies to survive, be competitive and contribute to the success of the Multimedia Super Corridor project. Thus, the faster the Malaysian government can overcome its problems, the better for the nation, in terms of reducing the number of failed Multimedia Super Corridor status companies.

CHAPTER TEN

Discussions and Conclusion

10.0 Introduction

The key point of the current study is that it has taken a broad look at the nature of knowledge management in the Multimedia Super Corridor status companies, with the particular intention to try to understand the interrelationship between knowledge workers, human resource management and the government development agency (i.e. the Multimedia Development Corporation). In the researcher's opinion, it would be pointless to conduct such a study without a broader awareness of what exactly is happening in these particular matters. In fact, this broader holistic view now insists on the urgent need for future works, especially pertaining to the knowledge sharing and learning process of knowledge workers in the Multimedia Super Corridor status companies and the relationship between Malaysian working culture and performance aspects. In the present case, the aim of the study is not to assess whether the government development agency has done an appropriate job or not, or whether the Multimedia Super Corridor status companies are handling their knowledge workers well; it is to ask whether a serious look at the processes of managing knowledge workers' knowledge via knowledge management and human resource management should be attempted. It is of some encouragement that the researcher would like to highlight this as supporting the nation towards achieving the status of a developed country by the year 2020.

Therefore, the aim of this chapter is to outline the main conclusions of the current research on human resource management issues pertaining to the management of knowledge workers in Malaysia. In so doing, the chapter has been divided into three main sections. Firstly, it will look at the overall discussions and conclusion of the findings related to the research questions

developed from the overall research framework in Chapter 1, Section 1.0. Secondly, it will focus on both theoretical and practical implications of the current research for the new body of knowledge. Thirdly, it will outline several limitations of the study; finally suggestions for further research are made in order to obtain more rigorous and reliable findings.

10.1 Overall Discussions and Conclusion

10.1.1 Research Question 1: How do Malaysian knowledge workers perceive the current definition of “knowledge workers” as defined by the Multimedia Development Corporation and what is their opinion of being classified this way?

As mentioned in the earlier review, the definition of knowledge workers used in Malaysia is different from those offered in other countries (see for example Chapter 4, Section 4.3.1). This is important, since it is used by the government development agency when it reports a shortage of knowledge workers in Multimedia Super Corridor status companies. This situation may change, as thousands of Malaysian youngsters are graduating from local universities each year (for further details, see Chapter 4, Section 4.2.3). Furthermore, it has been reported by a Minister from the Prime Minister’s Department that the number of jobless graduates in Malaysia was about 60,000 (Online Bernama, 22nd December 2004). While it must be borne in mind that the need or lack of knowledge worker is, of course, not determined by the definition, nonetheless, further assessment of the most accurate definition of the term “knowledge worker” is required in order to match with the current needs of the Malaysian business environment. At the same time, the definition must be able to portray the true situation of the above case (i.e. shortage of knowledge workers). In this view, it has been further argued that understanding the characteristics of knowledge workers would be a step in the right direction with regard to defining who exactly the knowledge worker is (see for example Amar, 2002 and 2004; David 1997;

Horribe, 1999; Tampoe, 1992). Therefore, from the Malaysian point of view, both the definitions and the characteristics of knowledge workers need proper investigation in order to provide convincing results and a clear understanding of their effective management.

In reflecting on the earlier discussion of findings in Chapters 6, 7 and 9, the overall conclusion of research question number 1 is related to issues raised in Chapter 2 (i.e. Understanding the Concept of Managing Knowledge Workers) and Chapter 4 (i.e. Malaysian Economic Framework). As mentioned in Chapter 9 (Section 9.6.1), most of the respondents from the in-depth interviews disagreed with the current definition of knowledge workers provided by the Multimedia Development Corporation. The disagreements were mostly due to the statement that five years' working experience is the main criterion for being a knowledge worker. Several respondents were of the opinion that five years could be too long. It has been suggested by the respondents that two or three years of working experience could be sensible.

In other cases, respondents disagreed due to their belief that five years of working experience is not enough for the workers to be classified as professional; they believed it would take longer than that. In another case, the respondents disagreed with the technology requirement stipulated in the definition. Many also pointed out that technology is only an enabling tool and must not be the main requirement for becoming a knowledge worker. In this case, the words "multimedia technology" should not be put forward as a defining requirement. A simple example was given by one of the respondents, who stated that an agriculture officer does not necessarily have to spend most of his or her time in front of a computer gaining multimedia knowledge, but the experience gained and time spent on the farm and/or the plantation leads to knowledge about agriculture, and thus still allows him or her to be considered a knowledgeable worker. Thus, according to the

respondents, the definition of knowledge workers should be based on the specific field of work and must not be specifically tied to the use of multimedia technology only. With regard to this, the overall findings revealed that the definition needs further refinement, and from the literature review conducted at the beginning of this thesis, several alternative definitions are provided here to comply with human capital theory (knowledge workers are an asset to the company and they need a continuous education and training system for self enhancement), motivation theory (which emphasises the importance of fulfilling the needs of knowledge workers), knowledge based theory (which focuses on the conscious efforts on the part of the workers to learn and unlearn knowledge within the information technology initiative environment) and resource based theory (knowledge workers are an important part of the resources needed for the company's growth).

The First Alternative:

The definition of knowledge workers should encompass the fact that only professionals can be called and/or known as knowledge workers. In this case, the definition of knowledge workers can be presented by referring to the definition of a professional provided by the Malaysian government, which is as follows:

“Professionals increase the existing stock of knowledge, apply scientific or artistic concepts and theories, teach about the foregoing in a systematic manner, or engage in any combination of these three activities. Most occupations in this major group require skills as the fourth level [i.e. tertiary education leading to a university or postgraduates university degree or equivalent]”
(The Malaysian Standard Classification of Occupations, 1998: p. 5)

Therefore, a more specific definition of knowledge workers is only meant for those with the highest education qualifications, which not many people may have. Therefore, a definition that focused on professionals from any field, without putting information technology as the main criteria, would limit the number of knowledge workers in the local context. This is in agreement with

definitions of knowledge workers by several authors who stated that professionals are those university graduates who are continuing to work in their fields of study (Tampoe, 1992), are highly qualified and educated (Sveiby, 1997), are “super smart employees”, which means workers who have higher education and professional certificates (Amar, 2002), and who gather information and utilise it for the purpose of adding value to their company (Tymon and Stumpf, 2003). Further understanding of this group of professionals may contradict the definitions given by Beaumont and Hunter (2002), Drucker (1988) and Reed (1996), who stated that knowledge workers are those professionals who work in an information-based company and who create a situation of high demand occupations such as computer engineers, programmers and system analysts.

With the above understanding, the government could have a great opportunity in preparing an accurate estimation of the number of knowledge workers at any given time. In this case, if there is a shortage of knowledge workers, then the relevant authorities need to look into this matter and plan to increase their number. For instance, higher education institutions may play a role in increasing the number of knowledge workers, in line with the policies highlighted in the Eighth Malaysian Plan (8MP), Third Outline Perspective Plan (OPP3) and Knowledge-Based Economy Master Plan (KEMP). Next, if there is a surplus of knowledge workers, then the government needs to know how to utilise these professionals, and especially the knowledge that resides in them, for the sake of companies' growth and the nation's success. The overall impact of this tighter definition would be to limit the number of knowledge workers in the Malaysian context. So, the claim that Malaysia is currently short of knowledge workers would be more clearly shown, supporting the earlier views by Tyndall (2002) and MSC IS (2003) that Multimedia Super Corridor status companies are now experiencing a lack of knowledge workers.

The Second Alternative:

As a second alternative, all workers in any company, despite their educational background, could be regarded as knowledge workers. This implies that all workers, including clerks, cleaners, drivers, photocopy men, receptionists, executives etc., are knowledge workers, as they are exposed to new knowledge every day. Although some may consider that these workers are doing repetitive and routine work, as described by Helton (1988) and Kelly (1990), there is no denying that all these jobs do contribute to the company's success (Dominique, 2002; Rowley, 2000). Furthermore, workers' knowledge of a company's customers, products, processes, mistakes and success (Grayson and O'Dell, 1998) would further encourage the sharing and transfer of knowledge amongst employees, which ultimately leads to the success of business, as described by Davenport and Klahr (1998). The most recent article written by Thite (2004: p. 30) expressed the view that "...there is no such thing as a non-knowledge worker". In this regard, all workers should be known as knowledge workers.

Having said this, the skills a clerk must have when writing formal letters to any individual are many and include knowledge of different formats; the correct wording is pertinent to ensure that the message reaches the receiver in the most appropriate manner. To do this, the clerk may need to attend a continuous training programme or may learn from a person already skilled in clerical matters. This also applies to the photocopy person, who needs to know how to produce good quality photocopies. Self-directed learning using the copier manual or training from the technicians may help the photocopy man to improve his knowledge as well as the quality of copies produced. These examples show that all of these workers help to make the company run as smoothly as possible. The failure to prepare appropriate letters and to provide a good print quality will affect the company's image and the efficiency of the job. In other words, all members of a company can contribute to the company's success, and this should never be forgotten.

The Third Alternative:

Knowledge workers can also be defined by referring to the specific field of work in which they are involved. This means that each division, each field, each department and/or even each ministry should have its own definition of knowledge workers. The separation of this definition should match the exact needs of each specific department and agency. For instance, in the case of the Multimedia Super Corridor status companies, the definition should be focused on the exact requirements, i.e. skilled knowledge workers in the field of multimedia and/or information technology. Thus, a university degree in any discipline may no longer go well with the Multimedia Development Corporation's current definition of knowledge workers. This also applies to the agricultural department. The agriculture officer must be qualified in Agriculture Science or Business Agriculture, and in this situation, qualification in information and multimedia is not the main concern. Also, in the case of medical doctors, those who have a medical degree are regarded as knowledge workers. The most important thing to consider is that no single definition should be generalised to all Malaysian knowledge workers. This is because not all departments or divisions or industries are facing a shortage of knowledge workers.

Overall, in the researcher's opinion, any of the above definitions may fit to the Malaysia working environment. The first definition may present the real situation of the shortage of knowledge workers as reported earlier. However, this definition may create a gap between knowledgeable and non-knowledgeable workers. Subsequently, this gap may not be productive to any company. The differentiation between workers could create a sense of discrimination towards non-knowledgeable workers. It could lead to the non-knowledgeable workers feeling inferior. This could then demoralise the non-knowledgeable workers and mean that they were no longer performing at their best.

Having said this, the second definition of knowledge workers could be more suitable for the Malaysian context. It appreciates each individual worker as a knowledgeable worker regardless of the type of knowledge that they possess. At the same time, all of these workers are given equal opportunities and responsibility for the progress towards achieving success. In the meantime, the third definition may be somewhat limited to the specific agency. It could help the Malaysian government in providing an appropriate policy in accordance with the current needs of knowledge workers. This would then allow the agency to develop its own definition of knowledge workers and facilitate the process for any individual worker wishing to join any of those agencies. In this case, perhaps the specific definition of knowledge workers for Multimedia Super Corridor status companies should possess the aspect of information technology knowledge. The researcher's overall view is that the third alternative could be the best way to define knowledge workers according to the needs of the specific agency. In this case, the shortage of knowledge workers as reported in the Multimedia Super Corridor Impact Survey report is justified.

The next issue regarding the characteristics of knowledge workers revealed that knowledge workers are those who are challenge seekers, are bored with repetitive work, possess enthusiasm for learning, have a desire for freedom and flexibility in completing their tasks and are often headhunted. These findings are consistent with the earlier literature by Amar (2002), Horribe (1999), Demarest (1997), Drew (1997) and Sveiby (1997), with the exception of the findings on knowledge sharing. It seems that Malaysian knowledge workers are not ready to share their knowledge with others unless they are told to do so. In this case, some doubt is raised as to the extent to which the SECI Model put forward by Nonaka and Konno (1998) actually portrays the true picture of how knowledge workers share their knowledge via socialisation, externalisation, combination and internalisation. Further discussion on this matter is presented in more detail in Section 10.1.3.

A further point is that Multimedia Super Corridor status companies also need to be warned that their knowledge workers' being headhunted. Even though it does give some positive impact, still the researcher believes it is not good for their business prospects (see for example Chapter 7, Section 7.2.3 and 7.2.4). Further policies, such as agreement between the Multimedia Super Corridor status companies, could be arranged in order to stop this kind of practice (see Section 10.1.4), or may be a secondment service could be best alternative (see more details on secondment in Section 10.1.5). In regard to the motivation theories such as that put forward by McGregor (i.e. Theory X and Y), it was shown that Theory Y might be more suitable for managing knowledge workers. Theory Y allows the practice of freedom and flexibility with guidance. This means that knowledge workers are given their own freedom and flexibility in completing their tasks, although their deadlines must be met within a set timeframe.

Furthermore, from the perspective of Maslow's Five Hierarchies of Needs Theory, emphasised by Tampoe (1992), knowledge workers also need to ensure that they receive benefits when sharing knowledge with others. In a way, these benefits could fulfil their basic needs as described by the theory. These would normally be in terms of compensation and reward, as presumed by Hunter et al. (2002) and Despres and Hiltrop (1995). In fact, this view is also supported by the current findings, which demonstrated that compensation and reward are indeed the crucial factors for retaining knowledge workers. Other than that, job satisfaction allows for career self-development, which is another important factor in terms of keeping knowledge workers in a company. Overall, the impacts of these findings is seen to be very much related to the role of human resource management, especially in terms of preparing a satisfactory working environment that matches the above needs. Further discussion on the role of human resource management is presented in relation to research question number 4.

10.1.2 Research Question 2: How do knowledge workers perceive the current practices and the movement towards and the actual implementation of knowledge management in Malaysia?

The findings from both the questionnaire survey and the in-depth semi-structured interviews had similar results; that is, knowledge workers placed a higher degree of importance on the management of knowledge as compared to its actual implementation. This gap may have resulted from the impact of the Asian Financial Crisis in 1997 and 1998. In the recent work done Wendy and Asma (2004), it has been argued that even though Malaysia succeeded in handling the crisis relatively well, compared to its neighbours such as Indonesia and Thailand, companies in Malaysia have nonetheless become very meticulous in spending their money. Thus, they have been less focused on new recruitment and applying sophisticated information technology systems, paying more attention to attempts to become competitively significant while using the resources that are currently available to them. Also, as mentioned in Chapter 4, Section 4.4.2, the role of leadership was seen to be central to survival during the crisis. Thus, it has been seen here that workers may prefer to work, and are more inclined to share knowledge in a formal team-based context, led by a project leader, rather than working in isolation. As well as securing their personal knowledge and/or intelligence (as it will be quite hard to apply for new jobs due to employment freezing, and also because when they share knowledge, the company immediately recognises their contribution of idea/s), they are also attached to the working culture and to values such as *gotong royong* (mutual help) and *Ummah* (united society), respect for leaders and concern about other people's face. In this regard, Malaysian working culture is evident, in that Malays are strongly communal and protect each other, while the Chinese are more frugal and careful with money (cited in Wendy and Smith, 2004: p. 417).

However, there is still some confusion in understanding the term “knowledge management”, which is in agreement with the findings of Gamble and Blackwell (2001) and Susana et al. (2004). If knowledge management is considered as a new category of management (Gamble and Blackwell, 2001), this unexpected finding indicates that the current development of knowledge management in the local context is still in its infancy or in an exploratory stage. These findings could be also due to the fact that most of the respondents were from small Multimedia Super Corridor companies, which are yet to be exposed to knowledge management. However, this finding suggests a strange scenario for the Multimedia Super Corridor status companies, as they have been considered as highly knowledge-intensive companies. The Multimedia Super Corridor status companies’ exposure to knowledge management should be more advanced than that of other firms (i.e. non-high tech companies). Furthermore, this finding is inconsistent with that of Sveiby (1997), who argued that knowledge management is more effective in a small “tightly knit” family run company than in a large company, as workers are expected to know what is going on and be part of a small team in sharing as well as transferring their knowledge. Thus, this shows that the size of a company does not determine the implementation of knowledge management (see for example Chapter 7, Section 7.3.4).

On the other hand, if knowledge management is considered as something that has existed for a long time (Davenport and Cronin, 2000), and then the respondents to the current research might not be aware that they are already practicing it, as they have been doing well so far. Within an emerging set of knowledge management processes that govern company and business process design, knowledge workers are assisted to leverage their creativity and increase their ability to deliver business value (Gurteen, 1998; Malhotra, 1998). The lack of awareness of knowledge management by respondents, however, represents a serious loss to the company. Therefore, the current

scenario would urge the Multimedia Development Corporation in general and the companies in particular to play more aggressive roles in explaining the concept of knowledge management and its benefits to the company. Further discussion on the roles of the Multimedia Development Corporation is presented in relation to research question number 5.

10.1.3 Research Question 3: What are the factors affecting the successful implementation of Knowledge Management in Malaysia?

Factors affecting the successful implementation of knowledge management were identified from the variables provided by Suk Choi (2000) as described in Chapter 2. These factors are crucial for the Multimedia Super Corridor status companies, and particularly human resource management, in terms of preparing a suitable working environment in which knowledge management can become an integrated part of the working culture. For instance, as mentioned in the earlier review, considering the right factors for knowledge management implementation would ensure not only the success of the company but also the company's survival in the current, highly competitive world. In this view, conclusions regarding these factors are drawn according to the results from the questionnaire survey (i.e. Chapter 6). These are then supported by the in-depth semi-structured interviews (i.e. Chapter 7).

From the questionnaire survey, it was generally found that variables such as teamwork, top management leadership and commitment, knowledge structure, information systems infrastructure, employee empowerment and involvement were considered as the top ranking factors in affecting the successful implementation of knowledge management. Meanwhile, the variables of performance measurement, equal and/or egalitarian climate, company constraints, employee training and benchmarking did not lead to higher mean scores (see Chapter 6, Section 6.3). These findings were similar

to those of Suk Choi (2000). In his work, top management leadership and commitment was associated with the highest mean score, followed by employee empowerment and involvement, teamwork, information systems infrastructure and performance measurement. Factors of teamwork, top management commitment, employee involvement and empowerment, performance measurement and knowledge structure also seem to be important variables in both studies (i.e. the current study and Suk Choi, 2000).

Despite the lower level of individual knowledge sharing, knowledge workers in the current study indicated that they would only share their knowledge and ideas with their team-mates when completing certain projects. They may have done this due to the orders from top management and because they were aware that if they did not share their knowledge, then the project would not be completed. Thus, it can be assumed that the failure to complete this task would affect the knowledge workers' individual capability. Furthermore, it would be detrimental to the company's image and to their individual performance measurements. This scenario supports the claim of Dixon (2000) and Greengard (1998) that small-scale teamwork could be the best starting point for implementing knowledge management. This is because a small team would have a better awareness of the right knowledge to be shared and the right time and place at which to do so. It has been presumed that after working comfortably as a small team, they could later proceed to sharing across functional groups, which is particularly useful when working on bigger projects.

From the SECI Model perspective, perhaps another conclusion can be made; that knowledge workers in Malaysia would favour the sharing process during externalisation rather than during socialisation. In other words, they prefer more formal working relationships, especially in relation to small team-based work, rather than informal scenarios as practised during the

socialisation process in the SECI Model. This could be due to the belief that by participating in this type of sharing activity, knowledge workers can account for their own performance in ensuring the successful completion of the project. It is highly likely that each participating knowledge worker will be required to contribute and/or share his or her ideas with others. At the same time, they were encouraged to be involved in any activities within the team and were given empowerment, freedom and flexibility in completing their tasks. These workers did not necessarily have to sign in at nine o'clock in the morning and go home at five o'clock in the evening. This is also in agreement with McLagan (1999) and Duval (1999) who believed that making knowledge workers responsible for certain projects and allowing them to make their own decisions is pertinent to the success of a knowledge management project.

However, without strong support from top management, any knowledge management project will fail (Davenport et al., 1998; Nonaka et al., 2000). Top management should provide a good information system infrastructure and encourage team rewards rather than individual benefits. In this way, knowledge workers can utilise the facilities in completing the project. When a task is completed, then they will be given a bonus at the end-of-year evaluation. In fact, according to the in-depth semi-structured interviews, in several cases team members who had done excellent jobs were given the opportunity to sit on the company's board of directors. This opportunity is usually offered to project managers. This policy was seen to urge human resource management to make changes in managing knowledge workers. Instead of acting only as a service provider, human resource management needs also to play a strategic role, aligning the company's objectives with knowledge workers' needs, especially in terms of preparing a more competitive reward package. This view contradicts the suggestion by Hunter et al. (2002) that human resource management should act merely as an advisor rather than as a strategic business partner. The current study

provides empirical evidence of the potential for human resource management to become a strategic partner in the business.

Other than that, training, mentioned in the qualitative findings, but less so in the survey, was the most important tool for the success of knowledge management implementation. In this case, knowledge workers look forward to self-development as well as career development. That is why, in order for them to explore and learn new things, they sometimes switch to a new company. It was also shown in the in-depth semi-structured interviews that an egalitarian culture, which may support the willingness of knowledge workers to participate more in knowledge sharing, could be another crucial factor in ensuring the success of knowledge management practice. This supports the early suggestions by Greengard (1998), Larson (1999) and Sveiby (1997) that creating a “friendly company”, as implemented by McKinsey Consultant’s Company, would encourage the knowledge workers to share and transfer knowledge effectively, despite their different backgrounds (i.e. race, religion, education, position etc.). This is because most of the respondents believed that knowledge workers needed to change their mindsets from not sharing knowledge towards a greater inclination to share. Feelings of inferiority and the fear of losing opportunities should not be uppermost in their minds. This seems particularly relevant in the Malaysian context, since the study shows that workers were not keen to share knowledge in the way anticipated in the SECI Model.

The overall impact of these findings on the company in general and knowledge workers in particular is that top management leadership plays a very important role in providing a suitable working culture for knowledge workers so that they are given power while being involved in team-based work and effective training programmes. At a glance, again human resource management is required to see things strategically in order to understand the company’s culture well before implementing knowledge management.

That is why one of the suggestions for further research is directed specifically to this factor (see Section 10.3: Directions for Future Research).

10.1.4 Research Question 4: What would be the role of human resource management in managing knowledge workers and helping knowledge management to meet its objectives to achieve competitive advantage?

In addition to the previous research findings (see for example Research Question Number 3 as above) the results obtained from the questionnaire survey and in-depth semi-structured interviews in response to the current research question support the early expectation that human resource management plays a vital role in ensuring the success of knowledge management practices. This offers further support for the work done by Hunter et al. (2002) and the recent articles by Hislop (2003) and Thite (2004). In this case, human resource management needs to make adjustments in order to conform to the current needs of business, i.e. sustainable competitive advantage. With respect to the resource-based theory, knowledge workers are the most efficient resources for a company's growth (Boxall and Purcell, 2003). Thus, human resource management must be viewed as the crucial element in aiding the effectiveness of managing these workers, especially the ability to utilise their knowledge effectively while they are still within the company.

In the findings presented in Chapters 6, 7 and 8, it was found that the main difficulty faced by human resource management is to keep the best knowledge workers in the company. For example, this was confirmed in the questionnaire survey by responses to the statement: *"I expect to work for a number of companies in my career"*. This was given the highest mean score compared to the other items. It was also confirmed that most of the respondents participating in the in-depth semi-structured interviews intended to leave their companies at some point in the future. In several

cases, respondents admitted that they had already been offered new jobs and planned to leave within two to three months, and furthermore, their bosses were yet to be told about this matter.

With regard to this, it has also been agreed that there is a need for a new way of managing and retaining these knowledge workers. This is due to the fact that these workers are no longer similar to others, such as production workers (Amar, 2002; Drucker, 1988; Horribe, 1999). However, the current scenarios in many of the Multimedia Super Corridor status companies are that their human resource managers are still very much administrators. For instance, they seem too busy focusing on hiring new workers, arranging payments to them, preparing meeting rooms, recording absentees from the punch card system, arranging meetings with heads of department, preparing monthly wages and compensation, etc. As mentioned earlier in the descriptive findings and results from in-depth semi-structured interviews, other than compensation and rewards, what the knowledge workers want is more closely related to their characteristics, as already discussed in relation to research question number 1.

In this view, the most crucial role that needs to be played by human resource management is to become strategic in fulfilling the needs of knowledge workers who are challenge seekers, prefer freedom and flexibility in completing their tasks, have enthusiasm in learning and are frequently headhunted. As reviewed in Chapter 3, practising strategic human resource management is not about it becoming the “best practice” for all. By and large, it depends more on specific individual company requirements (Boxall, 1999; Jackson and Schuler, 2000). The most important of these is the ability of strategic human resource management to support and ensure the effectiveness of the SECI Model (Nonaka and Konno, 1998) as well as the Knowledge Mapping Model by Soliman and Spooner (2000). In this case, strategic human resource management can maintain its role as a service

provider, but needs to assure that the services provided are in line with the company's business strategy. Here, strategic human resource management is the ability to strategically respond to the company's needs and to help the company to remain competitive (Anthony et al, 2002; Boxall and Purcell, 2002; Holbeche, 2002; Jackson and Schuler, 2000; Newell et al. 2002; Soliman and Spooner, 2000; Thite, 2004)

A further role is to get the right knowledge workers, ensuring that they are in the right position at the right place and with the right price. In other words, it is about recruiting, staffing and setting the organisational context for sharing knowledge. In the current research, it was found that the task of getting the right workers is usually approached through internal contacts. This situation could later lead to the scenario of headhunting of knowledge workers. Although headhunting could also bring benefits to the individual knowledge workers and the Multimedia Super Corridor cluster in general, its negative impact is nonetheless undeniable. For instance, it leads to the situation where the Multimedia Super Corridor status companies need to compete among themselves to find the best knowledge workers. And if this happens (as it does), then this will create an unhealthy working environment, which is undesirable for the Multimedia Super Corridor cluster and for knowledge workers as well as for the companies. Therefore, a special human resource policy is required in order to further guard against this kind of recruitment practice. It may be desirable for the Multimedia Development Corridor to look into this matter closely and provide a new memorandum of anti-free labour market and restrict knowledge flow among all Multimedia Super Corridor status companies. However, the researcher believes that further work on the role of the Multimedia Development Corporation is required in this matter; a Secondment Service is discussed in a later section of the chapter.

The next role to be played by human resource management is to provide suitable training programmes for knowledge workers' career development, which will later prove to be a plus for the company. Similarly, from the findings of research question number 3, training is crucial to allow knowledge workers to improve their knowledge (Cohen and Backer, 1999; McLagan, 1999; Ramsden et al., 2001; Rossett, 1999). This is even more crucial in the case of Multimedia Super Corridor status companies where knowledge of information technology is changing so fast. It is not appropriate for software engineers and computer programmers to have out-of-date knowledge about their areas, for example.

In agreement with Despres and Hiltrop (1995) and Hunter et al. (2002), human resource management needs to provide a competitive package for knowledge workers' compensation and rewards. Failure to do so would have a negative impact on the company, as in relation to the motivation theories, workers work for basic needs such as food, housing, leisure time etc. Great compensation is not necessarily required, but if too little is offered and rewards are few, then the knowledge workers are likely to apply for jobs elsewhere. In this case, it has been suggested that companies should be more strategic in preparing their packages. For example, one of the Multimedia Super Corridor status companies has practised what is known as "employee ownership", which all employees found satisfying. The scheme allows employees to become co-owners, i.e. partners of the company. This opportunity is usually offered to those who have performed well, especially in bringing profits to the company (Deakin et al., 2002; Holbeche, 2002; Redman and Wilkinson, 2001). In fact, employee ownership practice has been seen to act as a catalyst for organisational change, especially in meeting its mission and vision (Barbara, 1997; Deakin et al., 2002). Perhaps, it could also be concluded that by encouraging and supporting employee ownership plans, knowledge workers would stick longer to one company, as they would feel that they are also a part of the company. Thus, it will become

their responsibility to work with management in leading the company towards success. Other than that, strategic human resource management may look at the following issues in order to support the success of knowledge management implementation in the company: Firstly, providing opportunities for continuing challenges and planning personal route maps for individual knowledge workers. Secondly, providing opportunities for a healthy work-life balance, which gives equal priorities to life and work. Again, this is in disagreement with Hunter et al. (2002), who argued that work-life balance means "more life and less work". Thirdly, providing freedom and flexible management. All these findings are very much in keeping with those of Dora and Marks (2004) in their recent article on software workers in the United Kingdom context. They revealed that "...three aspects of the work-life boundary - time flexibility, organisational support for non-commitments with respect to their effect on career advancement in the company and low negative work-life spillover - were all associated with greater trust in the organisational commitment and extrinsic satisfaction" (p. 67), a situation which will keep knowledge workers longer in the company. In this view, it has been further suggested that strategic human resource management should have a close link with managers, employees and customers, i.e. a "HR Triad Partnership" (Jackson and Schuler, 2000), using knowledge management techniques to leverage their workers' knowledge, i.e. acting as "Strategic Business Partners" (Soliman and Spooner, 2000). They should also focus on employees' skills and work policies, and offer a supportive environment, performance measurement and market companies, i.e. the "Four SHRM Dimensions" (Sheppeck and Militello, 2000), and recently, the practice of people-centric partnership in knowledge management has been advocated, i.e. "HR Effective Strategies" (Thite, 2004). All these views are seen to best support the success of the SECI Model in transferring the valuable tacit knowledge owned by knowledge workers into an explicit form in which it is useful for the company's survival.

10.1.5 Research Question 5: What would be the role of Government Development Agencies, particularly the Multimedia Development Corporation, in ensuring the successful implementation of knowledge management in the Multimedia Super Corridor status companies in Malaysia?

At the time of compiling this chapter there were around 30,000 Malaysian knowledge workers overseas, and there was an urgent need for the government and the Human Resources Ministry to encourage them to return (see Appendix E for example). Thus, the findings of the current study came at the right time to provide further recommendations and assist the Multimedia Development Corridor in particular, the Malaysian government in general and any related authorities to invite knowledge workers to join the Malaysian workforce. The main intention is to retain them in the country in order to facilitate its development. With regard to this understanding and based on the findings discussed in chapter 9 and the literature review in chapter 4, a summarised answer to research question number 5 is as follows.

First of all, it was found from the interviews that the most common assistance given to Multimedia Super Corridor status companies by the Multimedia Development Corporation is in relation to immigration and work permits. Other than that, not many Multimedia Super Corridor status companies are aware of other facilities and benefits provided by the Multimedia Development Corporation. This could be due to the range of reasons for applying for Multimedia Super Corridor status. For instance, for established companies, Multimedia Super Corridor status is more important than the benefits offered, as compared to smaller companies, which would require the Multimedia Development Corporation's programme to help them to survive. Thus, more efforts are required to create awareness of all of these programmes and benefits for companies that are awarded Multimedia Super Corridor status. The next form of assistance mentioned is the

internship programme, provided by the Multimedia Development Corporation, which has been highly ranked in terms of supplying adequate numbers of knowledge workers to the Multimedia Super Corridor status companies. Most of the Multimedia Super Corridor companies shared the view that this programme should be long lasting, and that it is more effective for the Multimedia Development Corporation to have a direct link with higher education institutions rather than the company. With regard to this, reducing bureaucracy is a favourable way to ensure the effectiveness of this programme.

Apart from that, there is relatively little evidence regarding knowledge management implementation in the Multimedia Super Corridor status companies. It seems that this is the individual job of the company rather than the agency. However, the Multimedia Development Corporation still needs to create awareness and to introduce the concept of knowledge management, as defined in the current study, to all Multimedia Super Corridor status companies. It is not only about the latest technologies, but also the capability to utilise knowledge effectively within the company. This is in line with the current movement of the Malaysian government towards the knowledge-based economy as stated in the Knowledge Based Economy Master Plan (KEMP, 2002) and Five Strategic Trusts by the National Information Technology Council (NITC, 2001). All these policies require companies and workers to appreciate the knowledge that they have, and to share and transfer this knowledge within the company and across companies (see Chapter 4, Section Knowledge Based Economy). In this case, it is suggested that the agency should offer incentives or packages that would encourage the Multimedia Super Corridor status companies to participate in knowledge management implementation.

Perhaps, it could also be suggested that the Multimedia Development Corporation should assist Multimedia Super Corridor status companies to

upgrade their research and design (R&D) facilities and training programmes. Maybe more research grants should be awarded to Multimedia Super Corridor status companies that are in need. In this regard, the Multimedia Development Corporation should be more proactive in obtaining grants from the government and distributing them to those Multimedia Super Corridor status companies. By doing this, Malaysia's plan to become a "learning region" as emphasised in the Eighth Malaysia Plan (8MP), the National Vision Policy (NVP), the Knowledge-Based Economy Master Plan (KEMP), the Five Strategic Trust by the National Information Technology Council (NITC) as well as The Third Outline Perspective Plan (OPP3), can be achieved. This is because according to Morgan (1997: p. 501), "...learning, of course, is worth little if there are no opportunities to implement what has been learned..." So, the Multimedia Super Corridor is now becoming the focal point for knowledge creation and learning in the new age of globalisation, knowledge and intensive capitalism, as Malaysia is, in effect, becoming a learning region. This is because learning regions function as collectors and repositories of knowledge and ideas, and provide the underlying environment or infrastructure that facilitates the flow of knowledge, ideas and learning (Cooke, 2001; Kostiainen, 2002).

Other than that, the Multimedia Development Corridor should also create a suitable platform for introducing the Multimedia Super Corridor's services and products to the worldwide market. It is hoped that these efforts may motivate companies in general and knowledge workers in particular to become more competitive. Involvement in national and global competition might not be enough; exposure to the real world business scenario is more important. This means that even though a product or service has been recognised as the most prestigious and innovative, if no profit can be made from it, then it will still be considered less effective with

regard to the success of the company. In addition, the important thing here is that the product and/or service must be practically accepted by the customers. In this view, the mentorship programme introduced by the Multimedia Development Corporation, which connects any potential company with an international company, helps local Multimedia Super Corridor companies to survive nationally and internationally.

In addition, the agency would also need to anticipate the role of human resource management, as it is crucial for implementing knowledge management and encouraging knowledge workers to accept it as a part of the working culture. Thus, the agency should look into providing a related human resource management policy in order to support and/or encourage knowledge management activities. Again, looking at the findings raised in research question number 4, it has been suggested that strategic human resource management will be most appropriate approach for all Multimedia Super Corridor status companies (see, for example, Research Question 4 and Chapter 3, Section 3.4). In this case, looking seriously at the issue of knowledge workers being head-hunted within the Multimedia Super Corridor status companies may solve the current problem faced by human resource management, i.e. how to retain their top knowledge workers. The secondment service could be the best alternative to stop this occurrence. Secondment is now seen as an alternative way to prevent companies from stealing workers from others (St. Edmunds, 2003). This service is defined as “the deployment of an individual from one related employer to another on a temporary basis, with eventual return to the first employer anticipated, often referred to as the loan of an employee. A seconded individual does not change payrolls; instead, the receiving company reimburses the sending company for the individual's employment costs or pays some other type of fee or cost-plus arrangement” (Lewis, 2002: p. 321). Furthermore, according to Richard King, Manager of ISS Group Services Ltd., “secondments open the doors to

first-hand knowledge and experience that you can't get from a text book," (cited in Natasha, 2000: p. 1). Given the benefits offered to the company and the opportunity for individual workers to become more competitive and attain greater job satisfaction, this approach should be recommended to those companies that usually have difficulties with shortages of workers (Lewis, 2002; Natasha, 2000; St. Edmunds, 2003).

In addition, conducting a thorough survey of suitable management approaches in smaller companies, which now form the majority of the Multimedia Super Corridor status companies, would help the Multimedia Development Corporation to provide further suggestions on how these companies can survive longer in the competitive world and retain their Multimedia Super Corridor status. Furthermore, this effort is not seen to interfere with the individual Multimedia Super Corridor status companies, but to help them to grow together and compete better. In this view, it would be beneficial to introduce the knowledge management concept to all Multimedia Super Corridor status companies.

A further issue is that the Multimedia Development Corporation needs to look at the matter of relocating all the Multimedia Super Corridor status companies to the Multimedia Super Corridor areas. Most of the participating Multimedia Super Corridor status companies view this idea unfavourably. Cost has become the main barrier to moving to the Multimedia Super Corridor areas such as Cyberjaya, Bukit Jalil Technology Park, KL Twin Towers and MTDC UPM (see for example Chapter 4). Furthermore, according to Armstrong and Taylor (2000), relocating companies to the required areas might not be the best idea as it will distract them from their business activities and could potentially cause the companies to lose their customers as well as their successful, established markets. The most important issue here is that building Multimedia Super Corridor status companies must be compatible with the Malaysian business culture and

needs. In the information technology era, Multimedia Super Corridor status companies can be operated from any part of the country. Finally, the Multimedia Development Corridor also needs to take a second look at the current definition of knowledge workers that it has provided. This is because, as mentioned by most respondents, a further refinement of the definition is required in order to provide the true picture of the current scenario of knowledge workers in Malaysia.

10.2 Contribution to Theory and Practice

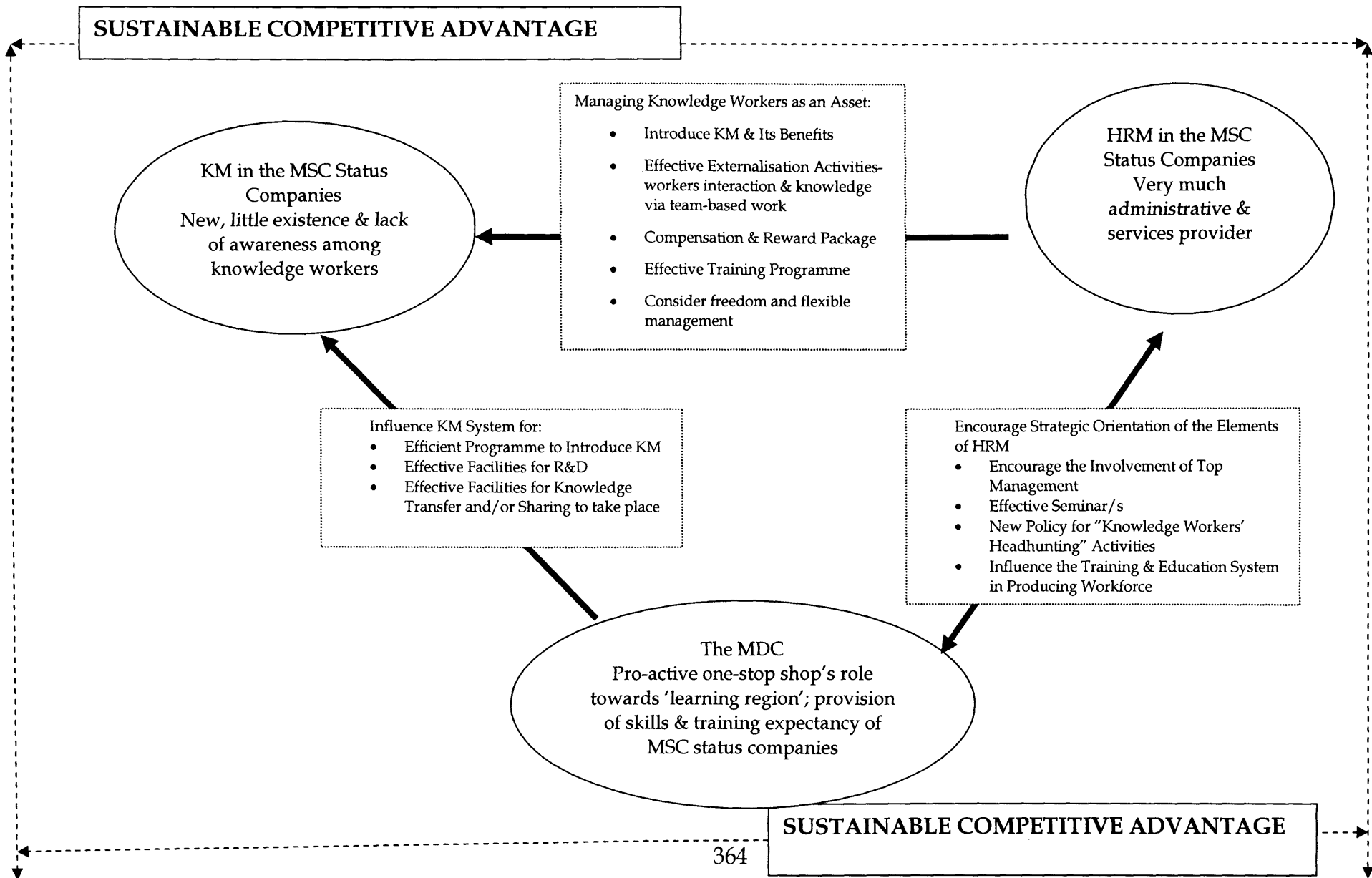
Currently, there is a great amount of literature on this subject, mostly drawn from the developed countries such as the United Kingdom, Australia, Germany and the United State of America. However, less work has been done on this issue in Malaysia. Thus, the main purpose of this study is to help fill this gap. The findings of this study provide the reader with a better understanding of current issues related to the knowledge workers and their readiness to work towards a developed nation. In addition, it is a means of enhancing our understanding of knowledge management in the Multimedia Super Corridor status companies and developing a framework for identifying good working practices.

The valuable findings derived from the current study are, firstly, that knowledge management is about workers' interaction and the transfer of knowledge between them. In particular, what has been learned from this study, as shown in Figure 10.2(a), is that human resource management is the key in informing the nature of workers' interaction within the company (i.e. team-based work). In fact, it is potentially also central in terms of providing training and development of knowledge workers' knowledge. Apart from that, human resource management is responsible for planning efficient programmes for selecting and recruiting knowledge workers, as well as preparing competitive compensation and rewards packages. At the same time, the Multimedia Development Corporation may have little

influence on knowledge workers' interaction, but potentially, perhaps, it can influence the processes of knowledge management and elements of human resource management in managing knowledge workers. Presumably, the Multimedia Development Corporation can at least influence the training, schooling and education system to ensure the production and adequate supply of the knowledge workers required by the country in general and Multimedia Super Corridor status companies in particular.

Looking at the earlier overall findings of the current study, knowledge and knowledge workers are seen as the most important sources of a company's success and achievement of higher performance. This finding supports the resource-based theory, which emphasises that companies should become "rent seekers" with regard to these resources (Barney, 1991; Kor and Mahoney, 2000; Olavarrietta and Ellinger, 1997; Wernerfelt, 1984 and 1995). By taking this approach, the company needs to realise the advantages of appreciating and securing the current knowledge that its knowledge workers have. In this view, having the optimum understanding of who exactly knowledge workers are and how they act may assist the company in providing a proper working policy as well as a suitable working environment in which the knowledge workers can contribute their best efforts.

Figure 10.2(a)
The Relationship between Knowledge Management, Human Resource Management and the Multimedia Development Corridor



Therefore, the current study extends and empirically examines work done by Tampoe (1992), Horribe (1999), Suk Choi (2000) and Hunter et al. (2002). The current study proposes several alternatives for defining knowledge workers, which may better suit the Malaysian context. Each of the alternative definitions can be accepted under certain circumstances. If the Malaysian government needs to address the limited number of knowledge workers and tackle a genuine shortage of these workers, then it has been suggested that the term “knowledge workers” could only be applied to Malaysian professionals, as described in the government definition (see Section 10.1.1 Research Question One). If all workers are valued as knowledgeable, then they should all be called knowledge workers as long as they are willing to learn and unlearn things, which later contribute towards adding value to the company. This finding is consistent with the most recent work done by Thite (2004) on managing knowledge workers in the Australian context and emphasises that all workers are knowledgeable. Alternatively, knowledge workers can also be defined specifically according to the needs of each industry (i.e. agricultural, manufacturing, education and high-tech etc.) and sector (i.e. public and private sectors). Overall, these definitions seem to be distinct from the previous research, which focused very much on information technology as the framework for defining knowledge workers (see for example Chapter 2, Section 2.3).

Apart from that, the characteristics of knowledge workers, revealed in the current study, confirmed the earlier works of Amar (2002), Tampoe (1992), Hunter et al. (2002), Drucker (1988 and 1998) and Darr (2003), which concluded that they are unique in the sense that they need to be managed in a new way. In fact, this information adds to the body of knowledge regarding this group of workers in the Malaysian context, which is yet to be fully explored. Past researchers have focused mainly on the managerial view of knowledge management. For example, Yahya and Goh (2002) conducted a similar study, focusing only on human resource managers in the Klang

Valley (i.e. the Kuala Lumpur area). Their survey results are limited to managerial views and do not encompass the opinions of knowledge workers. In fact, the current study has also extended their work by providing in-depth interview findings from the respondents, which have made it possible to cross check the earlier views on the little-implemented practice of knowledge management.

The current study not only confirms the relationship between knowledge management and human resource management, but also provides a list of roles to be taken by strategic human resource management as stated earlier (see for further details, Section 10.1.4). The current study also supports the findings on the importance of compensation and rewards to knowledge workers by Hunter et al. (2002) and Despres and Hiltrop (1995). At the same time, it provides evidence for the relationship between the knowledge workers and motivation theories such as Maslow's Five Hierarchies of Needs Theory and McGregor's Theory X & Y. This study also further supports the applicability of human capital theory in describing the importance of education and training to knowledge workers. This could be due to the background of the participating companies, which are high tech companies. In agreement with Becker (1993), the need to be up-to-date with fast-changing information technology and skills requires knowledge workers to have a life-long approach to learning and the ability to pursue their education and training. Overall, reflecting on human capital theory, motivation theory, knowledge-based theory and the resource-based view, as discussed in Chapters 2 and 3, the fact that knowledge is the primary characteristic of knowledge workers proposes better ideas for the relevant authorities in general and the company in particular in terms of how to manage and motivate knowledge workers effectively.

The next contribution of the current study is also seen in its further analysis of the applicability of the SECI Model (Nonaka and Konno, 1998) in the Malaysian context. Thus, the current study, which is similar to the work of Suk Choi (2002), has had the opportunity to provide findings on the perception of the importance and implementation of knowledge management by knowledge workers. However, in contrast to Nonaka and Konno (1998), even though most of the knowledge workers showed a strong awareness of the importance of knowledge management, sharing knowledge via socialisation activities is not particularly favoured by knowledge workers in Malaysia. They show a greater preference for the externalisation process. This means, from the local context point of view, that knowledge workers will only share their knowledge with others when they are explicitly told to do so. This could be due to their concerns about personal performance, or they may be expecting rewards at the end of the day. Overall, the following can be learned from this model: firstly, the SECI Model is particularly important in appreciating and focusing on tacit knowledge among knowledge workers. Secondly, although the model cannot be generalised to explain how the Malaysian knowledge workers share their knowledge, it still encourages continuous learning and innovation in order to enable knowledge workers to contribute towards competitive advantage. Thirdly, the importance of managing a proper “*ba*” for knowledge creation within the company will assure the full participation of knowledge workers, especially during the externalisation process. And this clearly link to issues of human resource management. Therefore, these findings, as illustrated in Chapter 6 and 7, benefit the policy makers and the Multimedia Development Corporation in observing the steps taken by the Malaysian high tech industry towards becoming knowledge-based. Furthermore, as shown in Figure 10.2(a), the Multimedia Development Corporation could provide ideas via human resource management with regard to how the Multimedia Super Corporation status companies can best utilise the externalisation process, as mentioned in the SECI Model, to manage this group of workers

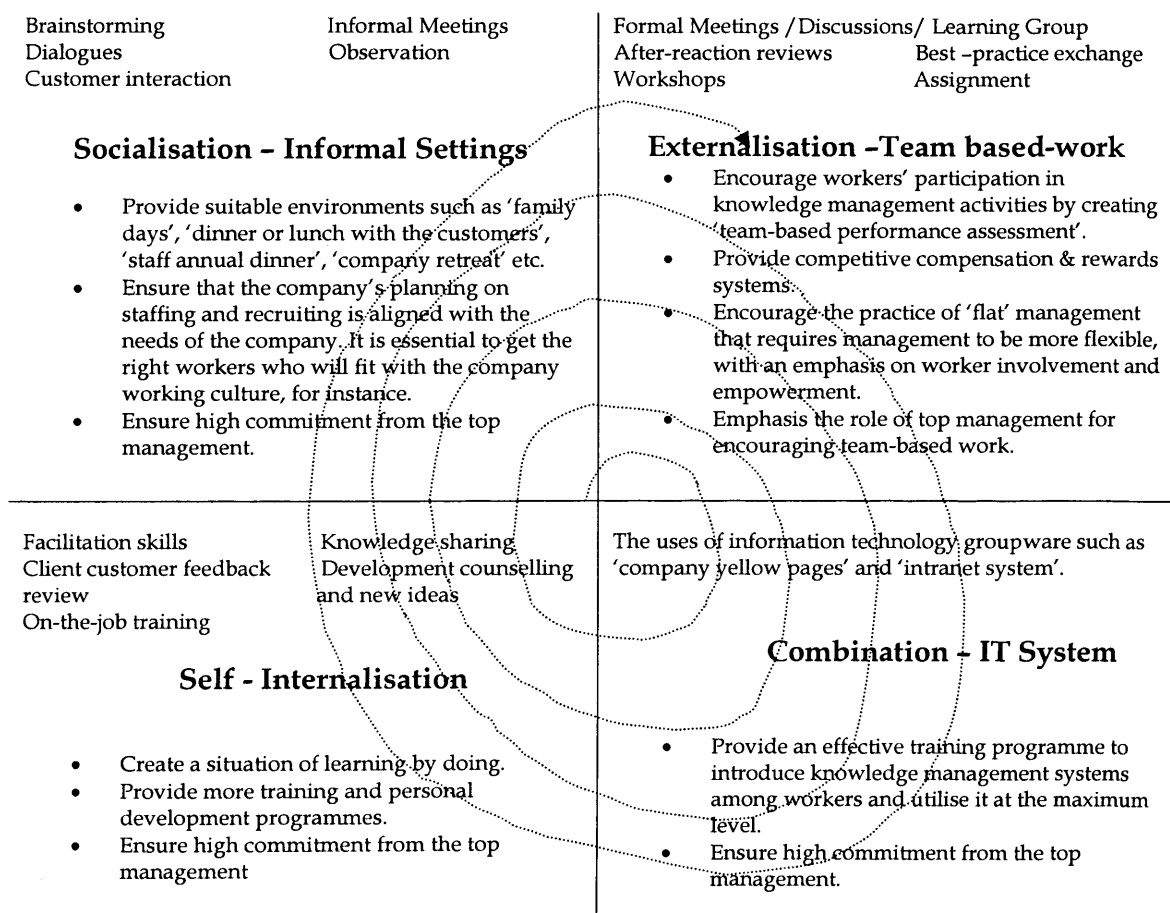
effectively. For instance, encouraging small team based work in completing any programming project will encourage knowledge workers to share more than will individual tasks. As well as discouraging individual competition among knowledge workers, this effort could encourage a more “family-friendly” working environment and create greater harmony in the company.

Furthermore, up until now, little research has been conducted on knowledge workers, knowledge management and human resource management (Thite, 2004; Yahya and Goh, 2002). Therefore, this research provides a way for human resource management to assist knowledge management in leveraging the knowledge that resides in workers’ minds. In relating to the SECI Model by Nonaka and Konno (1998) and to the work of Soliman and Spooner (2000), this study has further argued that the assumption of human resource management as a service provider no longer suits the current needs of the business scenario. Apart from that, even though it has been concluded that human resource management in the knowledge-based era needs to become a strategic business partner in supporting the processes of the SECI Model, “knowledge mapping”, as outlined by Soliman and Spooner (2000), may not be sufficient to explain the reality of how strategic human resource management can work with knowledge management. This is due to limitations in terms of how exactly human resource management can monitor, measure and influence activities such as the construction, dissemination, use and embodiment of knowledge workers’ knowledge, from the SECI Model perspective. Thus, the current study in particular presents further crucial empirical evidence for the specific roles to be played by human resource management, as stated in research question number 4 and Figure 10.2(b).

As shown in Figure 10.2(b), human resource management in a company needs to support knowledge management in terms of providing an effective informal settings for socialisation activities; followed with a great attention

given to the crucial importance of team based work during externalisation process, especially providing competitive initiatives and 'flat' management for knowledge workers to share more. Apart from that, human resource management needs also to assure the readiness of an information technology system for knowledge workers to leverage their knowledge efficiently during combination process. Finally, a main concern also needs to be considered at the requirement for knowledge workers to improve themselves via self - internalisation (i.e. Training Programme in the company). Having said this, perhaps compensation and rewards are not the only crucial factors, as reported by Despres and Hiltrop (1995) and Hunter et al. (2002): several more findings, such as training, flexibility, freedom, work challenges etc. are also potential factors that should be considered

Figure 10.2(b)
The Relationships between Knowledge Management and Strategic Human Resource Management in Appreciating Tacit and Explicit Knowledge of Knowledge Workers



This study also confirms the work done by Von Krogh (1999), who said that many companies are still lacking in knowledge-based theory. Thus, this study could also assist the same parties in supporting the Multimedia Super Corridor status companies to provide information technology based initiatives while at the same time creating awareness of the benefits of knowledge management that could lead the Multimedia Super Corridor status companies towards achieving sustainable competitive advantage. In this view, as mentioned frequently, this study takes a step further in assisting the Malaysian government to identify the potential recommendations for the future success of the country, especially in achieving Vision 2020.

It is expected that the Malaysian government would give continuous support to the Multimedia Super Corridor status companies via its development agency, namely the Multimedia Development Corporation. Support should be given to the role of human resource management in assisting the successful implementation of knowledge management in the Multimedia Super Corridor status companies. Other than that, providing more research grants for R&D would be helpful in terms of enabling small sized companies to survive in the knowledge based economy. Moreover, a further role of the Malaysian government could be to assure that the end objective of creating the Multimedia Super Corridor is realised (see for example Section 10.1.5 Research Question Number Five).

Overall, with regard to resource-based theory, knowledge-based theory and the SECI Model applied in this study, it has been found that the first two theories are relatively static. They do not necessarily encompass change very well. By introducing the importance of human resource management and in particular knowledge workers, the researcher has forwarded the notion of investment and change in resource-based theory. Apart from the problem of the attainable resources not being sustainable, there is thus a need for

continuous support in becoming strategically dynamic. This can be achieved by focusing on knowledge as the superior resource. This then leads to the dynamic capabilities emphasised by Teece et al. (1991). Thus, by developing capabilities based on a sequence of path-dependent (continuous) learning, firms can still stay ahead. Hence, the current research suggests that the issue of dynamic capabilities is very important and that another theory is needed to back up this work. Thus, the SECI model in this research is again broadly consistent, but by introducing human resource management into the picture, it has emphasised the importance of context, which Nonaka and Konno (1998) referred to in terms of *'ba'* and emphasised across socialisation, externalisation, combination and internalisation, depending on context. It has been seen that the preferred *'ba'* among Malaysian knowledge workers is the externalisation process, in contrast to the Japanese, who favour the socialisation process.

With regards to this, several useful comments were made by the respondents during the in-depth semi-structured interviews. Most of the quotations were directed to the needs and importance of conducting this type of study. A suggestion for a future study was also made, and there were comments on the role of the Multimedia Development Corporation. The Vice President of a large company emphasised that the need to conduct this research is due to the current demand for knowledge workers to contribute to the national development. He said:

“...I think you are right because we have to mould knowledge workers from our [own] perspective and fit with our longer term vision, that is Vision 2020. And if we talk about having a balanced community, it starts with the individuals, and if we truly believe that the knowledge workers are the catalysts for knowledge generation and innovation for the country, which allows economic and global creation, then these are the people who are going to be the industry leaders, who are going to be political leaders, who are going to be...you know...corporate leaders and so forth. So they must be the ones who have the desired values, you know...[and]...Vision 2020 would be the guidelines...” (R11, Page 2, line 9-21, Vice President with 18 years' working experience)

In a similar case, a Research Director pointed out the current research's concern for providing high value information, especially with regard to understanding knowledge workers and how to manage them effectively.

He said:

"I think you have taken a right step because as Malaysia moves towards the knowledge economy, managing our resources, human resources I mean, is not the same as managing back in old days. You cannot manage knowledge workers as a piece of nothing, like ordinary people. Yes, they are a bit different, I must say..." (R10, Page 1, line 4-8, Research Director with 17 years' working experience)

In agreement with the above, the Associate Director of a consultant company commented that:

"I think I can speak safely about consulting. Most of our staff are multi skilled ...all right? So when they are multi skilled, you need to have an ingenious way of managing them because you cannot apply the same technique to the same staff...'Different strokes for different folks...you really have to see how they come in, they [these knowledge workers] want to know how you can improve things, they want a faster way of doing things. They are really primed to move to that...[and]...then, we find that we really very much enjoy working with the young set as well. Because they keep us motivated, keep us going, you know, searching for new things. They give us ideas as well, but we come up with the experience. So, this is what we call the 'Clips and Mortals Business'. The clips are the young people and the mortals are people like us, who have been through...you know...good times, bad times. We have gone through the experience cycle. So we either appreciate whether something works or not in the market..."(R49, Page 1, line 5-18, with 20 years' working experience)

In another case, a Human Resource Manager emphasised the need for this study by saying that:

"This research came at the right time. My opinion: this is very challenging. It is even more challenging than if you are working in the non-IT industry...They [knowledge workers] are educated, they know their rights, and they know they are not easy to convince because they have a certain level of knowledge there. So, in order to outwit them, you have to be more knowledgeable than them...So, it makes you work harder, you see. It is harder..." (R6, Page 6, line 19-23, Human Resource Manager with 14 years' working experience)

Furthermore, a Knowledge Management Manager highlighted the contribution of this study to the company in general and the nation in particular. She said:

“Yeah...you are looking at knowledge workers. I think this is good, because not many people have worked on knowledge workers, and besides, your focus is on the Multimedia Super Corridor status companies...so from your findings, I am sure that you will get a better picture of the definition of knowledge workers ...so one of [the] contributions of your study is that, right...” (R15, Page 4, line 7-11, Knowledge Management Manager with 11 years’ working experience)

And finally, a Director of Marketing and Business has commented that the role of the Multimedia Super Corridor and the government in reducing bureaucracy could smooth the intention to make the Multimedia Super Corridor a worthwhile growth engine for the country.

“Ultimately, you know Malaysia is a beautiful country, has a lot of natural resources, and has a lot of good things going for it. Infrastructure: excellent, you know, as long as they can sort out all the bureaucracy, I think it will be all right...” (R20, Page 5, line 15-16, Director of Marketing and Business with 10 years’ working experience)

Overall opinions showed that the contributions of the current study to the theory and practice are undeniable. The current study provides answers to the questions that many companies, managers, knowledge workers, government agencies and individuals could already have. Thus, these empirical findings provide evidence that will enable the relevant authorities to move forward in making the Multimedia Super Corridor the growth engine for the country’s success. Without doubt, knowledge is the critical issue nowadays for the individual workers in a company. Thus, to appreciate, use and take advantage of it could be the main concern for all. However, the view that knowledge workers may share their knowledge voluntarily may no longer be acceptable. Being the most critical asset of the company, they are now ready to bargain with the knowledge that they possess. This presents a further challenge for the companies, which need to see this scenario from the positive side and offer further support to enable

knowledge workers to leverage their knowledge to others at the maximum level while they stay in the company.

10.3 Limitations and Future Directions

As a whole, in the midst of all efforts to understand human resource management issues pertaining to the management of knowledge workers in Malaysia, the snapshot provided by the current research has revealed several tensions, as mentioned below. Thus, further directions have been suggested in order to obtain more rigorous findings.

As described in Chapter 1, this study was confined to knowledge workers within the Multimedia Super Corridor status companies. Thus, as seen in Chapter 5, the issue of generalisation represents the main limitation of this study. No inferences are made with regard to knowledge workers from other industries and sectors such as manufacturing, agriculture, and the public and private sectors. Therefore, there is a need to obtain a more comprehensive description and development of knowledge management by involving workers from different industries and across sectors. Their views may indicate further the need to adapt the practice of knowledge management. Moreover, comparative studies among sectors and industries are suggested in order to enhance the findings of the current study.

Another issue is that most participating companies were small in size; thus, bias could emerge when applying the findings to larger, well-established companies. There is a need to replicate the same study using the large Multimedia Super Corridor status companies and to analyse whether the findings are consistent with those revealed in the current study. Moreover, it is expected that the findings on the role of human resource management in supporting the implementation of knowledge management in larger companies would be different from those in the current study. It might be interesting to gather the opinions of knowledge workers from large and

well-established Multimedia Super Corridor status companies, even though they may be fewer in number than the small companies.

With regard to the methods used in data collection, the findings are limited to the questionnaire survey and in-depth semi-structured interviews. It might be useful to suggest the use of another qualitative method such as a focus group interview with knowledge workers and participant observation in several Multimedia Super Corridor status companies. Gathering a few groups of knowledge workers to discuss the current issues related to knowledge management and human resource management would be interesting and also challenging. Also, valuable results could be obtained by becoming a participant in a Multimedia Super Corridor company for a long period of time and observing how the company works and what its actual working relationships are. Another important issue that was not included in this study is the relationship between culture and performance aspects. It could be suggested that future research could try to relate the impact of knowledge management implementation on the company's working culture to the company's performance from the local context. Perhaps a cost-benefits analysis could be conducted in a company that implements knowledge management.

As this is only an exploratory study focusing on the local context, it has been noticed that the current research is still lacking a study of networking and innovation among knowledge workers. Therefore, it is important to understand exactly how knowledge transfer actually takes place and how knowledge workers actually share their knowledge. Clearly, further research is required to investigate how these activities actually support knowledge management implementation within the company. In this case, according to Robertson et al. (2000), longitudinal research could be applied in order to develop these findings and to provide a continuous understanding of knowledge and learning in the company.

In addition, it would be fruitful to carry out further comparisons of male and female knowledge workers (i.e. a gender study). These findings may support the earlier findings on the flexibility and freedom of management required by most knowledge workers. A future study could look at whether or not teleworking as one approach to flexibility is really appropriate to the Malaysia working environment. If not, is there any other way to practice freedom and flexibility in the knowledge management context as required by most knowledge workers? In addition, a study on flexible management is recommended in order to gain a clear understanding of what flexible management really means and whether it focuses only on flexible working hours. In this case, an explanatory research design is deemed to be advantageous in testing for “cause and effect” relationships (Zikmund, 1997) such as flexibility, freedom and teleworking drives in relation to knowledge management practice.

10.4 Summary

In conclusion, completing the current study has given the researcher a number of experiences that will be of value in conducting future research of this type. By meeting people from diverse backgrounds and different positions, the researcher has learned much about the ability to deal and communicate well with people. This, along with the fact that so many people were willing to help the researcher, increased her self-confidence. From the research perspective, the researcher gained experience in how to initiate the research process, analyse the findings and write up the final report. Also, the researcher realised the importance and the need to conduct this research, particularly after receiving much positive feedback and support from several of the respondents involved in the fieldwork. As a matter of fact, knowledge workers themselves agree that it is vital that companies have an optimum understanding of how to manage this new group of workers. Also, it is important for knowledge workers to know how best to contribute in order to add value to the success of their companies. Therefore, it is hoped that the

findings of this research will contribute to the researcher's own understanding, the country in general and the companies in particular.

Furthermore, along with continuing to support Malaysia towards the status of a developed nation by the year 2020, the Malaysian government needs to strengthen its human resource development function. What is currently happening in most companies is the realisation of the idea that people are their most important resource. They have realised that managing this resource well is critical for their success and ultimately, their survival. They have also realised that in order to gain a competitive advantage, they will have to perpetually attract, train, motivate and retain a highly competent group of staff. Therefore, there is a further question with regard to how this can be done successfully. Companies capable of doing this effectively will inevitably be the survivors. This is a fundamental issue, and therefore, achieving excellence must to a large extent be dependent on the company's human resource management philosophy, especially with regard to the issue of assisting in the management of knowledge in the company (see for example the summaries of Chapters 6, 7 and 8). Thus, attracting and retaining skilled workers is both a priority and a problem for companies such as those that make up the Multimedia Super Corridor. This can be achieved by promoting the formation of a unique style of human resource management that allows companies to manage and leverage their workers' knowledge for the sake of achieving success and a competitive advantage. It needs to be recognised that knowledge workers represent the core asset of the economy in the 21st Century: they hold the key to the success of companies, and human resource management has to take this seriously.

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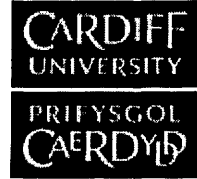
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Appendix A
(Survey Questionnaire)

MANAGING KNOWLEDGE WORKERS: A SURVEY ON MSC COMPANIES



Dear Respondent,

I am a Research Student at Cardiff Business School, University of Wales Cardiff. My research is investigating the HRM issues pertaining to the management of knowledge workers with special reference to Multimedia Super Corridor (MSC) companies in Malaysia. The research effort is supervised by **Professor Rick Delbridge (*Organisational Analysis*)**, **Dr. Max Munday (*Economic Development*)** and **Professor Jon Morris (*Regional Development*)**. In this connection, I intend to collect information about the overall perception and opinions of knowledge workers of the current practices of Knowledge Management and its future development in Malaysia. Also to see where Human Resource Management fits in the Knowledge Management processes and to make recommendations as to whether organisations in Malaysia should adopt this new paradigm of business. In either case, the information gathered in this research will be used only for academic purposes and treated in the strictest confidence. No comment will be attributed by name to a company or individual.

The survey will not take long to complete. The questions require you to circle a number beside the appropriate answer. There are no right or wrong answers; it is your opinions that are being sought. **Please complete the survey as fully as you can. It would be helpful if you could return the completed questionnaire within the next two weeks please, to our liaison officer within your company.** Your responses to this questionnaire will be of significant value in terms of completion and execution of the research as well as achievement of its objective.

If you need help or want to know more about the survey, please feel free to email me at Norzanah1204@yahoo.co.uk.

Many thanks for your help.


Norzanah Mat Nor
Cardiff University, UK

Co. REF :

EXPLANATIONS

What will happen with your data?

Your data will be treated with strictest confidentiality, will only be used for the purposes of this study and presented in anonymous or aggregated fashion. A disregard of these principles would not only violate the requirements of scientific rectitude/honesty, but also the ethics of our institute.

What advantages do you have from participating?

You can check at the end of the questionnaire if you want a copy of the Abstract of the findings. This provides you with an exclusive overview of the status of knowledge management in Malaysian industry. In answering, you will automatically review the problems involved intensively, perhaps even receive new stimuli. Thus, you will be of great help to national development.

Criticism/Inquiry

Please note down any queries or remarks you may have on any questions or the questionnaire as a whole directly on the questionnaire. Should you require further clarification regarding the survey, please contact:

Norzanah Mat Nor
Cardiff Business School
Cardiff University, Wales United Kingdom
Telephone : [UK] +44(0)29 20874410 /[MAL]+603 40247403
Fax : [UK] +44 (0)29 20874419/[MAL]+603 40247403
E-mail:
NORNM@cf.ac.uk or Norzanah1204@yahoo.co.uk

Note: For this questionnaire, the following definitions apply:

KNOWLEDGE MANAGEMENT (KM)

KM involves any process related to the capture and sharing of knowledge by the company. It is 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.

KNOWLEDGE WORKERS (KW)

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 master degree or higher in any discipline"
[Multimedia Development Corporation, Malaysia, 1999]

**PLEASE COMPLETE AND RETURN THIS QUESTIONNAIRE TO THE
LIAISON OFFICER IN YOUR COMPANY.**

CONFIDENTIAL

SECTION A:

The followings questions are designed to obtain demographical information about you and your organisation.

Instruction: Please tick (✓) the appropriate boxes.

A1. Please indicate the type of company for which you are currently working:

- a). Software Development, Internet Based Business and Content Development
- b). Production/Post/Animation
- c). Data Centre/Support Centre/Heavy User
- d). Consulting, Education and Training

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A2. Please indicate the total number of workers in your company (approximately).

- a). 10-100 workers
- b). 101 – 200 workers
- c). 201 - 300 workers
- d). 401 – 500 workers
- e). More than 500 workers

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A3. How long you have been working with this firm? _____ years

A4. Please indicate your role in the organisation.

- a). IT Officer
- b). Non IT Officer
- c). IT Manager
- d). Non IT Manager
- e). Top Management

☐
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A5. Please state your gender:

- a). Male
- b). Female

☐
☐

A6. What is your age?

- a). 20 – 29 years old
- b). 30 – 39 years old
- c). 40 – 49 years old
- d). 50 – 59 years old
- e). Over 60 years old

☐
☐
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A7. Your ethnic background:

- a). Malay
- b). Chinese
- c). Indian
- d). Others (please specify) _____.

☐
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A8. Please indicate the highest level of academic qualification you have obtained.

- a). Diploma
- b). Bachelor Degree
- c). Master Degree
- d). PhD
- e). Others (please specify) _____.

☐
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SECTION B:

The following statements describe various issues of Human Resource Management Issues.

Instruction: Please circle the degree of your agreement with each statement using the following scale.

B1. Experience on your latest assignment

How do you rate your experience on your latest completed major work assignment

No.	Statements	Degree of Agreement
1.	This assignment helped me to learn and to grow.	1 2 3 4 5 Strongly Disagree Strongly Agree
2.	My work was interesting and challenging.	1 2 3 4 5 Strongly Disagree Strongly Agree
3.	My work made good use of my knowledge and ability.	1 2 3 4 5 Strongly Disagree Strongly Agree
4.	When tasks were assigned to me I understood thoroughly what was expected of me.	1 2 3 4 5 Strongly Disagree Strongly Agree
5.	I had the freedom to make the necessary decisions to do my work properly.	1 2 3 4 5 Strongly Disagree Strongly Agree
6.	I received PROMPT feedback on my work, good or bad.	1 2 3 4 5 Strongly Disagree Strongly Agree

B2. Knowledge Sharing

No.	Statements	Degree of Agreement
1.	Senior staffs are too busy to reflect on their experiences and share them.	1 2 3 4 5 Strongly Disagree Strongly Agree
2.	Senior staffs are too busy to reflect on their experiences and share them.	1 2 3 4 5 Strongly Disagree Strongly Agree
3.	The firm has a well organised system for sharing knowledge (e.g. about clients, managing projects, new approaches) <i>across</i> departments or practice areas.	1 2 3 4 5 Strongly Disagree Strongly Agree
4.	I am encouraged to share with others what I have learned from my recent assignments.	1 2 3 4 5 Strongly Disagree Strongly Agree
5.	The firm has a well organised system for sharing knowledge (e.g. about clients, managing projects, new approaches) <i>within</i> departments or practice areas	1 2 3 4 5 Strongly Disagree Strongly Agree

B3. Personal Development

No.	Statements	Degree of Agreement
1.	The firm provides me with a well structured training and development programme.	1 2 3 4 5 Strongly Disagree Strongly Agree
2.	It allocates a generous amount of time for my training.	1 2 3 4 5 Strongly Disagree Strongly Agree
3.	After the training programme, I had the necessary skills to do the job more efficient.	1 2 3 4 5 Strongly Disagree Strongly Agree
4.	I believe I could successfully undertake higher level tasks if there was more effective delegation.	1 2 3 4 5 Strongly Disagree Strongly Agree
5.	The team in which I work provides a supportive learning environment.	1 2 3 4 5 Strongly Disagree Strongly Agree

B4. Performance Appraisal

No.	Statements	Degree of Agreement				
1.	My performance is appraised fully at agreed regular's intervals.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
2.	Sufficient time is allowed for proper appraisal to be provided.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
3.	Informal, frequent discussion with my colleagues about my performance is more helpful than formal appraisal.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
4.	I am given clear and realisable objectives for the development of my skills and knowledge.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>

B5. Rewards

No.	Statements	Degree of Agreement				
1.	Salary increases in the firm are based on ability and how well you do your work.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
2.	Fairly rewarded for the amount of effort put in the job.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
3.	The team as a whole should be rewarded for good work.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
4.	The interest of the work I do compensate for long hours and a stressful workload.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
5.	The offer of a bit more money with another employer would not seriously make me think of changing my job.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
6.	Teamwork in this firm is fully recognised and rewarded.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>

B6. The Future

No.	Statements	Degree of Agreement				
1.	I expect to work for a number of companies in my career.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
2.	I would prefer to stay with this firm for as long as possible.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
3.	If I do not continue to gain promotion, it will be made obvious that I should leave the firm.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>
4.	I am comfortable with the culture and values of this firm.	1 <i>Strongly Disagree</i>	2	3	4	5 <i>Strongly Agree</i>

SECTION C:
The importance and implementation of Knowledge Management

Instruction: Please complete the two scales for the importance and the degree of the implementation of the factors described below. Indicate your **perception of the degree of importance for each statement to the successful implementation of Knowledge Management in your organisation.** Use the degree of implementation scale to indicate the extent that Knowledge Management has actually been implemented in your organisation.

[IMPORTANCE]

5 = Very Important
4 = Important
3 = Moderately Important
2 = Minor Importance
1 = Not Important

[IMPLEMENTATION]

5 = Extensively Implemented
4 = Implemented
3 = Moderately Implemented
2 = Little Implemented
1 = Not Implemented

No.	IMPORTANCE	FACTORS	IMPLEMENTATION
C1.	1 2 3 4 5	A formal system that allows for contribution of every employee's opinions or suggestion towards Knowledge Management.	1 2 3 4 5
C2.	1 2 3 4 5	Policies to egalitarian and/or equal culture to improve the quality of work life towards Knowledge Management.	1 2 3 4 5
C3.	1 2 3 4 5	Top management leadership and commitment towards Knowledge Management.	1 2 3 4 5
C4.	1 2 3 4 5	Top management encouragement toward utilization of Knowledge Management system.	1 2 3 4 5
C5.	1 2 3 4 5	Adequate budgeting or funding to support Knowledge Management projects.	1 2 3 4 5
C6.	1 2 3 4 5	Reformulation of any rules (i.e., personnel policies) that obstruct the implementation of Knowledge Management.	1 2 3 4 5
C7.	1 2 3 4 5	Minimisation of hierarchical and bureaucratic procedures of effective Knowledge Management.	1 2 3 4 5
C8.	1 2 3 4 5	Documentation of the most operating rules, policies and procedures for Knowledge Management implementation processes.	1 2 3 4 5
C9.	1 2 3 4 5	Analysis of job performance data and information.	1 2 3 4 5
C10.	1 2 3 4 5	Effectiveness of performance measurement.	1 2 3 4 5
C11.	1 2 3 4 5	Fairness of individual or team-based performance measurement.	1 2 3 4 5
C12.	1 2 3 4 5	Reward and recognition for actual performance improvement.	1 2 3 4 5
C13.	1 2 3 4 5	Sharing knowledge with other members of a work group.	1 2 3 4 5

No.	IMPORTANCE	FACTORS	IMPLEMENTATION
C14.	1 2 3 4 5	Sharing knowledge with members of other work groups within my organisation.	1 2 3 4 5
C15.	1 2 3 4 5	Sharing knowledge with suppliers.	1 2 3 4 5
C16.	1 2 3 4 5	Gaining knowledge about customers, own competencies and capabilities.	1 2 3 4 5
C17.	1 2 3 4 5	Effectiveness of information systems.	1 2 3 4 5
C18.	1 2 3 4 5	The applications software to develop interactive Knowledge Management applications.	1 2 3 4 5
C19.	1 2 3 4 5	Supporting utilisation of a knowledge-related measurement mechanism.	1 2 3 4 5
C20.	1 2 3 4 5	Encouraging employees to benchmark other organisation's best practices.	1 2 3 4 5
C21.	1 2 3 4 5	Encouraging employees to participate in internal and external new learning opportunities such as conferences, training seminar, university courses, etc.	1 2 3 4 5
C22.	1 2 3 4 5	Knowledge Management awareness training to non-supervisory employees.	1 2 3 4 5
C23.	1 2 3 4 5	Providing the employees with adequate information of Knowledge Management related principles through training.	1 2 3 4 5
C24.	1 2 3 4 5	Promote ongoing employee participation in decision processes.	1 2 3 4 5
C25.	1 2 3 4 5	A spirit of co-operation and teamwork in the company.	1 2 3 4 5
C26.	1 2 3 4 5	Supporting team-based approaches to problem solving.	1 2 3 4 5
C27.	1 2 3 4 5	Encouraging knowledge creating teams such as knowledge task force, the future group, or learning group.	1 2 3 4 5
C28.	1 2 3 4 5	Organisational commitment to empower people in knowledge management.	1 2 3 4 5
C29.	1 2 3 4 5	Actively encourage employee participation in decision processes.	1 2 3 4 5

SECTION D:

The following statements describes the various issues and overall perception about Knowledge Management.

Instruction: Please circle the degree of your agreement with each statement using the following scale.

No.	Statements	Degree of Agreement				
D1.	My organisation is considered to be the "knowledge-intensive" business.	1	2	3	4	5
		<i>Strongly Disagree</i>				<i>Strongly Agree</i>
D2.	Since organisational knowledge assets have become more important, I will see greater emphasis on Knowledge Management in the future.	1	2	3	4	5
		<i>Strongly Disagree</i>				<i>Strongly Agree</i>
D3.	A knowledge management specialist, such as Chief Knowledge Officer (CKO) is needed for effective management of knowledge.	1	2	3	4	5
		<i>Strongly Disagree</i>				<i>Strongly Agree</i>
D4.	I believe the Knowledge Management fits out organisation and the industry.	1	2	3	4	5
		<i>Strongly Disagree</i>				<i>Strongly Agree</i>
D5.	I think the current definition of knowledge workers as defined by Multimedia Development is appropriate to our Malaysian working culture.	1	2	3	4	5
		<i>Strongly Disagree</i>				<i>Strongly Agree</i>

SECTION E: The General Comments.

E1. If you have any thoughts, feedback or comments that may be relevant but not being covered in this study, please use the space below.

E2. Please affix business card here or complete lines as noted, if you would like to have a copy of the Abstract's findings of this study.

Name : _____

Address : _____

Contact Numbers: _____ **E-mail Address :** _____

E3. Will you be willing to participate in the future research

a). No ☐

b). Yes ☐

Thank you for your participation! Your contribution to this research is greatly appreciated.

Appendix B
(In-Depth Interview Guide)

IN-DEPTH INTERVIEW GUIDE WITH KNOWLEDGE WORKERS

Interview Schedule

Date : _____

Time : _____

Place : _____

Section 1: Personal and Company Background Information

1. Introduction- I am studying on human resource management issues pertaining to the management of knowledge workers in the MSC Status Companies, Malaysia. Thus, I will be asking more about your own works/experience being as knowledge workers till now and how it fits all together, also what are your expectations being involve in knowledge management within organisation. Your name will not be quoted in any reports following this study, nor will any names or other sensitive information that come out of this interview. May we start now and okay to record?

Department : _____

Current Position : _____

Previous Position : _____

Length of Service : _____

Highest Academic Qualification : _____

Professional Affiliation : _____

2. When was your company being awarded with the MSC Status? (Prompt for type of organisation e.g. Software Development, Data Centre, and Telecommunications etc.)

3. How many employees does your company have? (Breakdown in terms of position, gender and nationality). Prompt also for the total number of knowledge workers within the company.

Section 2: Knowledge Management Practice

Guidelines- Provide the definition of knowledge management and knowledge worker used in this research, and ask the group how they perceive it. Prompt for: what, why/ why not? reasons for being agreed with the definition or not. Focus more on the importance and actual implementation.

1. Nature of Practice

- a). I understand that your company practices (some form) of knowledge management. How does your company define knowledge management? Is knowledge management is part of a company policy?
- b). Are there any activities, which are particularly suitable/unsuitable for knowledge management? Prompt for the respondent's understanding of the concept of knowledge management and knowledge sharing.
- c). Within the context of your company's strategic goals, and in relation to other business initiatives, what role does knowledge management play in helping your company to attain competitive advantage? (Please elaborate)

2. Maximising participation of knowledge workers in knowledge management.

- a). Do knowledge workers require any particular skill/personal characteristics? How might they acquire these capabilities? (Prompt at any possible related matters)

3. Advantages, Disadvantages and Barriers

- a). What do you think are the advantages and barriers to knowledge management in your company? For example, is it cost-effective? Are employees more proficient/productive?
- b). Do you think it is would be valuable to have a formal role of "Chief Technology Officer" (or equivalent) in your organisation?

4. Changes and Recommendations

- a). What changes do you think might encourage your company to set-up knowledge management?

Section 3: Human Resource Management Issues

1. HR Planning, Recruitment, Selection and Performance Appraisal

- a). How does your company recruit staff? What is the recruitment strategy? Is it different for certain types of workers? Please elaborate especially for the knowledge workers recruitment. Are there any particular skills/personal characteristics?
- b). Does your company provide any incentives in order to retain staff especially knowledge workers?
- c). How is your staff assessed? Are knowledge workers assessed in the same way?
- d). Does your company face a shortage of knowledge workers?

2. Training.

- a). Please describe how training needs assessed and monitored for employees.
- b). What kinds of career development programmes does your company have for employees?

3. Employment Benefits/Rewards

- a). Could you please describe the benefits offered by your company to full-time employees? Does the range of benefits offered to employees, depend on their 'level'/the work performed or is a standard package offered to all?
(Prompt for further discussions)

Section 4: Overall Views

1. Please describe what would you think become the role of human resource management in managing knowledge workers and helps the knowledge management of the firm to meet its objective that is competitive advantage?(Prompt for further discussion)

2. Please express your view on how you see the role of government development agency particularly the Multimedia Development Corporation, in ensuring the success of knowledge management in these MSC status companies?

3. Please express your view regarding the definition of knowledge workers as provided by the MDC. (Provide the respondent with the definition of knowledge worker).

Appendix C
(Application Letter)

Ysgol Fusnes Caerdydd

Director Cefnoddwr Professor Yr Athro Roger Mansfield MA PhD

Human Resource Management Section

Yr Is-Adran Rheoli Adnoddau Dynol

Head of Section Pennaeth yr Is-Adran Professor Yr Athro Michael Poole BA Econ PhD

Aberconway Building
Colum Drive
Cardiff CF10 3EU
Wales UK

Tel Ffôn +44(0)29 2087 4000
Fax Ffacs +44(0)29 2087 4419
<http://www.cf.ac.uk/>

*Prifysgol Caerdydd
Adeilad Aberconway
Colum Drive
Caerdydd CF10 3EU
Cymru, Y Deymas Gyfunol*

24th March 2003

To;

WHOM IT MAY CONCERN



Dear SIR/MADAM,

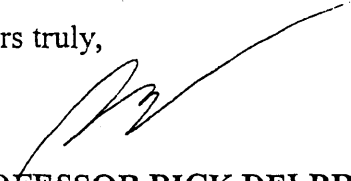
FIELDWORK IN MALAYSIA- MRS. NORZANAH MAT NOR.

I am writing to you on behalf of one of my PhD students here at Cardiff Business School in the United Kingdom. Mrs. Norzanah will be conducting her research fieldwork in Malaysia between the period of May - August 2003. The focus of her study are, the Malaysian and Foreign Multimedia Super Corridor (MSC) companies which are located in Peninsular Malaysia. Her primary interest is in the Human Resource practices that support knowledge work. She will be collecting her data through focus groups and in-depth interviews with knowledge workers and human resource managers in these companies. These interviews also will be followed by a survey questionnaire.

Thus, I would appreciate it if your organisation could accord her with any necessary assistance and arrangements, as the smoothness of the fieldwork activities will help her to complete her doctoral studies on time.

If I can provide further information in support of this request, please contact me at the above address. Thank you and kind regards.

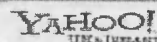
Yours truly,


PROFESSOR RICK DELBRIDGE
Chair in Organisational Analysis
Cardiff Business School

Cardiff University is the public name
of the University of Wales, Cardiff,
a constituent institution of the
University of Wales.

*Prifysgol Caerdydd yw enw cyhoeddus
Prifysgol Cymru, Caerdydd, un o
sefydliadau cyfansoddi
Prifysgol Cymru.*

Appendix D
(Sample of Accepted and Rejected Emails)

[Yahoo! - My Yahoo! - Help](#)[Mail](#) [Addresses](#) [Calendar](#) [Notepad](#)norzanah1204@yahoo.co.uk [\[Sign Out\]](#)[Check Mail](#)[Compose](#)[Search Mail - Mail Options](#)[Folders \[Add\]](#)[Previous](#) | [Next](#) | [Back to Messages](#)[Printable View](#) - [Full Headers](#)[Inbox](#)[Delete](#)[Reply](#)[Reply All](#)[Forward](#)[as attachment](#)[Move to folder...](#)[OK](#)[Draft](#)[Sent](#)[Bulk \[Empty\]](#)[Trash \[Empty\]](#)[loan](#)[shop for a loan](#)[www.williamhill.co.uk](#)[YAHOO! PLUS](#)[Yahoo! & BT](#)This message is not flagged. [[Flag Message - Mark as Unread](#)]**From:** "Norzanah Mat Nor" <norzanah1204@yahoo.co.uk> | [This is spam](#) | [Add to Address Book](#)**To:** "Norzanah Mat Nor" <norzanah1204@yahoo.co.uk>**CC:** [redacted]**Subject:** Re: University Research-United Kingdom**Date:** Fri, 28 Mar 2003 14:18:17 +0800

Dear Norzanah,

Thank you for your invitation. I am sorry to inform you that we are currently very busy with our internal projects and thus, will not be able to provide you with a quality output. Good luck with your research. Thanks Vincent

----- Original Message -----

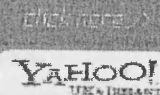
From: Norzanah Mat Nor**To:** [redacted]**Cc:** [redacted]**Sent:** Thursday, March 27, 2003 10:45 PM**Subject:** University Research-United Kingdom

Dear Mr. Vincent,

Hi! My name is Norzanah and I am at present researching in the field of Human Resource Management pertaining to the management of knowledge workers with special reference to Multimedia Super Corridor (MSC) companies in Malaysia. The research effort is supervised by **Professor Rick Delbridge (Organisational Analysis)**, **Dr. Max Munday (Economic Development)** and **Professor Jon Morris (Regional Development)** at Cardiff Business School, University of Wales, United Kingdom. In this connection, I intend to collect information about the overall perception and opinions of knowledge workers of the current practices of Knowledge Management and its future development in Malaysia. Also to see where Human Resource Management fits in the Knowledge Management processes and to make recommendations as to whether organisations in Malaysia should adopt this new paradigm of business. In either case the information gathered in this research will be used only for academic purposes and treated in the strictest confidence. No comment will be attributed by name to a company or individual.

I have selected your organisation on the basis of type, ownership and size, so that the above objective of the research can be achieved. It is critical to the success of the undertaken research that I have your specific responses. Upon your approval, I hope you will not mind allocating me a *liaison officer* which whom I can discuss the research further. Should you have any questions on this research, I can be contacted at the following email addresses; [Norzanah1204@yahoo.co.uk](mailto:norzanah1204@yahoo.co.uk) / Nornm@cardiff.ac.uk or please either call me on +44(0)29 20874410 and fax on +44(0)29 20874419.

Please accept thanks for your anticipated co-operation and I look forward to hearing

[Yahoo!](#) - [My Yahoo!](#) - [Help](#)[Mail](#) | [Addresses](#) | [Calendar](#) | [Notepad](#)norzanah1204@yahoo.co.uk [\[Sign Out\]](#)[Check Mail](#)[Compose](#)[Search Mail](#) - [Mail Options](#)[Folders \[Add\]](#)[Previous](#) | [Next](#) | [Back to Messages](#)[Printable View](#) - [Full Headers](#)[Inbox](#)[Delete](#) | [Reply](#) | [Reply All](#) | [Forward](#) | [as attachment](#)[Move to folder...](#) [Draft](#)[Sent](#)[Bulk \[Empty\]](#)[Trash \[Empty\]](#)This message is not flagged. { [Flag Message](#) - [Mark as Unread](#) }**Subject:** RE: Mrs. Norzanah Mat Nor, Research Student-United Kingdom.**Date:** Mon, 31 Mar 2003 03:33:29 +0530**From:** "Panduranga Kumar" <panduranga@wipro.com> | [This is spam](#) | [Add to Address Book](#)**To:** "Norzanah Mat Nor" <norzanah1204@yahoo.co.uk>

Dear Mrs Norzanah

Wipro has started its operations in Malaysia only about six months back. The number of people in KL is very small, as compared to the our world wide strength.

Suggest you get in touch with our India office for any help you need.

regards

Business Development Manager

-----Original Message-----

From: Norzanah Mat Nor [mailto:norzanah1204@yahoo.co.uk]**Sent:** Monday, March 31, 2003 2:44 AM**To:** Panduranga Kumar**Subject:** Mrs. Norzanah Mat Nor, Research Student-United Kingdom.

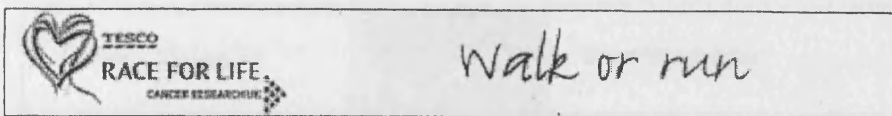
Dear Mr. Panduranga,

Hi! My name is Norzanah and I am at present researching in the field of Human Resource Management pertaining to the management of knowledge workers with special reference to Multimedia Super Corridor's (MSC) companies in Malaysia. The research effort is supervised by **Professor Rick Delbridge (Organisational Analysis)**, **Dr. Max Munday (Economic Development)** and **Professor Jon Morris (Regional Development)** at Cardiff Business School, University of Wales, United Kingdom. In this connection, I intend to collect information about the overall perception and opinions of knowledge workers of the current practices of Knowledge Management and its future development in Malaysia. Also to see where Human Resource Management fits in the Knowledge Management processes and to make recommendations as to whether organisations in Malaysia should adopt this new paradigm of business. In either case the information gathered in this research will be used only for academic purposes and treated in the strictest confidence. No comment will be attributed by name to a company or individual.

I have selected your organisation on the basis of type, ownership and size, so that the above objective of the research can be achieved. It is critical to the success of the undertaken research that I have your specific responses. Upon your approval, I hope you will not mind allocating me a *liaison officer* which whom I can discuss the research further. Should you have any questions on this research, I can be contacted at the following email



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Subject: Re: Mrs. Norzanah Mat Nor, Research Student-United Kingdom.

To: "Norzanah Mat Nor" <norzanah1204@yahoo.co.uk>, tc@fortuna.com

CC: [redacted]

Date: Sun, 30 Mar 2003 10:30:24 -0800

Ranjan:

Please see if there is anything we can contribute to this.

Thanks
TC

On Sun, 30 Mar 2003 17:58:35 +0100 (BST)

Norzanah Mat Nor <norzanah1204@yahoo.co.uk> wrote:

>
> Dear Sir,
>
> Hi! My name is Norzanah and I am at present researching
> in the field of Human Resource Management pertaining to
> the management of knowledge workers with special
> reference to Multimedia Super Corridor's (MSC) companies
> in Malaysia. The research effort is supervised by
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> Max Munday (Economic Development) and Professor Jon
> Morris (Regional Development) at Cardiff Business School,
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> research can be achieved. It is critical to the success
> of the undertaken research that I have your specific
> responses. Upon your approval, I hope you will not mind
> allocating me a liaison officer with whom I can discuss



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To: "Norzanah Mat Nor" <norzanah1204@yahoo.co.uk>

CC: [REDACTED]

Subject: RE: University Research-United Kingdom

Date: Thu, 27 Mar 2003 08:57:19 +0800

Ms Norzanah,

We are willing to assist you in meeting the objective of this research, kindly contact our manager, knowl management solution, Mr Wong Keng Choy at his email : kcwong@genting.com.my

Best Regard,

-----Original Message-----

From: Norzanah Mat Nor [mailto:norzanah1204@yahoo.co.uk]

Sent: Thursday, March 27, 2003 1:27 AM

To: [REDACTED]

Subject: University Research-United Kingdom

Dear Mr. Raymond Yap,

Hi! My name is Norzanah and I am at present researching in the field of Human Resource Management pertaining to the management of knowledge workers with special reference to Multimedia Super Corridor (MSC) companies in Malaysia. The research effort is supervised by **Professor Rick Delbridge (Organisational Analysis)**, **Dr. Max Munday (Economic Development)** and **Professor Jon Morris (Regional Development)** at Cardiff Business School University of Wales, United Kingdom. In this connection, I intend to collect information about the overall perception and opinions of knowledge workers of the current practices of Knowledge Management and its future development in Malaysia. Also to see where Human Resource Management fits in the Knowledge Management processes and to make recommendations as to whether organisations in Malaysia should adopt this new paradigm of business. In either case the information gathered in this research will be used only for academic purposes and treated in the strictest confidence. No comment will be attributed by name to a company or individual.

I have selected your organisation on the basis of type, ownership and size, so that the ab objective of the research can be achieved. It is critical to the success of the undertaken resee that I have your specific responses. Upon your approval, I hope you will not mind allocating r liaison officer which whom I can discuss the research further. Should you have any questions on research, I can be contacted at the following email addresses; [Norzanah1204@yahoo.co.uk](mailto:norzanah1204@yahoo.co.uk), Nornm@cardiff.ac.uk or please either call me on +44(0)29 20874410 and fax on +44(C 20874419.

Please accept thanks for your anticipated co-operation and I look forward to hearing favourably f you soon. Your co-operation is greatly appreciated.

Norzanah Nor

From: **"Callum"** <callum@electricangels.com>
To: <norzanah1204@yahoo.com.uk>
Copies to: <nornm@cardiff.ac.uk>
Subject: **Follow-up with your Research Project**
Date sent: **Thu, 17 Apr 2003 11:57:30 +0800**

Dear Mrs. Norzanah Mat Nor,

I'd be happy to liase with you with your research as you have indicated by fax dated 11 April, 2003 addressed to us at Electric Angels (MSC) Sdn. Bhd.

We would like to support academic programs and I should hope we are able to support you with your research.

Let me know how you wish to proceed.

Best Regards,

Callum A. B.

Chief Technology Officer (CTO)

Electric Angels, Inc.

ve Customer Interaction Company

Norzanah Nor

From: [REDACTED] <antony.lee@aigsi.com>
To: "'nornm@cf.ac.uk'" <nornm@cf.ac.uk>
Subject: Research on Knowledge Management
Date sent: Tue, 22 Apr 2003 17:01:41 +0800

Dear Norzanah

As acting HR manager, I would be pleased to act as liaison officer for the research you intend to carry out.

Please let me know the scope of the study including a rough estimate of the resources (time and people) that might be involved. I assume that were we to participate, we would also have access to your research findings?

Regards

[REDACTED]

[REDACTED]
Director - Marketing and Business Development
[REDACTED] Software International
[REDACTED] Enterprise 1, Technology Park Malaysia
[REDACTED] Bukit Jalil
[REDACTED] 2000, Kuala Lumpur
Malaysia
[REDACTED] Tel: + 60 3 8996 0200
[REDACTED] Fax: + 60 3 8996 0098
[REDACTED] www.aigsi.com <www.aigsi.com>

8 May 11:00 Page

Appendix E
(Sample of Online Newspapers)

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General

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- Calendar
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POLL

Entertainment gossip columns in newspapers and magazines are

- ☐ Good in instilling reading culture
- ☐ Good in adding variety to reading materials
- ☐ Good in generating publicity for the artistes
- ☐ Good in promoting competition, to build up the industry
- ☐ Not so good - they do not stimulate the reader's mind
- ☐ No good as they instill busybody culture
- ☐ No good as they can disintegrate the society
- ☐ No good but increasing the sale of the newspaper and magazine

[Results :: Polls](#)

Strategies To Overcome Unemployment Among Graduates

PASIR PUTEH, Dec 20 (Bernama) -- The government is drawing up strategies to overcome the problem of unemployment among graduates including to encourage them to venture into the agriculture and small and medium industries (SMIs).

Minister in the Prime Minister's Department Datuk Mustapa Mohamed said that the number of jobless graduates currently was about 60,000 and following the implementation of the strategies, the government was confident that the problem could be dealt with under the Ninth Malaysia Plan.

Speaking to reporters at the Pasir Puteh parliamentary constituency's Hari Raya gathering here Sunday, he said that the agriculture and SMIs offer greater job opportunities for them and those who had just sat for the Sijil Pelajaran Malaysia (SPM) examination.

He said that they should not depend on the government to offer them jobs but must be prepared to work in the private sector or to stand by themselves and venture into the business sector.

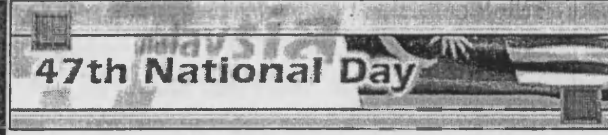
Mustapa also said that the government was prepared to be flexible towards unemployed graduates who had been served with warning letters to pay back their study loans to the National Higher Education Fund Corporation (PTPTN) if they appealed.

He also said that despite the existence of jobless graduates, Malaysia's unemployment rate was still among the lowest in the world, at between 3.2 and 3.8 per cent.

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August
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General

August 30, 2004 20:36 PM



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- Did You Know



POLL

What comes to mind on Aug 31?

- ☐ The struggle for independence
- ☐ Freedom from colonisation
- ☐ Progress and prosperity
- ☐ Peace, harmony and stability
- ☐ How this independence can be upheld
- ☐ We're still colonised in many areas
- ☐ No difference form other days

Results :: Polls

Govt To Announce Comprehensive 'Brain Gain' Plan Soon, Says Najib

KUALA LUMPUR, Aug 30 (Bernama) -- The government will soon introduce a comprehensive "brain gain" programme to encourage research talent and professionals to contribute to the country's development in science and technology.

Deputy Prime Minister Datuk Seri Najib Tun Razak said this at the Venture Accelerate 2003 Award presentation, here Monday.

He said Malaysia needed to have "talented individuals to propel research and development (R&D) efforts to world class benchmarks" especially in line with the National Innovation Agenda (NIA) announced by the government recently.

The NIA's objectives were to enhance Malaysia's overall national innovation system, to develop a more commercially focused research agenda based on the country's competitive advantages and to harness intellectual capital in science and technology, he said.

Najib said the government was also committed to improve the quality of the country's research institutions and universities, and to continue to provide incentives for the private sector to undertake research locally.

The government would also push for greater collaboration between the industry, research institutions and universities, he said.

However, he said, building a tradition of innovation and creativity in any society is a long term and challenging endeavour.

Later at a press conference, Najib said the proposal on the brain gain programme was being studied by the Science, Technology and Innovation Ministry together with a consultant.

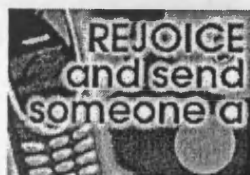
"The report should be ready in a near future for consideration by the government," he said when asked to elaborate on the proposed programme.

He said it was hoped that the programme, aimed at promoting the development of intellectual capital in Malaysia, would be able to attract more Malaysians abroad to return.

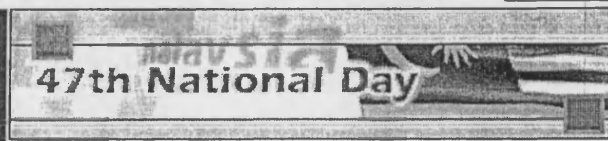
It could also "encourage foreigners to participate in research and development projects here, and to be based here," he said.

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August
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POLL

What is the main cause of corruption?

- ☐ Neediness
- ☐ Seeking abundance
- ☐ Evading the law
- ☐ Personal benefits
- ☐ Winning projects/contracts
- ☐ Lack of integrity
- ☐ No other choice

Vote!

Results :: Polls



August 16, 2004 14:32 PM



Ministry Formulates Paper To Woo M'sian Professionals Overseas

KUALA LUMPUR, Aug 16 (Bernama) -- The Human Resources Ministry has formulated a working paper on the needs and requests of Malaysian professionals currently working overseas, said its minister, Datuk Dr Fong Chan Onn.

He said that, among others, the working paper would look into the incentives for Malaysian professionals now overseas so that they could return home to serve the country.

He said the working paper would be sent to various ministries and agencies particularly the Finance Ministry for further action on the matter.

"...so that we can continue to offer the right incentives to bring these professionals back," he said in his keynote address at the National Human Resources Summit 2004 here Monday.

The two-day summit themed "Rethinking Human Resources in the Epoch of Change and Discontinuity" is organised by the Asian Strategy and Leadership Institute (Asli).

Although the government's initiative to woo back Malaysian professionals started few years back, only a few hundred had returned home with the lack of incentives being cited as one of the main reasons for the lukewarm response.

Most Malaysian professionals working overseas are in the medical, engineering and research field and most of them are working in Britain, Singapore and the United States.

On human resources, Fong said that it was fast becoming a strategic partner to other critical business functions within an organisation.

"Today's human resources professionals must help their corporate executives determine future workforce needs and strategic planning and competitive analysis, providing a firm foundation and a business case for their recruitment, retention, compensation and employees training programmes," he said.

Fong also said that today's most technologically advanced economies were truly knowledge-based and the nature of work would undergo a major overhaul requiring increasingly higher input of skills and knowledge.

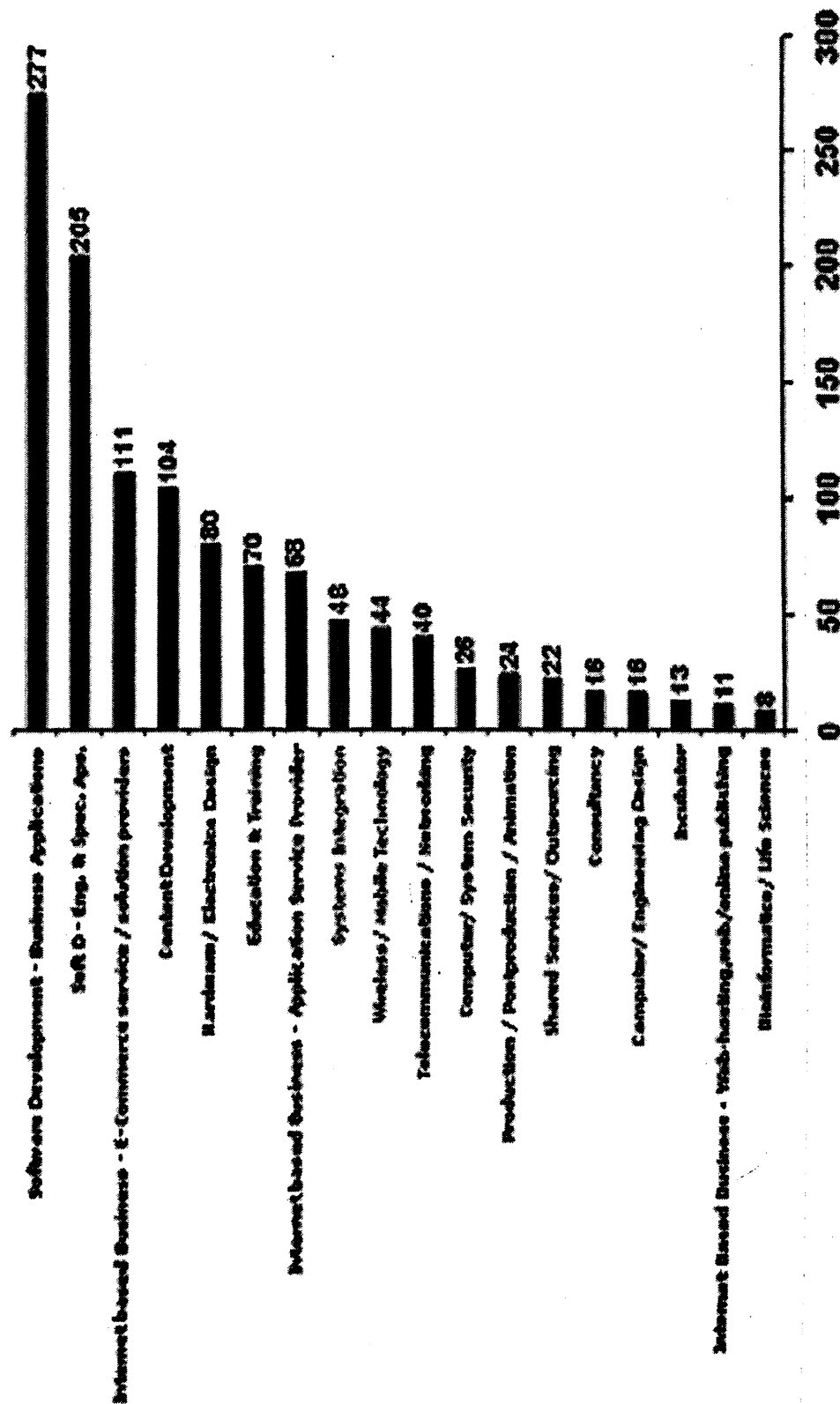
"This is imminently evident as a worker's knowledge and skills will become outdated at a much faster rate. It has widely been estimated that half of what is learnt in school becomes obsolete in five years," he said.

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Appendix F
(MSC Status Companies by Sectors)

Approved 1,183 MSC Companies by sectors as of February 15, 2005



Appendix G
(A Complete Summary of Knowledge Management Success Factors)

Appendix G: The Importance of Knowledge Management (n=171)

No.	FACTORS	IMPORTANCE					Mean	Median (Range)
		1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
C1.	A formal system that allows for contribution of every employee's opinions or suggestion towards Knowledge Management.	1 (0.6)	11 (6.4)	22 (12.9)	59 (34.5)	78 (45.6)	4.18	4.00 (1-5)
C2.	Policies of egalitarian and/or equal culture to improve the quality of work life towards Knowledge Management.	-	18 (10.5)	12 (7.0)	70 (41.0)	71 (41.5)	4.13	4.00 (2-5)
C3.	Top management leadership and commitment towards Knowledge Management.	-	11 (6.4)	12 (7.0)	58 (34.0)	90 (52.6)	4.33	5.00 (2-5)
C4.	Top management encouragement toward utilization of Knowledge Management system.	2 (1.2)	13 (7.6)	26 (15.2)	58 (33.9)	72 (42.1)	4.08	4.00 (1-5)
C5.	Adequate budgeting or funding to support Knowledge Management projects.	-	12 (7.0)	28 (16.4)	77 (45.0)	54 (31.6)	4.01	4.00 (2-5)
C6.	Reformulation of any rules (i.e., personnel policies) that obstruct the implementation of Knowledge Management.	-	10 (5.8)	32 (18.7)	70 (41.0)	59 (34.5)	4.04	4.00 (2-5)
C7.	Minimisation of hierarchical and bureaucratic procedures of effective Knowledge Management.	1 (.6)	21 (12.3)	10 (5.8)	82 (48.0)	57 (33.3)	4.01	4.00 (1-5)
C8.	Documentation of the most operating rules, policies and procedures for Knowledge Management implementation processes.	-	20 (11.7)	13 (7.6)	80 (46.8)	58 (33.9)	4.03	4.00 (2-5)
C9.	Analysis of job performance data and information.	-	6 (3.5)	17 (9.9)	96 (56.1)	52 (30.4)	4.13	4.00 (2-5)
C10.	Effectiveness of performance measurement.	-	16 (9.4)	17 (9.9)	77 (45.0)	61 (35.7)	4.07	4.00 (2-5)
C11.	Fairness of individual or team-based performance measurement.	-	12 (7.0)	31 (18.2)	71 (41.5)	57 (33.3)	4.01	4.00 (2-5)
C12.	Reward and recognition for actual performance improvement.	6 (3.5)	10 (5.8)	16 (9.4)	63 (36.8)	76 (44.4)	4.13	4.00 (1-5)
C13.	Sharing knowledge with other members of a work group.	-	8 (4.7)	17 (9.9)	61 (35.7)	85 (49.7)	4.30	4.00 (2-5)
C14.	Sharing knowledge with members of other work groups within the company.	2 (1.2)	6 (3.5)	29 (17.0)	73 (42.7)	61 (35.7)	4.08	4.00 (1-5)
C15.	Sharing knowledge with suppliers.	2 (1.2)	7 (4.1)	34 (19.9)	76 (44.4)	52 (30.4)	3.99	4.00 (1-5)
C16.	Gaining knowledge about customers, own competencies and capabilities.	-	8 (4.7)	19 (11.1)	76 (44.4)	68 (39.8)	4.19	4.00 (2-5)
C17.	Effectiveness of information systems towards Knowledge Management.	-	6 (3.5)	19 (11.1)	67 (39.2)	79 (46.2)	4.28	4.00 (2-5)
C18.	The applications software to develop interactive Knowledge Management applications.	1 (.6)	11 (6.4)	24 (14.0)	90 (52.6)	45 (26.4)	3.98	4.00 (1-5)
C19.	Supporting utilisation of a knowledge-related measurement mechanism.	-	13 (7.6)	34 (19.9)	85 (49.7)	39 (22.8)	3.88	4.00 (2-5)
C20.	Encouraging employees to benchmark other companies' best practices.	-	18 (10.5)	25 (14.6)	79 (46.2)	49 (28.7)	3.93	4.00 (2-3)
C21.	Encouraging employees to participate in internal and external new learning opportunities such as conferences, training seminar, university courses, etc.	7 (4.1)	10 (5.8)	10 (5.8)	87 (51.0)	57 (33.3)	4.04	4.00 (1-5)
C22.	Knowledge Management awareness training to employees.	-	13 (7.6)	26 (15.2)	83 (48.5)	49 (28.7)	3.98	4.00 (2-5)

C23.	Providing the employees with adequate information of Knowledge Management related principles through training.	-	11 (6.4)	26 (15.2)	75 (43.9)	59 (34.5)	4.06	4.00 (2-5)
C24.	Promote ongoing employee participation in decision processes.	2 (1.2)	7 (4.1)	21 (12.3)	76 (44.4)	65 (38.0)	4.14	4.00 (1-5)
C25.	A spirit of co-operation and teamwork in the company.	-	9 (5.2)	14 (8.2)	55 (32.2)	93 (54.4)	4.36	5.00 (2-5)
C26.	Supporting team-based approaches to problem solving in Knowledge Management.	2 (1.2)	3 (1.8)	17 (9.9)	59 (34.5)	90 (52.6)	4.36	5.00 (1-5)
C27.	Encouraging knowledge creating teams such as knowledge task force, the future group, or learning group.	10 (5.8)	6 (3.5)	22 (12.9)	74 (43.3)	59 (34.5)	3.97	4.00 (1-5)
C28.	Organisational commitment to empower people in Knowledge Management.	2 (1.2)	9 (5.3)	20 (11.7)	69 (40.4)	71 (41.5)	4.15	4.00 (1-5)
C29.	Actively encourage employee participation in decision processes.	7 (4.1)	12 (7.0)	8 (4.7)	72 (42.1)	72 (42.1)	4.16	4.00 (1-5)

The Implementation of Knowledge Management Success Factors (n=171)

No.	FACTORS	IMPORTANCE					Mean	Median (Range)
		1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
C1.	A formal system that allows for contribution of every employee's opinions or suggestion towards Knowledge Management.	11 (6.4)	92 (53.9)	25 (14.6)	30 (17.5)	13 (7.6)	2.66	2.00 (1-5)
C2.	Policies of egalitarian and/or equal culture to improve the quality of work life towards Knowledge Management.	16 (9.4)	96 (56.1)	23 (13.5)	32 (18.7)	4 (2.3)	2.49	2.00 (1-5)
C3.	Top management leadership and commitment towards Knowledge Management.	10 (5.9)	77 (45.0)	30 (17.5)	37 (21.6)	17 (10.0)	2.85	2.00 (1-5)
C4.	Top management encouragement toward utilization of Knowledge Management system.	8 (4.7)	82 (48.0)	27 (15.8)	42 (24.6)	12 (7.0)	2.81	2.00 (1-5)
C5.	Adequate budgeting or funding to support Knowledge Management projects.	19 (11.1)	96 (56.1)	17 (10.0)	33 (19.3)	6 (3.5)	2.48	2.00 (1-5)
C6.	Reformulation of any rules (i.e., personnel policies) that obstruct the implementation of Knowledge Management.	24 (14.0)	104 (60.8)	16 (9.4)	17 (9.9)	10 (5.8)	2.33	2.00 (1-5)
C7.	Minimisation of hierarchical and bureaucratic procedures of effective Knowledge Management.	7 (4.1)	88 (51.5)	22 (12.9)	35 (20.5)	19 (11.1)	2.83	2.00 (1-5)
C8.	Documentation of the most operating rules, policies and procedures for Knowledge Management implementation processes.	16 (9.3)	95 (55.6)	18 (10.5)	27 (15.8)	15 (8.8)	2.59	2 (1-5)
C9.	Analysis of job performance data and information.	7 (4.1)	93 (54.4)	19 (11.1)	45 (26.3)	7 (4.1)	2.72	2.00 (1-5)
C10.	Effectiveness of performance measurement.	5 (2.9)	98 (57.3)	29 (17.0)	30 (17.5)	9 (5.3)	2.65	2.00 (1-5)
C11.	Fairness of individual or team-based performance measurement.	11 (6.4)	102 (59.7)	25 (14.6)	27 (15.8)	6 (3.5)	2.50	2.00 (1-5)
C12.	Reward and recognition for actual performance improvement.	11 (6.4)	87 (50.9)	25 (14.6)	34 (19.9)	14 (8.2)	2.73	2.00 (1-5)
C13.	Sharing knowledge with other members of a work group.	2 (1.2)	65 (38.0)	35 (20.4)	40 (23.4)	29 (17.0)	3.17	3.00 (1-5)
C14.	Sharing knowledge with members of other work groups within the company.	5 (2.9)	82 (48.0)	30 (17.5)	34 (19.9)	20 (11.7)	2.89	2.00 (1-5)
C15.	Sharing knowledge with suppliers.	10 (5.8)	94 (55.0)	32 (18.8)	24 (14.0)	11 (6.4)	2.60	2.00 (1-5)
C16.	Gaining knowledge about customers, own competencies and capabilities.	4 (2.3)	101 (59.1)	26 (15.2)	23 (13.5)	17 (9.9)	2.70	2.00 (1-5)
C17.	Effectiveness of information systems towards Knowledge Management.	4 (2.3)	96 (56.1)	20 (11.7)	29 (17.0)	22 (12.9)	2.82	2.00 (1-5)
C18.	The software applications to develop interactive Knowledge Management applications.	16 (9.3)	107 (62.6)	19 (11.1)	20 (11.7)	9 (5.3)	2.41	2.00 (1-5)
C19.	Supporting utilisation of a knowledge-related measurement mechanism.	11 (6.4)	98 (57.3)	21 (12.3)	33 (19.3)	8 (4.7)	2.58	2.00 (1-5)
C20.	Encouraging employees to benchmark other companies' best practices.	17 (9.9)	119 (69.6)	17 (9.9)	11 (6.4)	7 (4.1)	2.25	2.00 (1-5)
C21.	Encouraging employees to participate in internal and external new learning opportunities such as conferences, training seminar, university courses, etc.	13 (7.6)	104 (60.9)	10 (5.8)	32 (18.7)	12 (7.0)	2.57	2.00 (1-5)

C22.	Knowledge Management awareness training to employees.	22 (12.9)	119 (69.6)	12 (7.0)	12 (7.0)	6 (3.5)	2.19	2.00 (1-5)
C23.	Providing the employees with adequate information of Knowledge Management related principles through training.	16 (9.4)	109 (63.7)	8 (4.7)	31 (18.1)	7 (4.1)	2.44	2.00 (1-5)
C24.	Promote ongoing employee participation in decision processes.	12 (7.0)	108 (63.2)	6 (3.5)	34 (19.9)	11 (6.4)	2.56	2.00 (1-5)
C25.	A spirit of co-operation and teamwork in the company.	1 (0.6)	82 (48.0)	6 (3.5)	46 (26.9)	36 (21.0)	3.20	3.00 (1-5)
C26.	Supporting team-based approaches to problem solving in Knowledge Management.	2 (1.2)	88 (51.5)	12 (7.0)	38 (22.2)	31 (18.1)	3.05	2.00 (1-5)
C27.	Encouraging knowledge creating teams such as knowledge task force, the future group, or learning group.	13 (7.6)	110 (64.3)	13 (7.6)	24 (14.0)	11 (6.4)	2.47	2.00 (1-5)
C28.	Organisational commitment to empower people in Knowledge Management.	5 (2.9)	99 (57.9)	14 (8.2)	31 (18.1)	22 (12.9)	2.80	2.00 (1-5)
C29.	Actively encourage employee participation in decision processes.	15 (8.8)	110 (64.3)	7 (4.1)	24 (14.0)	15 (8.8)	2.50	2.00 (1-5)

Appendix H:
Pearson Chi Square Analysis for Gender and Ethnic

Pearson Chi-Square Analysis for Ethnic of the Respondents

Test Variables	χ^2	df	P
<i>exp1</i>	3.495	6	.745
<i>exp2</i>	12.470	8	.131
<i>exp3</i>	8.724	6	.188
<i>exp5</i>	10.610	8	.225
<i>ks1</i>	4.800	6	.570
<i>ks2</i>	13.984	8	0.83
<i>ks3</i>	6.948	8	.542
<i>ks4</i>	14.820	8	.063
<i>pd1</i>	6.816	6	.338
<i>pd2</i>	6.828	8	.555
<i>pd3</i>	6.46	8	.595
<i>pd4</i>	7.559	8	.478
<i>pa1</i>	5.662	8	.685
<i>pa4</i>	6.585	8	.582
<i>rw1</i>	16.269	10	.092
<i>rw2</i>	11.475	8	.176
<i>rw3</i>	8.003	8	.433
<i>rw4</i>	15.397	8	.052
<i>rw5</i>	7.768	8	.457
<i>f1</i>	5.088	8	.748
<i>f2</i>	17.131	8	.029
<i>f4</i>	9.073	8	.336

Pearson Chi-Square Analysis for Gender of the Respondents

Test Variables	χ^2	df	P
<i>exp1</i>	2.004	3	.572
<i>exp2</i>	4.842	4	.304
<i>exp3</i>	5.128	3	.163
<i>exp5</i>	5.008	4	.287
<i>ks1</i>	4.612	3	.203
<i>ks2</i>	10.908	4	.028*
<i>ks3</i>	7.365	4	.118
<i>ks4</i>	7.887	4	.096
<i>pd1</i>	14.209	3	.003*
<i>pd2</i>	1.420	4	.841
<i>pd3</i>	15.557	4	.004*
<i>pd4</i>	13.877	4	.008*
<i>pa1</i>	12.017	4	.017*
<i>pa4</i>	9.357	4	.053
<i>rw1</i>	11.993	5	.035*
<i>rw2</i>	17.888	4	.001*
<i>rw3</i>	26.561	4	.000*
<i>rw4</i>	7.855	4	.097
<i>rw5</i>	14.002	4	.007*
<i>f1</i>	14.402	4	.006*
<i>f2</i>	3.029	4	.553
<i>f4</i>	23.690	4	.000*

