Knowledge management in a public organisation: a study of the performance of knowledge transfer in the Ministry of Entrepreneur Development of Malaysia

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KNOWLEDGE MANAGEMENT IN A PUBLIC ORGANISATION:
A STUDY ON THE PERFORMANCE OF KNOWLEDGE TRANSFER
IN THE MINISTRY OF ENTREPRENEUR DEVELOPMENT OF MALAYSIA

BY
SYED OMAR SHARIFUDDIN BIN SYED IKHSAN

A DOCTORAL THESIS
SUBMITTED IN PARTIAL FULLFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
DOCTOR OF PHILOSOPHY OF LOUGHBOROUGH UNIVERSITY
APRIL 2005

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ABSTRACT

The awareness on the importance of managing knowledge as the most important assets that need to be fully utilised has become the key competitive issue lately. In Malaysia, the concern was not only from companies but also from the Government of Malaysia itself. At the end of the year 2002, the Government of Malaysia has launched the Knowledge-based Economy Master Plan which aims to propel Malaysia from a production-based economy to a knowledge-based economy. With an increasing concern to create a knowledgeable society, it is critically important to understand the nature of such knowledge that is already embedded in the organisation's business processes, and how that knowledge is used as an important source of competitive advantage.

The overall aim of this thesis is to analyse the current situation on how knowledge is managed in the public organisation in Malaysia and to provide government agencies in Malaysia with data on how knowledge is transferred. The primary focus of the study is to identify the organisational elements that are important for the transfer of knowledge in the public organisations in Malaysia. The study also examines different lengths of working experiences and number of years in an organisation has an impact on the understanding of knowledge management in the public organisation.

After a literature review, and the development of conceptual frameworks, a number of hypotheses are put forward. To achieve an in-depth study, the Ministry of Entrepreneur Development of Malaysia was chosen as a case study. A questionnaire was used as the main instrument in gathering data and interview(s) for the key informants were also conducted. A total of 154 respondents were involved in the survey and five key informants were interviewed. The questionnaire is principally concerned with the understanding of knowledge management in the Ministry and the questions
on the variables that are used for the hypothesis testing. The study also investigates the relationship between organisational elements and the performance of knowledge transfer. Five main independent variables were identified – organisational culture, organisational structure, technology, people/human resources and political directives – and these were tested against knowledge transfer performance.

The results reveal that there are two independent variables that have significant relationships to the performance of knowledge transfer. The variables are sharing culture and ICT know-how. Therefore, it is necessary for organisations to consider some of the elements that shows a relationship between the tested variables in implementing a knowledge management strategy in an organisation. However, certain variables that did not show any relationship should not be ignored totally, as they are still very important for some organisations.

The study shows that knowledge management as a practice would be the most influential strategy in managing knowledge in public organisations in Malaysia in the near future. On the basis of the research findings the researcher is able to put forward a series of recommendations, particularly in formulating a knowledge management strategy that is suitable for the public organisation in Malaysia which complements the Knowledge-based Economic Master Plan that was launched by the Government.

Keywords: Knowledge Management, Knowledge Transfer, Knowledge Assets, Knowledge Management Strategy, People/Personnel Centred Strategy, Public Organisation, Malaysia
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<td>CGC</td>
<td>Credit Guarantee Corporation</td>
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<td>CKO</td>
<td>Chief Knowledge Officer</td>
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<td>CSC</td>
<td>Contractor Service Centre</td>
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<td>CVLB</td>
<td>Commercial Vehicle Licensing Board</td>
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<td>EG</td>
<td>Electronic Government</td>
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<td>ELX</td>
<td>Electronic Labour Exchange</td>
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<td>EMP</td>
<td>Eight Malaysian Plan</td>
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<td>eP</td>
<td>Electronic Procurement</td>
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<td>EPU</td>
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<td>eService</td>
<td>Electronic Delivery of Driver and Vehicle Registration, Licensing and Summons Services, Utility Bill Payment and Ministry of Health Online Service</td>
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<td>GEO</td>
<td>Generic Office Environment</td>
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<td>HRMIS</td>
<td>Human Resources Management Information Systems</td>
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<td>ICT</td>
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<td>Implementation and Coordination Unit</td>
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<td>MED</td>
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<td>MITI</td>
<td>Ministry of International Trade and Industry</td>
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<td>Multinational Corporations</td>
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<td>ROC</td>
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<td>SIAP</td>
<td>Sistem Integrasi Applikasi Penjadualan (Integrated Scheduling Application System)</td>
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Chapter 1
INTRODUCTION
CHAPTER ONE

INTRODUCTION

We are now moving steadily from an information age to a knowledge age society, where knowledge has been recognised as the most important aspect in human life. Individuals and organisations are starting to understand and appreciate knowledge as the key element in the emerging competitive environment. The World Bank reported in 1999 that we are in the midst of a major paradigm shift in the way we process and disseminate information, a shift to an integrated global market for trade, finance and knowledge. The reduced cost and increasing efficiency in information processing and telecommunication are accelerating the creation and dissemination of knowledge (World Development Report 1999).

Chase (1997, p.38) argues that futurists, economists and academics have agreed that the world is moving towards a global knowledge economy (k-economy), where knowledge is regarded as being as valuable as the product itself. Knowledge is now considered as the main intangible ingredient in the melting pot that makes innovation possible (Sánchez et al. 2000, p.312). Meanwhile, Bailey and Clarke (2000, p.235) claim that “leveraging knowledge, particularly tacit knowledge, is the key to sustained competitive advantage in the future”. The same view has also been asserted by Cropley (1998, p.27) where she wrote that “we are no longer dealing with material we
can identify and touch, but with mental constructs, which mould and change the way we operate”.

Cropley (1998, p.29) further emphasises, “Knowledge is nothing without people. People have knowledge, develop it and act on the basis of it. Data can be transmitted, information can be shared, but knowledge is an attribute of people, or communities or societies comprise of people”. The companies for which we work employ us for the knowledge which we can provide, and moreover to add value to the goods and services that the organisation supplies (Harwood 2000, p.93).

Another interesting view is that knowledge only exists because of people (Dougherty 1999, p.262). Knowledge comes as a person uses information and combines it with their personal experience. Much of the knowledge one acquires and gathers in one’s head has its own value and it is that which makes each of us unique and valuable to society as a whole and to organisations. As Michael Polanyi (1966, p.4) put(s) it, “we can know more than we can tell”. Polanyi argues that everyone has his own personal knowledge known as a tacit knowledge and it cannot be easily made explicit.

In the last few decades, the study of knowledge has grown. It is now not only simply of interest to academicians, but it has also developed rapidly and is used by practitioners. Both academicians and practitioners agree that people with knowledge are the most deeply valued asset. Furthermore, knowledge is a powerful tool that can make changes to the world. In an article that appeared in the Harvard Business Review, Nonaka (1998, p.21) began with the simple introductory words: “In an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge.”

In addition, Tobias (2000, p.84) and Trepper (2000, p.55) have also suggested that the two greatest assets that any companies have are the people that work with them and knowledge in their workers’ heads. As such
knowledge originates in the head of an individual, builds on information, which is then transformed and enriched by personal experience, beliefs and values, with decision-making and action-relevant meaning. "Knowledge is the mental state of ideas, facts, concepts, data and techniques, recorded in an individual's memory" (Bender and Fish 2000, p.126). Added to that, Miller claims that "the idea of taking knowledge, making it global and embedding it in the organisation, rather than leaving it purely in people's heads, is the key" (Miller 1998, p.20) for successful knowledge management.

Drucker (1993, p.38) describes knowledge as the only meaningful resource in a knowledge society. He further stresses that:

"Knowledge is not impersonal like money. Knowledge does not reside in a book, a data bank, a software program. They contain only information. Knowledge is always embodied in a person, taught and learned by a person, used or misused by a person" (Drucker 1993, p.191)

This observation by Drucker is in line with the Global Best Practice Knowledge Space implemented by Arthur Andersen. Wendi Bukowitz, Director of the Next Generation Research Group, sees people as the key players in the success of their knowledge management programmes. In building knowledge bases in an organisation, Bukowitz suggests that the management needs to understand gaps, which prevent people from sharing their ideas within a knowledge-based environment. These include the issues of awareness, communications skills and culture gaps. Bukowitz further emphasises, "if these change management issues are not addressed, no matter how good the content, no matter how elegant the technology platform, the knowledge base will not have a sufficiently hospitable environment in which to develop to a point from which it can sustain itself" (Bukowitz 1998, p.224).
1.1 Background of the Study

There are several perspectives on the study of knowledge. Alavi and Leidner (2001, p.109) and Becerra-Fernandez et al. (2004, p.17) have identified that most studies done on knowledge, viewed knowledge as "(1) a state of mind, (2) an object, (3) a process, (4) a condition of having access to information, or (5) a capacity". These differences lead to different perceptions and approaches on the implementation of knowledge management in an organisation. From the perspective of knowledge as an object, knowledge is said to be "something that can be stored, transferred and manipulated (Becerra-Fernandez et al. 2004, p.17) and organisations should concentrate and focus on "building and managing knowledge stock" (Alavi and Leidner 2001, p.110). More detailed views on each perspective are shown in Table 1.1.

<table>
<thead>
<tr>
<th>Perspectives</th>
<th>Implication for Knowledge Management (KM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of mind</td>
<td>Knowledge is the state of knowing and understanding. KM involves enhancing individuals' learning and understanding through provision of information.</td>
</tr>
<tr>
<td>Object</td>
<td>Knowledge is an object to be stored and manipulated. Key KM issue is building and managing knowledge stocks.</td>
</tr>
<tr>
<td>Process</td>
<td>Knowledge is a process of applying expertise. KM focus is on knowledge flows and the process of creation, sharing and distributing knowledge.</td>
</tr>
<tr>
<td>Access to information</td>
<td>Knowledge is a condition of access to information. KM focus is organized access to and retrieval of content.</td>
</tr>
<tr>
<td>Capability</td>
<td>Knowledge is the potential to influence action. KM is about building core competencies and understanding strategic know-how.</td>
</tr>
</tbody>
</table>

Table 1.1 – Knowledge Perspectives and Their Implications (Alavi and Leidner 2001, p.111)
The transfer of knowledge in an organisation has become one critical factor in an organisation's success and competitiveness. In studies done in various organisations, Dixon (2000, pp.17-31) has found out that the two main knowledge activities that need to be balanced are the creation of knowledge (she refers to it as common knowledge) and transferring of knowledge across time and space. However, knowledge, particularly tacit knowledge, is very difficult to transfer. Argote argues that one of the reasons why knowledge is difficult to transfer is because “some of the knowledge acquired through learning by doing is idiosyncratic to the particular constellation of people, technology, structures and environmental conditions” (Argote 1993, p. 42).

In addition, knowledge is transferred not only from individual to individual but also involves “individual to a team or group, team or group to individual, or team or group to team or group” (Bender and Fish 2000, p.130). According to Davenport and Prusak, knowledge transfer involves two actions which are “transmission (sending or presenting knowledge to a potential recipient)” and “absorption by that person or group” (Davenport and Prusak 1998, p.101). They further stress that knowledge which is not absorbed by a person or a group has not been transferred. “Even transmission and absorption together have no value if the new knowledge does not lead to some change in behavior, or the development of some idea that leads to new behavior” (Davenport and Prusak 1998, p.101)

In a study done by Rubenstein-Montano et al. it was found that many Knowledge Management frameworks “focused only on the knowledge cycle process and task” (Rubenstein-Montano et al. 2001a, p.7). They argue that this is not consistent with systems thinking, a framework for problem solving that considers problems in their entirety (Rubenstein-Montano et al. 2001a, p.6). To be consistent, Rubenstein-Montano et al. suggest that a knowledge management framework should include the entire knowledge management process, which is the people, technology infrastructure, and culture of sharing knowledge (Rubenstein-Montano et al. 2001a, p.7-8). This is in line with the approach suggested by Donoghue et al., who stress that “effective knowledge
management requires a combination of many organisational elements — technology, human resources practices, organisational structure and culture — in order to ensure that the right knowledge is brought to bear at the same time" (Donoghue et. al. 1999, p.48).

1.2 Purpose of the Study

There is relatively little information on knowledge management in the public sector. With an increasing concern by the Government of Malaysia to create a knowledgeable society, it is critically important to understand the nature of such knowledge that is already embedded in the organisation's business processes, and how that knowledge is used as an important source of competitive advantage. Apart from understanding the embedded knowledge, no study has yet been found which reports on how knowledge and information are created and are transferred between individuals in a public organisation.

Based on the knowledge perspectives outlined by Alavi and Leidner (2001), and organisational elements suggested by Donoghue et al. (1999) and Rubenstein-Montano et al. (2001a), the purpose of the research is to determine how the organisational culture, organisational structure, technology, human resources and political directives affect the performance of knowledge transfer in public organisations in Malaysia in particular the Ministry of Entrepreneur Development (MED). Hence, in order to obtain a comprehensive study, it was decided to use the MED of Malaysia as a case study. The research also examines the extent to which the selected variable affects the performance of knowledge transferred. However, measuring the performance of knowledge transfer and the benefits of knowledge management in public organisations is very difficult, as these organisations are aligned far more to social benefits, rather than making profits.
1.3 Aims and Objectives of the Study

The overall aim of the study is to measure the extent to which the organisation is practising knowledge management and to study the relationship between organisational elements and knowledge transfer performance. This should allow them to understand the requirements needed to establish knowledge management strategies in Government Agencies and how knowledge management as a practice could benefit government organisations.

To achieve these aims, the study will focus on the following questions.

1. What are the organisational elements that are important for the performance of knowledge transfer in the public organisations in Malaysia?

2. Do different length of working experiences and number of years in the Ministry have an impact on the understanding of knowledge management?

The objectives of the study are:

1. To carry out a comprehensive literature search in order to compare and contrast knowledge management strategy advocated by different authorities, especially those proposed for use in the public sector.

2. To use the basis of this literature research, to propose a strategy of Knowledge Management that might be appropriate to public organisations in Malaysia.

3. To propose a series of hypotheses based on the conceptual framework.
4. To design a questionnaire in order to obtain evidence to test the hypotheses.

5. To pilot this questionnaire with a small group of Malaysian civil servants.

6. To administer a survey based on the revised questionnaire based on the pilot study to a large sample of staff of the Ministry of Entrepreneur Development of Malaysia, as a representative public sector organisation.

7. To collate the results of the survey and submit them to statistical tests in order to test the hypotheses.

8. To conduct interviews with senior civil servants in the Ministry of Entrepreneur Development of Malaysia.

9. To arrive at conclusions from the survey and interview results that may illuminate the issues listed above, and make recommendations to the Public Service Department of Malaysia regarding the implementation of a knowledge management strategy.

1.4 Conceptual Framework

The literature review identified certain factors that determine the success of implementing knowledge management in an organisation. The key factors that influence a knowledge management programme and strategy are the transfer of knowledge within the organisation. These factors assisted in formulating the conceptual framework underlying this study.

In this study, I have put forward six main groups of factors to explore the relationship between the particular variables with the performance of
knowledge transfer, specifically for application to the Ministry of Entrepreneur Development of Malaysia. Four of these factors are categorised as organisational culture, organisational structure, technology and people/human resources. I have also identified two other elements that are also important to any public organisation, which are political directives and knowledge assets. Each of the factors mentioned was further divided into several independent variables. For organisational culture, the independent variables that are tested with the performance of knowledge transfer are sharing culture and individualism. Document confidentiality status and communication flows are the independent variables that are related to the organisational structure of the organisation. Meanwhile, with regard to people/human resources factors, I have identified three independent variables, which are training, posting or placement of officers and staff turnover. Furthermore, for the factor on technology, three independent variables identified are ICT tools, ICT infrastructure and ICT know-how. Details of the framework are discussed in Chapter 4.

The schematic diagram of the conceptual framework is shown in Figure 1.1.
1.5 Significance of the Study

In the new millennium, the concern of the Government of Malaysia in developing the nation through a knowledge-based economy has become very apparent. At the end of the year 2002, a Knowledge-based Economic Master Plan was launched by the Government. All public and private organisations are urged to develop a more knowledgeable organisation, especially in terms of managing resources. However, no information is readily available on how knowledge is managed, and what factors that may influence the transfer of knowledge within an organisation. The study will be one of the very first research projects centred on a public organisation in Malaysia, particularly on the performance of knowledge transfer. It is hoped that this innovative research will provide valuable understanding on how knowledge management can be implemented within a public organisation in Malaysia.
In retrospect, research in the area is deemed very important since it can provide evidence of the extent to which the application of knowledge management in the public organisation in Malaysia is being used. It is my understanding that there is currently no systematic research on how knowledge assets are kept in the organisation, and what kind of knowledge is available to be shared within the organisation. It is also hoped that the statistical data derived from the study could provide significant guidelines to the Government on how to implement knowledge management.

The prime concern of the research is to look into ways in which knowledge is transferred within the organisation and to examine what are the variables that have an impact on the performance of knowledge transfer. The speed, reliability and the accuracy of the information/knowledge transfer will be of great importance here. Such information will be invaluable for the purposes of management and planning. Another pertinent aspect of this research is to determine how organisational culture, organisational structure, technology, human resources and political directive can impact the implementation of knowledge management.

To further support my research, Goh argues that most studies deal only with the transfer of knowledge from one organisation to another but lack of a "comprehensive understanding of effective knowledge transfer within an organisation" (Goh 2002, p.24). Therefore, my study concentrates only on one organisation, that is the Ministry of Entrepreneur Development of Malaysia.

1.6 Organisation of the Thesis

My research was organised according to the research process as shown in Figure 1.2. Upon completion, this thesis has been produced according to the research process. Details of the thesis are as follows:
Chapter One  -  This chapter discusses the aims and objectives of the research. It also contains the research problem, rationale, research questions, limitation of the research, and the organisation of the whole thesis.

Chapter Two  -  This chapter discusses the Malaysian geography, historical background, economy and in particular, the Ministry of Entrepreneur Development.

Chapter Three  -  This chapter stresses the importance of knowledge management and will discuss certain models pertaining to knowledge management. Other aspects of knowledge management found in the literature review are also presented.
Chapter Four - This chapter discusses the conceptual framework of the research and the development of hypotheses to support it. Variables are identified and defined. Subsequently, the relationships among the variables are postulated and tested.

Chapter Five - This chapter discusses the research methods of collecting data and questionnaire design.

Chapter Six - This chapter presents the research results. All data gathered from section A and B of the survey are analysed using a descriptive analysis technique. Analysis using cross-tabulation is used to explore in depth the respective items.

Chapter Seven - This chapter discusses the findings derived from the survey. Hypothesis testing is conducted on all variables identified in section 1.4.

Chapter Eight - This chapter discusses the findings derived from the interviews with key informants in the Ministry of Entrepreneur Development of Malaysia.

Chapter Nine - This chapter discusses the conclusions of the research. Recommendations to the public organisations on knowledge management are presented. This chapter also makes some suggestions for future research.

1.7 Conclusion

This chapter introduces the background of the study, where emphasis was made on why knowledge is now being considered as one of the most important intangible assets that need to be managed by any organisation.
The purpose of the study, its aims and objectives, and why it is significant to be studied in the Malaysian context was examined. Here too, the study's conceptual framework was presented. Several independent variables, i.e. sharing culture, individualism, document confidentiality status, communication flow, training, posting, staff turnover, ICT tools, ICT infrastructure, ICT know-how, knowledge assets and directives form politician were identified. The relationship between all the independent variables and the performance of knowledge transfer was formulated.
Chapter 2

BACKGROUND OF MALAYSIA AND MINISTRY OF ENTREPRENEUR DEVELOPMENT
CHAPTER TWO

BACKGROUND OF MALAYSIA AND MINISTRY OF ENTREPRENEUR DEVELOPMENT OF MALAYSIA

This chapter will discuss Malaysia's geographical, historical and economic background, and the Ministry of Entrepreneur Development of Malaysia's background.

2.1 Malaysia's Geographical Background

Malaysia is geographically located in the centre of South East Asia and is comprised of two parts, which are Peninsular Malaysia and East Malaysia. Peninsular Malaysia is a long portion of land, which extends from the border of Thailand on the north and to Singapore on the south. It consists of the state of Johor, Kedah, Kelantan, Melaka, Negeri Sembilan, Pahang, Pulau Pinang, Perak, Perlis, Selangor, Terengganu and the Federal Territory of Kuala Lumpur. East Malaysia on the other hand is made up of the states of Sabah, Sarawak and the Federal Territory of Labuan and is situated on the island of Borneo. Malaysia has an area of 329,758 square kilometres (Malaysia Official Year Book 1996, p.1) and lies near the Equator between
Background of Malaysia and Ministry of Entrepreneur Development of Malaysia

latitudes $1^\circ$ and $7^\circ$ North and longitudes $100^\circ$ and $119^\circ$ East (Malaysia Official Year Book 1992, p.1). The map of Malaysia is shown in Figure 2.1.

![Map of Malaysia](http://www.ait.unl.edu/doc2/students/lim/Map.htm)

**Figure 2.1: Map of Malaysia**

2.2 Population

Malaysia is a multi-racial country. The principal racial groups are the Malays, the Chinese and the Indians, which together comprise 82.9 percent of the total population. The majority of the population is the Malays who have inhabited the area for at least 2,500 years (Baker 1999, p.13). The other major races are the Chinese and the Indians, who arrived in Malaysia mostly in the 19th and 20th century. Other groups are the Dayaks, Kadazans, Bajaus, Melanaus and Muruts (indigenous races of Sarawak and Sabah), the aborigines who live in Peninsular Malaysia; European and Eurasians (Malaysia Year Book 1996, p.12). The population figures by ethnic groups as recorded on August 2001 are shown in Table 2.1:
Table 2.1 – Population Estimates by Ethnic Group (Monthly Statistical Bulletin August 2001, p.7)

(p) - projection

<table>
<thead>
<tr>
<th></th>
<th>1991 ('000)</th>
<th>1995 ('000)</th>
<th>2000&lt;sup&gt;p&lt;/sup&gt; ('000)</th>
<th>2001&lt;sup&gt;p&lt;/sup&gt; ('000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>18,547.2</td>
<td>20,689.3</td>
<td>23,266.0</td>
<td>23,795.3</td>
</tr>
<tr>
<td>Malaysia Citizens</td>
<td>17,744.2</td>
<td>19,376.6</td>
<td>22,035.8</td>
<td>22,528.9</td>
</tr>
<tr>
<td>Bumiputera</td>
<td>10,730.5</td>
<td>11,914.9</td>
<td>14,556.2</td>
<td>14,885.8</td>
</tr>
<tr>
<td>Malay</td>
<td>8,867.8</td>
<td>9,791.5</td>
<td>12,067.8</td>
<td>12,340.8</td>
</tr>
<tr>
<td>Other Bumiputera</td>
<td>1,862.7</td>
<td>2,123.4</td>
<td>2,488.4</td>
<td>2,545.0</td>
</tr>
<tr>
<td>Chinese</td>
<td>5,020.9</td>
<td>5,310.9</td>
<td>5,576.2</td>
<td>5,720.4</td>
</tr>
<tr>
<td>Indian</td>
<td>1,406.5</td>
<td>1,501.6</td>
<td>1,633.4</td>
<td>1,670.6</td>
</tr>
<tr>
<td>Others</td>
<td>586.3</td>
<td>649.2</td>
<td>270.0</td>
<td>252.1</td>
</tr>
<tr>
<td>Non-Malaysian Citizen</td>
<td>803.0</td>
<td>1,312.8</td>
<td>1,230.3</td>
<td>1,266.4</td>
</tr>
</tbody>
</table>

2.3 Historical Background

It is believed that human habitation in Malaysia commenced over 35,000 years before Christ. Evidence of a human skull found in Niah Caves in Sarawak, and Stone Age tools in Lembah Bujang in the peninsula, proved their existence. Until the 13<sup>th</sup> century many kingdoms such as the Cambodian-based Funan, the Sumatra-based Buddhist Sri Vijaya and the Java-based Majapahit may have ruled the region. However, the region became well known when Parameswara, a fleeing Palembang prince, founded Malacca in 1400 (Chay 1986, p.9). From a small village, Malacca became the most influential port in the South East Asia. Trade from most parts of the world started to grow tremendously. With the trade came Islam, which the people embraced and made Malacca the Muslim Malay state.

Malacca’s wealth soon attracted trade from the Europeans in the early 16<sup>th</sup> century. However, trade with the Europeans did not last long, as in 1511 the Portuguese invaded Malacca, followed by the Dutch in 1641 (Chay 1986, p.9). The British came in the late 18<sup>th</sup> century, and opened a new port at Penang in
1786. This was later united in 1826 with Malacca and Singapore to become the Straits Settlements. During these times, the British brought in the Chinese people from China to work in the tin mining industry, and Indians from South India to work in the plantation sector. In the early 1940s, during World War II, the Japanese invaded the Malay Peninsula. After the Japanese surrender, the British came back in 1946 and united all the territories on the peninsula in the Union of Malaya. However, in 1948 the Federation of Malaya was formed, due to pressure from the ethnic Malays, who feared Chinese and Indian influences in the country. By the Agreement of 1948, the British had committed themselves to prepare for the independence of the Federation of Malaya. On 31 August 1957, the Federation of Malaya became an independent state within the Commonwealth. On September 16, 1963, the Federation of Malaysia was formally promulgated which included Singapore (withdrawn in 1965), Sabah and Sarawak (Malaysia Official Year Book 1996, p.10).

2.4 Constitution and Separation of Powers

Malaysia practices parliamentary democracy. However, the country is headed by His Majesty the Yang di-Pertuan Agong as a Constitutional Monarch. The Yang di-Pertuan Agong is elected to the throne every five years by the Sultans of nine states in the Federation, which are the states of Johor, Kedah, Kelantan, Negeri Sembilan, Pahang, Perak, Perlis, Selangor and Terengganu.

In term of the government administration, the Federal Constitution of Malaysia has clearly divided "the authority of the Federation into its Legislative Authority, Judicial Authority and Executive Authority (Malaysia Official Year Book 1996, p.14). The separation of power is also implemented at the state levels.
2.5 The Mode of Operation of the Malaysian Administrative Machinery

The Malaysian administrative machinery is divided into three main levels: the federal government, the state government and the local government. At each level, administration is by two categories of public officers, who hold either the political posts or the conventional public services posts (Malaysia Official Year Book 1992, p.44). All officers are responsible to the Prime Minister or the respective Menteri Besars or Chief Ministers of the states. However, the public service officers are usually directly responsible to the Chief Secretary General. The Chief Secretary General also acts as the Secretary General to the Prime Minister's Department. At the state level, the State Secretary of the respective states acts as the head of public service.

The Public Service of Malaysia has a very strongly established organisational foundation, which helps the Government develop the nation. Apart from the central agencies, the public service is also supported by Ministries, Federal Departments, Statutory Bodies, Public Enterprises and, Local Authorities. In terms of structure, each of the prominent central Agencies, such as the Malaysian Administrative Modernization and Management Planning Unit (MAMPU), Public Services Department (PSD), Implementation and Coordination Unit (ICU), and Economic Planning Unit (EPU) have been placed within the Prime Minister's Department. Each of these agencies has the responsibility for making policy initiatives and preparing guidelines for every Government Office, and also for determining the administration as well as the management of all other government Agencies in line with the Government's overall vision.

The Malaysian Administrative Modernization and Management Planning Unit (MAMPU), for example, is responsible for reforms in the public sector and creates new guidelines when the need arise. The emphasis will be on the creation of values, especially through matters of quality, productivity, accountability, discipline, responsiveness, integrity, moral and ethical judgment and transparency. MAMPU also acts as an advisor to the
government in management and information technology and as a consultant in organisational development.

Another key player in the Government establishment is the Public Service Department (PSD). The Public Service Department is responsible for the formation and implementation of policies on personnel management for the whole of the public service, especially in determining the organisational structure and staff personnel of all Government offices. These include all of the Central Agencies, the Ministries, Federal Departments, Statutory Bodies, State Development Offices, District Offices and local authorities. Furthermore, PSD issues guidelines, rules and regulations for the recruitment, appointment, promotion, discipline, termination of service, pensions, etc., for all of the public sector organisations.

The Ministries are the highest bodies of the Federal administration and are set up to carry out the responsibilities entrusted to the government. Each Ministry plays an important role in directing, planning, coordinating, enforcing and implementing (Malaysia Year Book 1992, p.44). At present there are 25 Ministries in the government of Malaysia with each performing different functions. Each Ministry is headed by a Minister through the political appointment, and the Minister is helped by a Secretary General. The Secretary General, who is also the most senior administrative officer, acts as the advisor to the Minister, especially in matters concerning government policies, and is also responsible for implementing all government policies and directives. The Ministries have under them different departments and statutory bodies. Each department and statutory body is headed by a Director General and acts as the implementing agency to carry out their respective functions.

All the Ministries are responsible for making policies related to their establishment, and for the control and supervision of all Government Departments that have the same responsibility. For example, it will be the Ministry of Finance that will make policies, rules and regulations for the
financial aspects and provide supervision to the other Agencies, such as the Accountant General's Department, the Inland Revenue Board and the Employee Providence Fund.

Every Government Department and Agency is required to follow every rule and regulation as laid down by the Government. Other than the Federal Constitution and related Acts, each is required to follow the General Order, the Treasury Instruction, Development Administration Circular, Service Circular and Service Circular Letter, Treasury Circular and Treasury Circular Letter, and the Public Officers (Conduct and Discipline) (Malaysia Supporting Material 2001)

2.6 Malaysia's Economic and Development Programme

Malaysia’s development programme started in 1957, immediately after her Independence. In the early stage of development, the main source of growth was concentrated in the agriculture and natural resources sectors. At that time, Malaysia was the main producer of rubber and tin ore in the world. In the 1970s, Malaysia changed tremendously by moving from agriculture to import-substitution and export-oriented industrialisation. Assembly-type manufacturing factories have become more prominent. In the 1980s, the country has moved further by concentrating on investment in medium-tech manufacturing and services, and these have become the main source of economic growth. With the need for higher productivity, Malaysia has upgraded her economy through high-tech manufacturing and services in the 1990s. In the new millennium the nation has re-examined the overall development strategy, and has moved from a productivity-driven growth phase to a knowledge-based and technology-driven phase. The phases of growth are shown in Figure 2.2.
The agenda to develop the Bumiputera (sons of the soil, or the indigenous people) started in 1969, immediately after the racial riots on May 13, 1969. An Emergency was declared then, and the government launched the First Outline Perspective Plan and the New Economic Policy (NEP), of which the principal goal was to strengthen national unity. The main objective of the NEP is to eradicate poverty and to restructure society through a more equitable distribution of welfare, education, employment and corporate wealth ownership. The Plan is also to encourage the Bumiputera to raise their ownership of the corporate sector to 30 percent.

Over a period of 20 years (1970-1990) a series of Five-Year National Plans were implemented. During this period, the Malaysian economy grew at an average of 6.7 % per annum, slightly below the target growth set in the First Outline Perspective Plan (Abdullah 1999, p.5). The NEP was then replaced by the New Development Policy (NDP) in 1991 with similar objectives to the
NEP, which is to "eradicate poverty and restructuring society so as to correct social and economic imbalances and thereby contribute towards national unity" (Malaysian Official Year Book 1990/91, p.4). The NDP is also aimed "to establish a more united and just society, and the realisation of the ultimate objective that Malaysia will becomes a fully developed nation by the year 2020, not only economically but also in all other aspects" (Hamzah and Ho 1994, p.27).

Simultaneously with the NDP, the government launched Vision 2020. The main agenda of Vision 2020 is to have attained fully developed nation status by the year 2020 (Mid Term Review 1993, p.3). The Vision 2020 framework, however, states that Malaysia could not be a fully developed country until Malaysians can overcome the nine central strategic challenges which have confronted Malaysia since independence. The nine strategies are as follows:

- To establish a united Malaysian nation with a sense of common and shared destiny
- To create a psychological liberated, secure, and developed Malaysian society with faith and confidence in itself
- To foster and develop a mature democratic society
- To establish a fully moral and ethical society
- To establish a scientific and progressive society
- To establish a matured, liberal and tolerant society
- To establish a fully caring society and a caring culture
- To ensure an economically just society
To establish a prosperous society.

2.7 ICT and Knowledge-driven Phase

The global growth of new technology has been recognised in Malaysia since the 1970s, but the application has been slow. In the 1980s, the use of computers progressed steadily. Many public service organisations started using information technology facilities, such as computers, networking, and office automation, especially in various working functions. Towards the mid-1990s Malaysia geared itself up to face the challenges of a new era in Information Technology. The National Information Technology Agenda (NITA) was then formed, with the aim of transforming Malaysia into a knowledge society by the end of the first quarter of the new century. To enable the public to get access to government information, the Malaysia Civil Service Link (MCSL) has also been established. The website has listed all government agency homepages where they can be accessed worldwide. These will allow the public to get information on all kind of services that are offered by the government.

Subsequently, the Government of Malaysia has made another drastic change by launching the Electronic Government (EG), with the aspiration of employing multimedia technologies to reinvent the way government operates and to establish the development of the Multimedia Super Corridor (MSC) (Maarof 1998, p.11). Under the EG, the government is now in the early stages of implementing seven pilot applications, that are; (Maarof 1998, pp.17-23, Government of Malaysia 2000, pp.3-81, Johare 2001, p.98)

- **Prime Minister's Office – Generic Office Environment (GEO).** The GEO is to create a fully integrated, distributed, manageable and scalable office environment which provides common functional components that can suit the business needs of other departments within the government.
• **Project Monitoring System (PMS).** The PMS is designed to provide a mechanism for monitoring the implementation of government projects in the public sector. The main objective of PMS is to establish a richer collaboration systems environment, an open and flexible system and to provide paperless project monitoring capabilities.

• **Human Resource Management Information Systems (HRMIS).** HRMIS will act as a single interface for government employees to perform the human resource management function effectively and efficiently in an integrated environment.

• **Electronic Procurement (eP).** This application is to automate, re-engineer and transform the current procurement systems into a more efficient system.

• **Electronic Delivery of Driver and Vehicle Registration, Licensing and Summons Services, Utility Bill Payment and Ministry of Health Online Information (eService).** This application is to enable the public to have a better service access to all related government agencies.

• **Electronic Labour Exchange (ELX).** ELX aims to enhance workers mobilisation through the matching electronically of work seekers with job vacancies electronically.

• **EG-AG Integration.** This application is to integrate all the pilot applications under the EG with the legalisation system at the Accountant General Department.

Since the early 1990s, there have been increasing investments in office technology in public organisations in Malaysia. According to the Malaysian Administrative Modernisation Planning Unit (MAMPU) the Government of
Malaysia spent RM556.22 million (US$146.37 million)* on the upgrading of telecommunication hardware and software, project development, system development and value added services in 1997. However, the amount fell to RM404.74 million (US$106.51 million) in 1998 and RM402.38 million (US$105.89 million) in 1999 due to the economic recession that hit the East Asian economies from mid-1997 to 2000.

As a result, The World Bank reported that Malaysia is one of the developing countries that have made effective use of information technologies as a key thrust of the national development strategies (World Development Report 1999, p.61). It further stresses that:

"Malaysia, for example, has defined its information technology objectives and included them in its development strategy. The objectives include enhancing awareness of the new technologies among the population, ensuring widespread diffusion and application of information technology training, and revisiting laws and regulations to facilitate and protect transactions that use electronic rather than paper-based modes of exchanging information" (1999, p.61)

The wave of accepting knowledge as a valuable asset started a few years ago. In the official opening of a K-Economy Conference on October 17, 2000, the then Prime Minister of Malaysia, the Honourable Dato' Seri Dr. Mahathir bin Mohamed, emphasised that knowledge is real. He showed on a graph "that productivity growth doubled in knowledge-rich economies" (Mohamed 2000b). He further stressed:

"Knowledge of course has always played a role in the progress of nations. Knowledge of the stars and the geography of continents had enabled the early civilisations to trade with distant places and exploit distant lands. Knowledge of the sciences had contributed to the industrial age. But today knowledge refers more to the speed of communication and the speed of information and data. Everything that anyone needs to know in order to make decisions is at everyone's fingertips literally. The deciding factor is the skill and the speed with which one uses information in order to decide. And that skill and speed comes from the depth of knowledge that one has of the different elements and technological capacities can be made to work to yield a desired result" (Mohamed 2000b).

* US$1 is equivalent to RM3.80
In a speech given at the Second World Knowledge Conference in Kuala Lumpur on March 8, 2000, the Prime Minister of Malaysia, the Honourable Dato’ Seri Dr Mahathir bin Mohamed, emphasised that “in our Vision 2020, we set the goal of becoming a fully developed nation by 2020, the end of our second generation as an independent country” (Mohamed 2000a, p.4). He further stressed:

“Vision 2020 noted that there was a time when land was the most fundamental basis of prosperity and wealth. Then came the second wave, the age of industrialisation. Smokestacks rose where fields were once cultivated. Now increasingly knowledge will be not only the basis of power but prosperity”.

In the 2001 Budget Speech presented on October 27, 2000, the Finance Minister of Malaysia, Daim Zainuddin (Zainuddin, 2000), urged Malaysian citizens to be well prepared with the emergence of the K-economy. He further stressed:

“We must accept the realities of the K-economy. We have no other alternative. We shall all become citizens of the K-economy. Survival in a borderless global economy based on knowledge requires everyone to be equipped with new skills and assimilate the culture of high technology and dynamic entrepreneurship”.

At the end of the year 2002, the government of Malaysia has published the K-based Economy Master Plan (KEMP) which aims to propel Malaysia from a Production-based economy (P-economy) to a Knowledge-based economy (K-economy). The KEMP has proposed seven strategic thrusts for the transition, that are (K-based Economy Master Plan 2002, p.viii):

- To cultivate and secure the necessary human resources

- To establish the institutions necessary to champion, mobilise and drive the transition to a K-based economy

- To ensure the incentives, infrastructure and infostructure necessary to prosper the optimal application of knowledge in all sectors of the economy
• To increase the capacity for the acquisition and application of science technology

• To ensure that the private sectors spearhead the K-based economy development

• To develop Knowledge-based Civil Service

• To bridge the knowledge and digital divides.

The Master Plan's strategic thrust complement each other, and all thrusts are equally important in enhancing the Malaysian economy in the future.

2.8 Background of the Ministry of Entrepreneur Development of Malaysia

One of the strategies in the National Development Plan and the New Development Policy is the agenda for the creation and sustaining of entrepreneurs, especially the 'Bumiputera'. In line with this, the Ministry of Entrepreneur Development (MED) of Malaysia was formed on May 8, 1995, to assume the full responsibilities of the Ministry of Public Enterprise. The mission of the Ministry is to create and develop genuine entrepreneurs who will be of high quality, and are resilient, successful and competitive in all economic sectors. The Ministry is also responsible for cultivating an entrepreneurial culture among Malaysians.

The Ministry of Entrepreneur Development (MED) of Malaysia is one of the most important Ministries that caters for entrepreneurship development. It employs about 550 staff, engaged in planning (policy) and planning development, commercial vehicle licensing, civil contractors services, project and programme development, monitoring franchise and vendors programme, entrepreneurship training programme and entrepreneur development
programme. The organisational structure of the Ministry is shown in Figure 2.3.

There are six agencies and 13 State Development Corporations that are under the Ministry's supervision. The agencies are Majlis Amanah Rakyat (MARA), Perbadanan Kemajuan Kraftangan Malaysia (PKKM), Perbadanan Nasional, UDA Holdings, Credit Guarantee Corporation (CGC) and Yayasan Tekun Nasional.

2.8.1 The Commercial Vehicle Licensing Board (CVLB)

The CVLB is responsible for providing an efficient and effective commercial vehicle system for Malaysia. The CVLB has three main Boards, covering the three parts of Malaysia, that is the CVLBs for Peninsular Malaysia, Sabah and Sarawak. This division is also responsible for ensuring that the vehicle industry in the country develops at a pace consistent to the NDP. Currently the CVLB is in the process of developing and implementing a computerised
Commercial Vehicle Licensing System and Commercial Vehicles Information System. All offices throughout Malaysia have been equipped with on-line computer facilities to ensure that all dealings regarding commercial licences can be expedited systematically. In line with the aim to provide quality services to the public, CVLB is also responsible for planning, formulating and evaluating the effectiveness of the country's Licensing Policy and Strategy.

2.8.2. Contractor Services Centre (CSC)

The main objective of the Contractor Service Centre is to create and develop civil and electrical contractors, especially the Bumiputeras. CSC is responsible for reviewing and approving new applications, renewal, class upgrading, enforcement, performance appraisal and awarding status recognition to the contractors. Currently CSC is in the early stages of upgrading its computer system, specifically for application processing, collection and dissemination of information. As such all centres throughout Malaysia have been equipped with new computer facilities.

2.8.3. Project and Programme Development Division

The main task of the Project and Programme Development Division is to monitor all project funds allocated to the agencies under the supervision of the Ministry. It has to ensure that the allocated funds (loans and grants) are fully utilised by the agencies, as outlined in the Five-Year Malaysian National Plan and the annual allocation schedules. In monitoring the projects, known as the SIAP and SETIA, this division is equipped with computer systems by the central agency and is connected online.

2.8.4. Information Management Division

The Information Management Division is responsible for managing the Ministry's computer facilities and for providing guidelines to users to ensure efficient and effective use of all the systems that have been developed. Other
functions run by this division include system development, operation of the computer communication network, database management, system maintenance and internal computer training. Some of the important databases managed by the division are the Commercial Vehicles Licensing Board System, the Entrepreneur Information System and the Personnel Information System.

2.8.5. Franchise and Vendor Development Division

The Franchise and Vendor Development Division is responsible for creating entrepreneurs through vendor and franchise programmes. The Franchise Unit's main task is to appoint new franchisors and Master Franchisees under the Franchise Development Programme, while the Vendor Unit is to identify new potential anchor companies and to appoint new vendors under the Vendor Development Programme. Other tasks that are the responsibility of this division include monitoring the franchise and vendor programmes, audit and inspection work, enforcement, identifying and developing local products and keeping a franchise and vendor database.

2.8.6. Business Development Division

The Business Development Division is responsible for creating entrepreneurs, especially the Bumiputeras, through the mentor programme, providing advisory and counselling services to entrepreneurs in overcoming business problems, and commercialisation of research and development products. This division is also responsible for co-ordinating all development programmes and creating networking among the Malay, Chinese and Indian Chambers of Commerce.

2.8.7. Entrepreneurship Training Division

The main function of the Entrepreneurship Training Division is to promote entrepreneurial culture in schools, higher education institutions and the public,
through direct meetings and the mass media. This division is also responsible for giving training to new entrepreneurs, specifically in enhancing their business management skills. Entrepreneur clubs such as the District Young Entrepreneur Club and Malaysian Entrepreneur Club have also been established throughout Malaysia with the aim of creating networking among new entrepreneurs.

2.8.8. Planning and Evaluation Division

The main task of the Planning and Evaluation Division is to define implementation policies and guidelines to enable the success of the Ministry's vision and objectives. It is also responsible for evaluating the effectiveness and the impact of implementation of development programmes in achieving the quality and quantity of entrepreneurs aimed for, in line with the Bumiputeras Commercial and Industry Community (BCIC) objectives, as defined by the Government. Furthermore, this division acts as the co-ordinator in implementing the Ministry's policies, strategies and programmes.

2.8.9. Human Resources Division

This Division is responsible for the Ministry's manpower planning. It is also involved in setting up training, conducting employee confidential reports, updating the personnel service book, enforcing disciplinary actions, and many other related functions.

2.9 Conclusion

In this chapter, Malaysia's geography, history and economic background was highlighted. These provide some insights on Malaysia and how the Malaysian administrative machinery has been shaped. Information on Malaysia's economy and its development programme were also discussed, especially with regard to the way in which Malaysia's economy has gradually moved from a production-based economy to a knowledge-based economy. It was
found that the Malaysian government has been serious in utilising the capability of ICT in shaping its machinery. Malaysia is also moving forward in the knowledge-based economy by having a K-based Economic Master Plan with the aim to propel Malaysia into a developed country by the year 2020. In order to understand the function of the Ministry of Entrepreneur Development of Malaysia, a discussion on the Ministry was also presented.
Chapter 3

REVIEW OF THE LITERATURE
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Knowledge management as a concept has emerged as a most influential discipline since the early 1990s. Many public and private organisations are now engaging in knowledge management in order to leverage knowledge both within and outside their organisations. Knowledge is now considered as the most valuable intangible asset (Rubenstein-Montano et al. 2001b, p.300) or the most strategically important resources (Grant 1996, p.109) that needs to be valued, developed and managed (Beveren 2002, p.18, Bogdanowicz and Bailey 2002, p.125). However, managing knowledge (intangible assets) is different form managing tangible assets, as tangible assets tend to depreciate when they are used, while knowledge will grow when used, and depreciates when not used (Sveiby 2001, p.346).

3.1 Data, Information, and Knowledge

Before attempting to discuss in depth the concept of knowledge management, it is appropriate to understand the meaning of data, information, knowledge, and wisdom, because these terms are often used interchangeably and are sometimes misleading. There are many definitions of these concepts, and below are some conceptual definitions of each term derived from various literatures.
Firstly, in the *Dictionary of Computing*, data is defined as information of any form on which a computer programme operates, and it is distinguished from any contrasting form by the fact that it is organised in a structured, repetitive and often compressed way (Dictionary of Computing 1996, p.8). This definition, however, is not complete, as data does not necessarily have to be processed by a computer. Maynard (1987, p.46) provides a more comprehensive definition. He defines data as “a general term used to denote any or all facts, letters, symbols, and numbers that refer to or describe as object, idea, situation, condition or other factors”.

In addition, according to Yolles, data is “a set of string of symbols that can be associated with structures and behaviours” (Yolles 2000, p.1206), and he argues that data is meaningful only when related to a given context. In contrast, Clarke and Rollo see data as a set of discrete facts, presented without judgement and context (Clarke and Rollo 2001, p.206). On the other hand, Longley and Shain (1986, p.81), define data as “a representation of facts, concepts or instructions in a formalised manner in order that it may be communicated, interpreted or processed by human or automatic means”. In an organisational context, data is most usefully described as structured records of transactions. But data is important to organisations—largely, of course, because it is essential raw material for the creation of information (Davenport and Prusak 2000, pp. 2-3).

While data is said to be raw (Bierly *et al.* 2000, p.595) and does not mean much until it is processed into information which is more meaningful. Information is data that has been given meaning (Zolingen *et al.* 2001, p.168) by people as a result of their analysis. According to Davenport and Prusak, “data becomes information when its creators add meaning” (Davenport and Prusak 2000, p.3). Yolles sees information as “a sign or set of signs or signal that predisposes an actor to action” (Yolles 2000, p.1206), while Clarke and Rollo see information as data that is endowed with relevance and purposes (Clarke and Rollo 2001, p.207).
On the other hand, Wiig argues that information "consists of facts and data organised to describe a particular situation or condition" (Knowledge Management Forum, 1996). This argument is further supported by Gene Bellinger, when he points out the "information is data acted upon cognitively, i.e., transformed into some conceptual framework and hence manipulable and usable for other cognitive uses" (Knowledge Management Forum, 1996). A more detailed definition was given by Bierly et al. who define information as "meaningful, useful data", and learning about information as "the process of giving form to data" (Bierly et al. 2001, p.599).

However, knowledge is more than information. According to Wiig (the Knowledge Management Forum, 1996) "knowledge consists of facts, truths and beliefs, perspectives and concepts, judgements and expectations, methodologies and know-how. Knowledge is applied to interpret information about situations and to decide how to handle it." Uit Beijerse (2000, p.163) describes knowledge as something that makes both data and information manageable. Information is converted into knowledge when a person who obtains the information understands, analyses and uses it in making decisions. This indicates that information is one representation of knowledge, but information itself is not knowledge (Shin et al. 2001, p.236). Bierly et al. (2000, p.600) define knowledge as "clear understanding of information and their associated patterns and learning about knowledge as the process of analysis and synthesis of information."

Another view put forward is by Kaipa (2000, p.155) who argues that "knowledge, while having characteristics of information, is not information". It is something that gives meanings to information. Kaipa further explains that knowledge has six key characteristics which are: "it is subjective as well as objective, it is context sensitive, it has both collective and personal components, it has a tacit and explicit nature, it has a limited shelf life in terms of usability and infinite shelf life as a piece of information, and it is functional when you apply it and informational when you acquire it" (Kaipa 2000, p.155).
A more comprehensive definition was provided by Davenport and Prusak (1998, p.5):

"Knowledge is a fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organisations, it often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices and norms".

Meanwhile, Coulson-Thomas (1997, p.17) explains that knowledge comes in many different forms which include facts, attitudes, opinions, issues, values, theories, reasons, processes, policies, priorities, rules, cases, approaches, tools, relationships, risks and probabilities. He stresses that knowledge may be used in many different forms and "located at multiple sources, and accessible through a variety of services and people, in different ways and places, and at varying times" (Coulson-Thomas 1997, p.17). The perception of what represents knowledge also differs from one person to another. He further explains:

"Thus professionals tend to stress practical knowledge, and the awareness and familiarity that comes from experience; while academics focus upon theoretical understanding, or what a peer group regards as being known about the particular subject area. In comparison, IT specialists tend to concentrate upon issues relating to data and information" (Coulson-Thomas 1997, p.17).

3.2 Knowledge Management

The increasing importance of knowledge assets has compelled executives to examine the knowledge underlying their business and how it is used. In the late 20th century, access to and effective use of information and knowledge have proven to be increasingly important factors in economic growth and social development. Manogran (2000, p.8) argues that "the developments in information and communication technology (ICT), globalisation and liberalisation will invariably force most developed and developing economies to move towards a knowledge economy". Furthermore, Halé (2000) stresses "in the future, the most successful companies will be made up of people who
have quick and easy access to the information that they need in order to make informed choices about the best way to meet their customer's needs, and crucially are also given the responsibility and authority to do something about it". 

Many organisations have become so complex that their knowledge is fragmented, difficult to locate and share, and therefore redundant, inconsistent or not used at all (Zack 1998). To remain competitive, an organisation must create, locate, capture, distribute and share the organisation's knowledge and expertise efficiently and effectively. The only companies or organisations that will succeed in the future are the ones that can utilise their workers' potentials.

According to Sánchez et al. (2000, p.315), "managing knowledge is about transforming the individual knowledge (tacit knowledge) into explicit knowledge, selecting the knowledge that will be useful for the firm, re-using that knowledge in a way that helps increase or acquire intangible resources". Shin et al. (2001, p.337-338), suggest that the main task of knowledge management is to identify and facilitate the utilisation of valuable tacit knowledge, especially when it becomes explicit. They further argue that “tacit knowledge is important not because it cannot be articulated, but because it has not been articulated yet" (2001, p.337).

Many organisations have implemented knowledge management (KM) in their company to enable them to make the right decisions at the right time. Knowledge management also aims to fully utilise all available knowledge in the organisation and to embody the knowledge into products and services that can enhance the organisation's competence and competitive advantages (Gao et al. 2002, p.9-10). Examples of known knowledge management initiatives include Ernst and Young Centre for Business Knowledge (Brakenseik 2000), Arthur Andersen's KnowledgeSpace (Bukowitz 1998), Monsanto's Knowledge Management Architecture (Junnarkar 2000), Bechtel's
Organisational Learning (Novis and Armstrong 2000) and Arthur D. Little’s ADL Link (Chait 1999).

There have been numerous examples of people trying to define knowledge management. The Encyclopedia of Management (2000, p.475) sees knowledge management as an organisation’s strategic efforts to gain a competitive advantage by capturing and using the intellectual assets held by its employees and customers. It is deemed that knowledge management “deals with the process of creating value from an organisation's intangible assets” (Rubenstein-Montano et al. 2001b, p.300) or “with personal and unrecorded or tacit knowledge of individuals and with observable, spoken or explicit knowledge which is not necessarily systematically organised” (Lim and Klobas 2000, p.421).

However, Harman and Brelade (2000, p.5) define knowledge management as “the acquisition and use of resources to create an environment in which information is accessible to individuals and in which individuals acquire, share and use that information to develop their own knowledge and are encouraged and enabled to apply their knowledge for the benefit of the organisation”. Knowledge management involves “creating a new culture and mindset, which enables organisations to recognise their tangible and intangible resources and how they should be developed and managed” (Stoddart 2001, p.20).

Quintas et al. (1997) on the other hand, have interpreted knowledge management as “the process of continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities” (Quintas et al. 1997, p.387). With this definition, Quintas argues that it allows managers to explore useful distinctions between different kinds of knowledge, and to develop action-oriented goals for the organisation. These include formulating strategic policy, implementing knowledge strategies, monitoring and evaluating the achievement of knowledge assets and management activities, and improving daily business processes (Quintas et al. 1997, p.387).
The definitions above are also similar with the one given by Newman and Conrad (2000), who define knowledge management as "a discipline that seeks to improve the performance of individuals and organisations by maintaining and leveraging the present and future value of knowledge assets." These encompass both human and automated activities and their associated artefacts which include "documents, files, papers, conversations, pictures, thoughts, software, databases, email messages, data sets, winks and nods, or whatever else can be used to represent meaning and understanding" (Newman and Conrad 2000).

ICL has also made their own strategic definition of knowledge management, which they see as a term covering the process, systems, culture and roles that must be put in place to build and enhance the creation and sharing of intellectual capital across the global organisation (Lank 1997, p.407). In practice Barclay and Murray (2000) conclude that knowledge management normally "encompasses identifying and mapping intellectual assets within the organisation, generating new knowledge for competitive advantage within the organisation, making vast amounts of corporate information accessible, sharing of best practices, and technology that enables all of the above".

Interestingly, Demarest uses different terminologies in defining knowledge management. Instead of knowledge management he uses a term known as 'commercial knowledge', which he defines as similar to what the French call 'bricolage'. He refers to 'bricolage' as "the provisional construction of a messy set of rules, tools and guidelines that produce according to the expertise and sensitivity of a craftsman, not the empirical accuracy of the rules, tools and guidelines" (Demarest 1997, p.375). To clarify his concept, Demarest has also made some distinction between commercial, scientific and philosophical knowledge. He argues that scientific knowledge, as the paradigmatic form of all knowledge, is conventional and not suitable to use, and philosophical knowledge as a post-structuralist concept that argues that truth is embedded
in language and therefore inaccessible. On the other hand, Demarest defines commercial knowledge as:

"an explicitly developed and managed network of imperatives, patterns, rules and scripts, embodied in some aspect of the firm and distributed throughout the firm, that creates marketplace performances" (Demarest 1997, p.377).

A more comprehensive definition was provided by Gartner Group where knowledge management is defined as:

"A discipline that requires an integrated approach to identifying, managing and sharing all of an enterprise's information assets. These assets may include documented knowledge in databases and policies as well as expertise and experience articulated by individuals employees. Knowledge Management includes developing, implementing and maintaining technical and organisational infrastructures that support knowledge sharing" (Gartner, 2000)

There are many reasons why many organisations or companies implement knowledge management. Wiig (1997a, p.8) stresses that in most organisations the main purpose of implementing knowledge management is to maximise the enterprise's knowledge-related effectiveness and returns. He further explains "Knowledge Management is to understand, focus on, and manage systematic, explicit, and deliberate knowledge building, renewal, and application" (Wiig 1997a, p.8). He also found out in his observation that most companies pursue five different knowledge management strategies, which are the knowledge strategy as business strategy, intellectual assets as management strategy, personal knowledge asset responsibility strategy, knowledge creation strategy and knowledge transfer strategy (Wiig 1997a, p.8 and 1997b, p.400).

The knowledge strategy as business strategy mainly focuses on creation, capture, organisation, renewal, sharing and use of knowledge in the organisation. The intellectual assets management strategy, however, emphasises the enterprise-level management of specific intellectual assets. These include patents, technologies, operational and management practices,
and customer relations. The personal knowledge strategy concentrates on personal knowledge responsibility in knowledge-related investment and innovation. A focus on knowledge learning, research and development, and motivation toward the betterment of the organisation is known as knowledge creation strategy, while a systematic approach to transferring knowledge and adopting best practices for the organisation is called knowledge transfer strategy.

In a survey conducted by the *Journal of Knowledge Management* (Chase 1997, p 38) it is confirmed that knowledge management acts as a business strategy among big private and public organisations. The survey revealed that the key benefits of managing knowledge in the organisations were: "improved decision-making (89%), increased responsiveness to customers (84%), improved efficiency of people and operations (82%), improved innovation (73%) and improved products/services (73%)" (Chase 1997, p 42). This survey also reported that most practitioners claimed that there were 'knowledge bottlenecks' in their organisations which cause inefficient operations and may lead to disastrous and expensive problems in today's fast-changing k-economy (Chase 1997, p 41).

This trend was confirmed by a study done by KPMG Consulting in 2000, which involved 423 organisations in the United Kingdom, mainland Europe and the United States of America. The survey shows that 79% of respondents understood that knowledge management plays an important role in improving competitive advantage, 75% in marketing, 72% in improving customer focus, 64% in product innovation, 63% in both revenue growth and profit, and 57% in employee development (Knowledge Management Research Report 2000, pp.1 and 13).

Knowledge management is not only about managing knowledge assets but also managing the process that acts upon the assets. These processes include developing, preserving, using and sharing knowledge. Knowledge management also involves the identification and analysis of available and
required knowledge assets and knowledge asset related processes and the subsequent planning and control of actions to develop both the assets and the processes so as to fulfil organisational objectives. However, most organisations have tended to concentrate on the technical aspects of knowledge management compared to that of people management.

In order to be successful, an organisation needs to make sure that their employees’ knowledge can be identified and shared effectively within the organisation. Bender and Fish (2000, p.125) argue that, “to build and sustain their (organisation's) competitive advantage, the knowledge and expertise of an organisation's staff needs to be seen as a critical strategic resource”. Organisations that will succeed in the global society are those that can identify, value, create and evolve their knowledge assets (Rowley 1999, p.416).

In addition, Nonaka and Takeuchi (1995, p.245) wrote in their famous book *The Knowledge-Creating Company* that, “the future belongs to companies that can take the best of the East and the West and start building a universal model to create knowledge within their organisation”. "Knowledge is the factor with which the poorly organised business environment can become well organised, with which the complex world become manageable and with which unclear items can be interpreted" (uit Beijerse 2000, p.163). Lee and Yang (2000, p.785) asserts that knowledge management is about “doing the right thing instead of doing things right”.

Skyrme and Amidon (1997, p.27) suggest that effective management and exploitation of knowledge requires a holistic view of the enterprise as “it embraces aspects of people management and organisational culture as well as technology infrastructure”. Technology on its own cannot produce or distribute knowledge without the involvement of people. Conversely, knowledge processes cannot take effect efficiently and effectively without technology. Technology is only the enabler of a k-economy. This has been further discussed by Malhotra (1998) where he concluded that:
"Knowledge Management caters to the critical issues of organisational adaptation, survival and competence in face of increasingly discontinuous environmental change. Essentially, it embodies organisational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings".

Apart from having knowledgeable employees, an organisation also needs to have groups and individuals who are responsible for supporting knowledge management. Without the support, "organisations will encounter difficulties in creating knowledge-based working environments and cultures" (Chase 1997, p.44). Hibbard and Carrillo (1998) suggest that "the biggest trends in knowledge management will have little to do with technology, and a lot to do with corporate culture". Their views are supported by the results of implementing knowledge management at Arthur D. Little Inc., a process known as ADL Link. ADL Link concentrates on four domains, which are the content, culture, process and infrastructure, and finds that:

"The computer system was just one element in a broad initiative to maximise the potential of our knowledge resources. In addition to the hardware and software, we had to concern ourselves with issues of content, culture, and process. In fact technology provided only about 20% of our overall solution" (Chait 1999, p.24)

Meanwhile, Stoddart sees knowledge management as a process that encompasses three main elements: organisational learning, information management and information technology (Stoddart 2001, p.20-21). She argues that organisational learning relates more to the need of changing employees' attitudes towards sharing knowledge, while information management places emphasis on categorisation, organisation and access to information and data in computer applications, databases and archives. On the other hand, Stoddart sees information technology as the tool to facilitate information flow and knowledge sharing. Details are shown in Figure 3.1 below.
3.3 Ontology and Epistemology of knowledge

In the last century, knowledge has been debated by many scholars and practitioners from different perspectives. Knowledge was debated not only from the philosophical perspective (Polanyi, 1966), but has also been discussed in many other disciplines such as economy, organisational theory etc. As a result, knowledge has been defined differently and failed to answer how knowledge can be managed effectively. The most basic disciplines in philosophy are ontology and epistemology.

From an ontology standpoint, knowledge is classified as individual or social (Campos and Sanchez 2003). On the individual perspective, it is argued that knowledge is not abstract but rather embodied in the person. Therefore, in a strict sense only individuals create knowledge. Polanyi (1966) sees tacitness and explicitness as two different dimensions of knowledge. Hence, “all knowledge is either tacit or rooted in tacit knowledge (Polanyi, 1966, p.7) and as such, is human activity. Nevertheless, individuals have experience that can serve as the basis for collective knowledge when the latter is transmitted via oral, written or body language. On the social perspective, knowledge is possesses either by groups or by the organisations itself.
Epistemology, on the other hand is a branch of philosophy (Heylighen 1993, Klein 1998, DeRose 2003) that studies the nature, scope, and sources of knowledge (Encyclopaedia Wikipedia) and try to answer the basic questions of knowledge that is “what distinguishes between true (adequate) knowledge from false (inadequate) knowledge” (Heyligen 1993) or in another word, what constitute knowledge (Kakabadse et al. 2003, p.81). According to Hjørland “epistemology is about knowledge: what knowledge is, how we get knowledge, the basic knowledge of coming to know etc.” (Hjørland 1998, p.607) and “epistemologies are theories or approaches to knowledge” (Hjørland 2002, p.439). Thus, there are many views on knowledge, but one virtually universal presupposition is that knowledge is true belief.

Basically, there is a great number of epistemological positions that have been discussed by many philosophers, and make it difficult to generalise. Some of them are empiricism, positivism, rationalism, historicism, phenomenology, pragmatism, functionalism, feminism, constructivism, postmodernism and scepticism (Hjørland 2002, p.440). However, only a few epistemological positions will be discussed.

Empiricism

Empiricism is a philosophy that favours perception and experience (Hjørland 1998, p.608). Empiricism sees users as born without any knowledge, and all the knowledge an individual obtained came from the senses (Hjørland 1998, p.608; Pojman 2003, p.2).

Rationalism

Rationalism was developed by Plato (Manion 2000-2001). It is a philosophy that emphasise sensory experience and more on reasoning and a priori theorising (Hjørland 1998, p.608). Rationalism, differs from empiricism because it sees sense as a limited way to attain knowledge. In order to see something, a person must already have a certain psychological make-up,
which permits him or her to interpret the sense data. A person must have some concepts and these concepts cannot come from the senses but must be inborn (Hjørland 1998, p.609).

Historicism

Historicism is a philosophy that emphasises that perception and thinking are always influenced by our language, culture, by our pre-understanding and 'horizon', including our scientific theories (Hjørland 1998, p.608). Historicism agrees with rationalism in the view that our experiences are determined by our psychological make-up. However, it does not see this make-up as something inborn or common for all human beings, but rather as determined by cultural factors (Hjørland 1998, p.609).

Constructivism

Constructivism is interpreted in many ways, although when used in epistemological sense its main thrust is to assume that knowledge is a function of how the individual constructs "meaning from his or her experience". In its epistemological dimension and from the constructionist perspective, knowledge can be tacit or explicit (Campos and Sanchez). Tacit knowledge is deeply rooted in action, procedures, routines, commitments, ideals, values and emotions. Tacit knowledge can further be divided into two perspectives that are the technical-expert and cognitive. Thus, within organizations, and from the epistemological point of view, knowledge may be distinguished into three categories: explicit, technical-expert tacit and cognitive tacit. This view was in line with the view of Polanyi (1966) and Nonaka and Takeuchi (1995).

On the basis of the explicit and tacit knowledge, Whitehill (1997, p.623) further divided knowledge into six different groups which are:
1. Encoded knowledge (know what?) which includes written policies and procedures;
2. Habitual knowledge (know how?) which includes everyday routine activity;
3. Scientific knowledge (know why?) which includes technological and technical knowledge;
4. Collaboration knowledge (know who?) which includes interaction and problem solving;
5. Process knowledge (know when and where?) which is the cross-functional team; and
6. Communal knowledge (care why?) which is the organisational culture.

When analysing the ontology and epistemology of knowledge, the author believes that it is very important to have a clear view on how they are related to one another. Firstly, on the epistemology perspective, knowledge can be examined into two different ways. Firstly, knowledge can be divided into know what, know how, knowledge why, know who, know when, know where and care why (Whitehill). The other view of knowledge is as proposed by Polanyi (1967) and Nonaka and Takeuchi (1996) that view knowledge should be viewed as tacit and explicit knowledge. On the ontology perspectives, knowledge is centred in individual and social (groups and organisations) perspectives. The relationship between what Nonaka and Takuechi, Polyani, Whitehill and Compos and Sanchez postulate is shown in Figure 3.2.
3.4 Ontology and Epistemologies on Knowledge Management

Christensen and Bang (2003) argue that the meaning of different perspectives on knowledge and knowledge management can be expressed through three different epistemologies that are the artefact, process and autopoietic-oriented epistemology. According to Christensen and Bang (2003, p.121) the artefact-
oriented epistemology focus on collecting and sharing data and information such as documents, reports, statistic etc. “Within artefact-oriented epistemology, knowledge management is focused on the type of knowledge, which may be explicatured, formalised and ultimately codified”. The process-oriented epistemology considers knowledge creation and sharing as a continuous process between people and technology as well as tacit and explicit knowledge (Christensen and Bang 2003, 123). Seen from the process-oriented epistemology, the creative working model may be considered a knowledge management activity for structuring the working process and for creating, sharing and internalising knowledge. With regard to autopoietic-oriented epistemology, it requires an untraditional organisational understanding of interaction with the surroundings as it presumes that information and knowledge may not be transferred from one system to another (Christensen and Bang 2003, p.125)

There are several existing knowledge management models that have been widely used by researchers and practitioners. Nonaka and Takeuchi (1995) have introduced the most comprehensive model on knowledge conversion processes. In their book, The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation, Nonaka and Takeuchi (1995, p viii), have classified human knowledge as being of two kinds: explicit knowledge and tacit knowledge. Explicit knowledge can be expressed in words and numbers, and is easy to articulate, capture, and distribute in different formats, whereas tacit knowledge is highly personal and difficult to capture, codify, adopt and distribute because individuals cannot easily articulate this type of knowledge (Bhatt 2000, p.17; Choo 2000, pp.395–396; Gottschalk 1999, p.3; Mårtensson 2000, p.209). In an article in the Journal of Knowledge Management, Junnarkar and Brown (1997, p.142) have quoted Polanyi’s (1966) definition of tacit knowledge and explicit knowledge as:

“Tacit knowledge is that which implied but is not actually documented; something an individual knows from experience, from other people, or from a combination of sources. Explicit knowledge is externally visible; it is documented tacit knowledge”.

50
Nonaka and Takeuchi (1995, p.62) have explained their Theory of Organisation Knowledge Conversion further by an assumption that knowledge is created through the interaction between explicit and tacit knowledge. They have proposed four different modes of knowledge conversion, which are 'socialisation', 'externalisation', 'internalisation' and 'combination'. Details of the modes are illustrated as follows:

![Diagram of Four Modes of Knowledge Conversion (SECI) (Nonaka 1999, p.68, Nonaka et al. 2000, p.12)](image)

The conversion of knowledge from tacit knowledge to explicit knowledge, involving activities like brainstorming, discussion and debating, where people expose their knowledge to others and test its validity is called socialisation. This knowledge exchange may be a one-to-one, one-to-many, or a many-to-many interaction. Nonaka (1999, p.66) argues that "the key to acquiring tacit knowledge is experiencing, particularly some form of shared experience". Examples of socialisation are traditional apprenticeship and on-the-job training.
Externalisation involves the conversion of knowledge from tacit knowledge to explicit knowledge, where knowledge is stored on paper, audio, computer disk, etc. Some examples of externalisation are creation of new product development and Quality Control Circles (QCC). Nonaka et al. (2000, p.9) further stress that “the successful conversion of tacit knowledge into explicit knowledge depends on the sequential use of metaphor, analogy and model”.

On the other hand, the ‘combination’ is a process by which explicit knowledge is converted to explicit knowledge. It is also known as knowledge transfer. This involves the bringing together of diverse pieces of knowledge to produce new insights through various means, including telephone conversations, documents, meetings and ICT. Creative and systematic use of ICT can be very effective to facilitate this mode of conversion. Most practitioners seem to concentrate on knowledge management programmes in this area.

The fourth conversion is from explicit knowledge to tacit knowledge where individuals are exposed to someone else’s explicit knowledge, and make the knowledge their own. This is known as ‘internalisation’ (Junnarkar and Brown 1997, p.36; Nonaka and Takeuchi 1995, p.62). “When knowledge is internalised to become part of individuals’ tacit knowledge bases in the form of shared mental models or technical knowledge-how, it becomes a valuable asset” (Nonaka et al. 2000, p.10).

The SECI model shows a different perspective on the creation of knowledge by individuals in an organisation. Although in reality, the “socialisation”, “externalisation”, “combination” and “internalisation” processes do happen in all organisations, people do not normally know whether they are involved in knowledge creation or not. Organisations need to encourage employees to transform their structured or unstructured data/information/knowledge into something explicit and share it with other members in the organisation. Successful organisations are the ones who are able to identify all tacit and explicit knowledge and fully utilise its potential to the maximum.
Building on the distinction of Nonaka and Takeuchi between tacit and explicit knowledge, we could explain their models into two different perspectives: epistemology and ontology. In the epistemological view, Nonaka and Takeuchi define knowledge as “justified true belief” (based on Polanyi’s epistemology). Thus, knowledge is said to be the outcome of the mobilisation and conversion of tacit knowledge to explicit knowledge. All of this, started with knowledge in minds of individuals. In the ontological view, knowledge is seen as what exists in the system. Here, individuals, groups, networks and organisations have the capacity to learn and hold knowledge. As explained earlier, knowledge begins in the minds of individuals and is known as tacit knowledge, which then be involved in the conversion to explicit knowledge and then back to tacit knowledge.

3.5 Knowledge Management in Public Organisations

Although knowledge management has been widely discussed by many academics and practitioners, there is very little literature and information on knowledge management that can be found in the public sector. Most literature and practical application studies concentrate on private sector organisations, as the achievement of implementing knowledge management programmes can easily be identified and measured there. Conversely, in the public sector, studies on knowledge management are rarely found. This is due to the fact that knowledge management implemented in public sector organisations, focused more on providing services to the public rather than towards gaining financial profit.

McAdam and Reid (2000), however, have undertaken an extensive study on the perceptions, and the use of knowledge management in both public and private sectors. The findings of the survey have also been discussed in a workshop. In the study, they used Demarest’s socially constructed models as their model, as they “assume a wide definition of knowledge and represent knowledge as being intrinsically linked to the social and learning processes within the organisation” (McAdam and Reid 2000, p.317). The study was
performed by analysing four key dimensions of KM: knowledge construction, knowledge embodiment, knowledge dissemination and knowledge use/benefit.

In terms of the construction of knowledge, McAdam and Reid concluded that "most organisations consider knowledge to have both factual and social dimensions" (2000, p.319). In the survey, it was clearly shown that knowledge transfer, capture and dissemination and organisational knowledge are some of the important elements in knowledge and knowledge management. When they made comparison between the public and private sectors, it became clear that organisational knowledge is seen to be much more important in the public sector than to the private sector. This is mainly because the employee has long been identified as the key knowledge repository in the public sector. Another surprising discovery in the survey was that the key part of knowledge management was more advanced in the public sector.

Pertaining to the embodiment of knowledge, McAdam and Reid discovered that both sectors have systematically captured knowledge in the organisations. However, the knowledge seems to be systematically captured only at the senior and middle management level. The survey also revealed that tacit knowledge is gathered more through informal discussions rather than formal discussions, appraisals, inductions and interviews. Another interesting discovery was with regard to the dissemination of knowledge through technology, tools and techniques. The survey showed more than half the respondents argued that technology facilitation was not satisfactory.

In terms of dissemination of knowledge, the survey found out that workshops, discussion forums, training needs analysis and face to face communications are the main methods in facilitating knowledge sharing. However, these methods "were not used in a systematic manner, reflecting the lack of maturity in regard to KM in the organisations studied" (McAdam and Reid 2000, p.324). It is also stressed that employee participation and sharing could not be established where restricted access and dissemination existed.
Further, the use/benefits of KM in the survey also revealed that both the private and the public organisations perceived benefits through improved quality, efficiency, management learning, products and services, and reduced operating cost. However, the public sector's responses were more positive, "reflecting the current drive for efficiency in all areas of the public sector and a recognition that knowledge can make an important contribution" (McAdam and Reid 2000, p 327).

In addition, Al-Athari and Zairi (2001) have carried out another research project on knowledge management in both private and public sector organisations. Their study examined the actual situation on the availability of knowledge management systems in 77 Kuwaiti organisations. Some of the important findings are:

- 52.5 percent and 51.4 percent of respondents from the public and private organisations respectively felt that knowledge is very important to the organisation;

- All respondents in both the public and private organisations considered employees and organisational knowledge as an important source for their KM system;

- 65 percent and 75 percent of respondents in the public and private organisation respectively viewed knowledge as source of power; and

- Changing people's behaviour to share knowledge was seen as one of the most difficult issues in managing knowledge in an organisation.

Liebowitz and Chen (2003) have also conducted a study on knowledge management issues in public sector organisations. In their study, they
investigate how knowledge management could build and nurture a knowledge sharing culture in an organisation. In order to rate how well an organisation is performing knowledge-sharing activities, they developed a Knowledge Sharing Effectiveness Inventory (2003, pp.414-415) and have used the Learning Resources Group of government agencies for testing the inventory. Some of the major findings were:

- Only 5.3 percent of respondents agreed that individualised learning was usually transformed into organisational learning through documenting this knowledge into the organisation's knowledge repository.

- Only 15.8 percent of respondents believed that they have a knowledge sharing culture within the organisation.

- Only 10.5 percent of respondents agreed that the organisation has online communities of practice that allow them to exchange views and ideas in areas of common interest.

- No respondents either agreed or strongly agreed that success, failure, or war stories are systematically collected and used in the organisation.

- 57.9 percent of respondents agreed or strongly agreed that they have the technological infrastructure to promote a knowledge-sharing environment within their organisation.

In the study, Liebowitz and Chen (2003, p.421) found that the organisation had a relatively better knowledge management environment and communication flows but poor organisational facilitation and measurement. Hence, Liebowitz and Chen suggest that overall, the organisation “is not faring well at all the terms of knowledge sharing and overall knowledge management effectiveness” (Liebowitz and Chen 2003, p.421). Although the
research covers many issues on knowledge management, such as sharing culture, technological infrastructure and community of practice etc., it does not evaluate the result using any statistical test, particularly on the effectiveness of knowledge sharing. As a result, it fails to show how strong were the relationship with the variables involved in the study.

Another research project on knowledge management in public sector organisations has been carried out by Shields *et al.* (2000) from Carleton University in Canada. The research, funded by the Social Sciences and Humanities Research Council of Canada, made an attempt to analyse knowledge management initiatives in the Canadian Federal Services and the impact of the knowledge-based economy on work in the public services. Some of the main findings in the research are as follows *(Shields *et al.* 2000):

1. Knowledge and information initiatives are inherently political and have an uneven impact on different civil servants and on different client groups and members of the public;

2. Knowledge workers are not only professionals but also participate in a community of information users; and

3. Since knowledge is the property of large collectives, knowledge will not have been lost if someone who leaves the organisation is replaced with someone of equal qualifications.

The study by Shields *et al.*, however, might have different results if it is conducted in different organisations, settings or locations. Any management can replace officers of equal qualifications but it is almost impossible to get someone of having similar knowledge, beliefs and experiences. It is the task of the management to ensure that tacit knowledge possessed by an individual could be converted into explicit knowledge as much as possible.
An attempt to measure the performance of knowledge management strategies in the public sector has also been made by de Gooijer (2000, pp. 303-310) in Victoria, Australia. In her studies in measuring knowledge management initiatives, she concluded that there exists no model that could be directly applied to public sector organisations. According to de Gooijer, there are two key differences that need to be accommodated and which distinguish public sector management from management of commercial enterprises. The differences are:

"Firstly, public sector agencies are not involved in a simple transaction of services between themselves as a supplier and others as customers. The relationship is far more complex and better described as one between the agency of government and diverse stakeholders. Second, although it is currently fashionable to describe public sector agencies as business operations, they are not profit making concerns. Financial management is only one accountability of many, and not the primary task" (de Gooijer 2000, p.304).

3.6 Research on Knowledge Transfer

The transfer of knowledge in an organisation has become a critical factor in an organisation's success and competitiveness. Many organisations are now concentrating their efforts on how knowledge, particularly tacit knowledge existing in the organisation, can be transferred within the organisation or with different organisation. According to Bloodgood and Salisbury (2001, p.58) organisations that use a strategy of knowledge transfer focus on rapidly disseminating knowledge throughout the organisation.

What is knowledge transfer? Major and Cordey-Hayes (2000, p.411) see a transfer of knowledge as a conveyance of knowledge from one place, person, ownership, etc., to another. It involves two or more parties where there has to be a source and a destination. Successful knowledge transfer requires the transferors to be capable and willing to transfer knowledge in one hand and on the other hand, the recipients are also willing to acquire knowledge. Basically, knowledge can be transferred in many different ways such as
through publications, interactions of personnel, services exchanged and so on (Albino et al. 1999, p.54).

However, knowledge, which is regarded as an intangible asset, is different from tangible assets. Tangible assets tend to depreciate in value when they are used but knowledge grows when used and depreciate when not used (Sveiby 2001, p.346). This means that knowledge will keep growing whenever a person shares the knowledge that he/she has. According to Bogdanowicz and Bailey, “until it is acted upon, knowledge has no real value. Until a human puts knowledge to use, it is an unvalued asset” (Bogdanowicz and Bailey 2002, p.126).

In recent years, scholars and practitioners in various fields have identified knowledge transfer as one of the most important aspects in determining the success of an organisation. Many studies on the transfer of knowledge have been done, particularly on the transfer of knowledge from one organisation to another.

For instance, Darr and Kurtzberg (2000) analysed factors on how partner similarity enhances knowledge transfer between fast-food franchises in the United Kingdom. They argue that transfer of knowledge occurs when a contributor shares knowledge that is used by other contributors. They further analysed partner similarity through three dimensions: strategy, customer and geographic (2000, p.30), which they believe lead to greater transfer of experience. In exploring the knowledge transfer practices, they used both qualitative and quantitative techniques in conducting their research. They found that the value of strategic similarity as a potential facilitator of successful knowledge transfer (2000, p.41). However, customer and geographic similarity dimensions “are not sufficiently linked to the operations of a franchise in order to encourage knowledge sharing” (Darr and Kurtzberg 2000, p.41). When comparison is made with a public organisation, the researcher believes that customer and geographical dimension are very
important. Since the public is the customer, organisation should make sure that there are similarities in all areas no matter where it is located.

In another study, Szulanski (2000) examined the stickiness of knowledge transfer in eight firms and how the characteristics of the source of knowledge, the context, the recipient and the knowledge itself affected transfer. In the study, Szulanski has suggested four distinct stages in a transfer — initiation, implementation, ramp-up and integration. Details are as shown in Figure 3.4 below:

![Figure 3.4 - The Process of Knowledge Transfer (Szulanski, 2000)](image)

Szulanski argues that the effect on knowledge transfer varies throughout the stages and is consistent with the general expectations. She found that motivation and perceived reliability are significant at the first three stages of the transfer; the recipient's lack of absorptive capacity is significant during implementation, whereas casual ambiguity is significant at all stages of the transfer (Szulanski 2000, p.21). She has also pointed out that one of the barriers to the transformation of tacit knowledge is 'internal stickiness'. A lack of motivation or incentive to share tacit information and the inability on the part of the receiver to value and absorb knowledge are some of the barriers that inhibit the sharing of knowledge in an organisation. The researcher believes that emphasis should be placed in the organisation on applying new knowledge without which, it will remain stuck at the source.
Other research has examined the factors affecting knowledge transfer in co-operative context (Wathne et al. 1996). Wathne et al. (1996, p.60) identified four factors that influence knowledge transfer between two or more co-operative partners. These are openness, channel of interaction, trust and prior experience. In this study Wathne et al. found that openness is a predictor of effectiveness of knowledge transfer. They also argue their study has shown a positive relationship between trust building and making use of rich channels of interaction, with factors of penetrability and attitude toward outsiders. Finally the study showed that “the greater the prior experience, richness in the channel of interaction, trust and perceived openness, the greater the effectiveness of knowledge transfer is likely to be” (Wathne et al. 1996, p.72). To enable knowledge be transferred, openness is very important. Openness which is sometimes referred to as transparency, reflects the willingness of the actor not to hide the knowledge that he or she has. Openness is also strongly related to trust where people normally prefer to share or transfer their knowledge to those who they trust.

Another important study on knowledge transfer was done by Birkinshaw et al. (2002, pp.274-289). They studied the validity of knowledge as a contingency variable by looking into thinking about the dimension of knowledge assets and how this influences the organisational structure. The study also focused on two dimensions of knowledge, observability and system embeddedness, and their influence over the level of unit autonomy and interunit integration. With regard to knowledge transfer, Birkinshaw et al. suggest that the interactions between the dimensions of knowledge and organisational structure variables are associated with knowledge transfer. Using questionnaire data from 110 research and development (R&D) units in 15 multinational firms, the authors have found that “the high performers in terms of knowledge transfer were those units with high levels of integration with other units coupled with low level of system-embedded knowledge” (Birkinshaw et al. 2002, p.274). However, they found no clear evidence on three other hypotheses which looked into the relationship between observability and the impact of interunit integration on knowledge transfer, system embeddedness and the impact of
unit autonomy on knowledge transfer, and observability and the impact of unit autonomy on knowledge transfer.

In another study, Zander and Kogut (1995) examined knowledge and the speed of transfer and imitation of organisational capabilities in 20 Swedish firms. A questionnaire was used as the main instrument, and was distributed to project engineers knowledgeable about the history of a major innovation. They argued that transferred knowledge can reside in design, production, installation, sales and distribution, operation and maintenance or management. In their study, they identified five constructs: codifiability, teachability, complexity, system dependence, and product observability (Zander and Kogut 1995, p.79), when characterising the firm’s knowledge at the levels of individual and group competence. According to them, these constructs are employed to measure the degree to which capability can be easily communicated and understood. The study showed that “the degree of codification and how easily capabilities are taught has a significant influence on the speed of transfer” (1995, p.76).

Simonin (1999) has also done research on knowledge transfer in a multinational firm. He examines the role played by the casually ambiguous nature of knowledge in the process of knowledge transfer between strategic alliance partners. In the context of his study, Simonin identified seven independent variables. These are tacitness, specificity, complexity, experience, partner protectiveness, cultural distance and organisational distance. They affect the level of knowledge ambiguity in alliances (Simonin 1999, p.598). The main finding was that ambiguity is a full mediator of the effects of tacitness, complexity, experience, and cultural and organisational distance on knowledge transfer. However, specificity and protectiveness are actually not of significance for knowledge transfer.

Gupta and Govindarajan (2000) carried out another study on knowledge transfer (they call it ‘knowledge flows’), particularly testing an overarching theoretical framework pertaining to intracorporate knowledge transfer in
multinational firms/corporation (MNCs). They focused their study largely on "the transfer of knowledge that exists in the form of know-how rather than on the transfer of knowledge that exists in the form of operational information" (Gupta and Govindarajan 2000, p.474). In the study, they found the value of a subsidiary's knowledge stock (three hypotheses) and the richness of the transmission channel (two hypotheses) are strongly associated with knowledge outflows to peer subsidiaries (2000, pp.485-487). However, there is no positive association between motivational disposition to share knowledge and knowledge outflows to either peer subsidiaries or the parent corporation. On the other hand, Gupta and Govindarajan also discovered the outflows of knowledge to the parent corporation are only associated with two out of three hypotheses on the value of knowledge stock, namely the size of the corporation and the level of economic advancement. Furthermore, the outflows of knowledge are only associated with the richness of transmission channel in terms of formal integrative mechanism and not with vertical social mechanism. With regard to knowledge inflows from peer subsidiaries and the parent corporation, they found that there are positive relationships between knowledge inflows and richness of transmission channels and the capacity to absorb the incoming knowledge (2000, pp.488-489). However, in terms of knowledge inflows and motivational disposition to acquire knowledge the research shows these are only positively associated with inflows of knowledge from the parent corporation, and not from peer subsidiaries.

Table 3.1 is a summary of previous studies and the methodologies used in assessing knowledge transfer within or between organisations/firms/companies.
<table>
<thead>
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<tr>
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<td>An analysis on knowledge and the speed of the transfer and imitation of organisational capabilities. Measure five main constructs: codifiability, teachability, complexity, system dependence and product observability.</td>
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<td>Questionnaire</td>
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<td>Cross sectional sample of 147 large and medium-size companies in the USA</td>
<td>Questionnaire</td>
<td>Standard deviations, correlation matrix and multiple group analysis</td>
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<tr>
<td>Darr and Kurtzberg (2000)</td>
<td>Analysis of factors on how partner similarity enhances knowledge transfer between fast-food franchises</td>
<td>11 franchise organisations in the UK</td>
<td>Questionnaire</td>
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<tr>
<td>Gupta and Govindarajan (2000)</td>
<td>Testing an overarching theoretical framework pertaining to intracorporate knowledge transfers within multinational corporations (MNCs)</td>
<td>374 subsidiaries within 75 multinational corporation with headquarters in the USA, Europe and Japan</td>
<td>Questionnaire surveys, secondary sources and interviews (subsidiary presidents and corporate level executives)</td>
<td>Zero-order correlation coefficients, multi-variate Ordinary Least Square (OLS) regression</td>
</tr>
</tbody>
</table>
### Authors | Major Areas | Sample Population | Data Gathering Method | Data Analysis
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Szulanski (2000) | Examination of the stickiness of knowledge transfer in eight firms and how the characteristics of the source of knowledge, the context, the recipient and the knowledge itself affected transfer | 8 multinational companies | Questionnaire | Regression

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<td>Questionnaire</td>
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Table 3.1 – A Summary of Previous Research on Knowledge Transfer

### 3.7 Issues on Knowledge Transfer

Most organisations approach the task associated with KM using two distinctive strategies that are the personalisation or codification strategy (Gloet and Berrell, 2003), process-centred and product-centred approach (Mentzas et al. 2001, p.94), "hard" and "soft" (Manson and Pauleen, 2003), human and technology-oriented approach (Maier and Remus 2003). Basically, all the strategies differentiate between the technological approach and the human approach. In my view, the technological approach is referred to as the first generation KM, where it involves the supply side of gathering knowledge. However, mostly valuable information and knowledge already
exist within or outside the organisation and information technology is used to capture, codify and share all the information. In the second generation of KM, knowledge is seen from both the supply and demand side. The most comprehensive model that deals with the supply and demand side has been used by Nonaka & Takeuchi (1995). In the model, Nonaka & Takeuchi use the epistemology and ontology approaches in analysing how knowledge is created, stored, used, transferred etc.

This particular research tries to investigate how knowledge can be transferred successfully in the organisation. Knowledge transfer requires the willingness of a group or individual to work with others and share knowledge to their mutual benefits. Without sharing, it is almost impossible for knowledge to be transferred to other people. This shows that knowledge transfer will not occur in an organisation unless its employees and work groups display a high level of co-operative behaviours (Goh 2002, p.25). Although knowledge transfer is very important in an organisation, Jacob and Ebrahimpur (2001, p.75) believe that the actual transfer of knowledge within organisations still remains a problematic issue for managers. It has also been reported in several studies that knowledge transfer is best achieved through communication and relationship such as a franchise (Darr et al. 1995), partner similarity (Darr and Kurtzberg, 2000), and strategic alliance partner (Simonin 1999).

To be successful, organisations should take initiatives to improve many organisational elements – the technology, human resources/people, organisational structure and organisational culture (Donoghue et al. 1999, Rubenstein-Montano et al. 2001a, 2001b). Organisation should consider both the supply and demand side in managing knowledge, as they are inter-related to each other. To be more effective organisation should take full advantage on the strength of each element and utilise it for the benefits of the organisation's mission. Organisations should also identify where tacit and explicit knowledge resides when designing strategies and what are the technologies that can be utilised in order to ensure that knowledge is created and transferred to the right individuals.
3.7.1 Organisational Culture

One of the most important factors frequently mentioned in the literature is the culture of the organisation. The success of knowledge creation and transfer relies on a culture that supports knowledge sharing and trust among individuals in the organisation. Goh (2002, p.26) believes that a strong culture of sharing knowledge with a high degree of trust and a collaborative and cooperative climate will have a positive influence on knowledge transfer.

Knowledge sharing happens when people who share a common purpose and experience similar problems come together to exchange idea and information. However, Chua (2003, p.117) argues that there are still gaps in our understanding of why and when knowledge sharing occurs and many questions still remain unanswered. According to Augier et al. (2001, p.125) whenever "people solve complex unstructured problems they bring knowledge and experience to the situation and as they interact during the process of problem solving they create, use and share knowledge". To ensure people keep on sharing, it is important for an organisation to have a culture where all the employees know what and where to share their knowledge. Without having a strong organisational culture, it is very difficult to make sharing of knowledge happens as it involves workers' willingness to share what they have and communicate it with others. It is clear that knowledge sharing incorporates all kind of activities and behaviour, including codification, communication, dissemination etc.

To ensure successful knowledge sharing and transfer, organisations need to encourage individuals in the organisation to share not only their explicit knowledge but also the tacit knowledge that they have. People usually communicate in person, by telephone, and via e-mail and groupware to share expertise and solve problems together (Lang 2001, p.46). This is done not only in a formal form but also include any conversation in an informal manner. To be effective every individual, especially the management, should provide time and resources to take part in learning and sharing exercises. Smith
(2001, p. 317) argues that if management does not make any clear statement, employees are likely to share only explicit knowledge, because it is easier to codify, document and transfer. Chua (2003, p. 118) asserts that one of the factors which hinders knowledge sharing activities is the lack of visible top management support.

A positive attitude towards sharing of knowledge is also important to an organisation. Hislop (2003, p. 196) argues that one of the most important issues to be addressed with regard to knowledge sharing attitudes is the commitment by the employees. Resistance over this issue is very difficult to overcome, as individuals still view knowledge as a source of power, especially in gaining acknowledgement and personal recognition in an organisation. Individuals tend not to disseminate the knowledge they acquire and are reluctant to share with others. This attitude gives employees a sense of security and political influence within the organisation (Ahmed et al. 2002, p. 64). Such attitudes that hinder knowledge management must be communicated and understood by managers and employees.

Another factor that hinders knowledge sharing is when people become individualistic. People tend to keep knowledge to themselves and are reluctant to share it with others, particularly when it gives a significant status and power to the owner. As a result, when organisation tries to manage, control or codify organisational knowledge, it is likely to produce internal conflict on who owns the knowledge (Hislop 2003, p. 185). To ensure individualism does not exist in the organisation, management should always convey to employees the importance of having them share their knowledge for the benefits of the organisation. However, to do so, management must formulate an approach where the idea of sharing knowledge is accepted by everyone. One of the methods used by some organisation is to relate it with a reward system. The success of any knowledge management initiative is highly dependent on the workers' willingness to share their individual information. In addition, workers' attitudes towards knowledge sharing will be
influenced by their perceptions of the fairness of their psychological contact with the organisation (MacNeil 2003, p. 299).

3.7.2 Organisational Structure

Another equally important factor in the creation and transfer of knowledge is having an appropriate infrastructure to reinforce and support it. According to (Filius et al. 2000, p.294) the success of knowledge management initiatives depends on the organisational structure, the way people cooperate, the way they develop their knowledge and skills, and the way they profile themselves to clients and rivals. All these factors are inter-related to one another and need to be managed accordingly.

One of the problems in managing knowledge is organisations that are very bureaucratic and make it difficult for people to share their knowledge. Because of the hierarchical structures, communication flows and knowledge flows (transfer) are confined to a select group of individuals within the organisation, that is, top management (Lang 2001, p.51). Breaking down hierarchies in the organisation enables knowledge transfer to occur. One way of overcoming the problem is by having a flatter organisation where knowledge can easily be disseminated either top-down or bottom-up. Thus knowledge can also be transferred easily within or between departments, if the management creates a sense of community in the workplace. Ahmed et al. argue that "highly successful companies behave as focused communities, whereas less successful companies behave more like traditional bureaucratic departments" (Ahmed et al. 2002, p.92).

A flatter organisation can also encourage flow of information and knowledge across the organisation. According to Lim and Klobas (2000, p.423), an organisation that is built on a strong hierarchical structure will resist bypassing formal authority and communication channels for effective knowledge management. Ahmed et al. (2002, p.66) suggest an organisation needs to have open communication, where real-time exchanges and feedback can be
facilitated through dialogues and discussions. Furthermore, Gloet and Berrell (2003, p.82) argue that communication within the organisation is also influenced by the organisational culture and structure. A more open system may allow knowledge to be transferred with ease, while a more centralised one will certainly encourage closed forms of communication. Organisations that do not support communication operating freely between knowledge providers and knowledge seekers will have difficulties in ensuring the success of any knowledge management initiatives.

The best way to overcome the problem of transferring knowledge across the organisation is by developing horizontal communication flows (Goh 2002, p.26) and by allowing cross-functional teamwork. Without having any system for sharing knowledge, “knowledge related to an organisation’s core competencies is held as tacit knowledge in the minds of key employees” (Lim and Klobas 2000, p.425). According to Wagner (2003, p.108), to enable information and knowledge to be transferred, individual knowledge must be accessible to a wider range of purpose and its dissemination must be both horizontal and vertical through the business hierarchy.

3.7.3 Human Resource/People

Another important issue that needs to be managed before implementing a knowledge management programme in an organisation is concentration on people/human resources. According to Antal (2000, p.32) to remain competitive, organisation should look at people as one of the key elements in managing knowledge in an organisation. It is the people who are responsible to create visions, design structures, and implement policies and decisions. Therefore, managers need to develop a greater appreciation of the intangible human assets kept in the minds and experiences of their knowledge workers. MacNeil (2003, p.294) argues that for current and future success, it is crucial to retain and develop quality employees particularly in utilising the knowledge and skills of the employee.
When concentrating on the people perspectives, several issues such as training, staff turnover and placement of employees in the organisation need to be tackled accordingly.

One of the most important criteria in managing knowledge in an organisation is to provide employees with education and training. According to Gloet and Berrell (2003, p.86) education and training play a significant role to any organisation that is concentrating on knowledge as the core competence, as it can provide a platform for organisational change. When employees are given enough training, they will certainly develop skills and be able to translate them into action and transfer their knowledge to other officers in the organisation. However, transfer of knowledge in the workplace will only occur when employees have both the ability and motivation to acquire and apply new skills.

One way to enhance the employees' knowledge is by providing opportunities for them to attend appropriate training internally or externally in whatever field they need, regardless of their tasks. This approach will certainly help individuals gain new knowledge, and blend it together with the knowledge they already have. According to Zaharias et al. (2001, p.467), knowledge gained through learning will enable individuals to translate their knowledge into an organisation's routines, competencies, job descriptions and business processes, plans, strategies and cultures. Smith argues that “valuable human knowledge resources will be wasted unless management openly accepts and supports efforts to gather, sort, transform, record and share knowledge” (Smith 2001, p.311).

Placement of an employee in the appropriate place is very important for the organisation's success. Individuals bring with them knowledge that they gained from their various educational backgrounds, interests and prior experiences, and it is up to the organisation to identify and utilise them fully. According to Davenport and Prusak (2000, p.7) knowledge born of experience recognises familiar patterns, and can make connections between what is
happening now and what happened then. What management should do is to have a platform where the tacit knowledge that is available in their employees' heads could be shared and used for the benefit of the organisation.

Staff turnover is very critical to an organisation as high turnover rate may have the risk of losing valuable knowledge. According to Manson and Pauleen (2003, p.44) staff turnover was the major concern, with "staff retention", "staffing changes" and "staff turnover" frequently mentioned as the main cause of the "loss of intellectual assets" and "loss of institutional memory". Lim and Klobas (2001, p.421) argue that when an individual leaves an organisation, the organisation loses that individual's tacit knowledge. This will certainly be a disadvantage to any organisation, unless the organisation has transformed the tacit knowledge into organisational knowledge (Bogdanowicz and Bailey 2002, p.125) that can be shared and transferred to others. However, managers must make sure that there is someone who is able to take over the work that was left behind. Therefore, when linking staff turnover and knowledge transfer, the issue of intention to stay or quit is as important as having positive attitudes towards knowledge transfer.

3.7.4 Technology

Apart from having appropriate organisational culture and structure, an organisation should also consider having adequate technology or ICT infrastructure. Although technology may not be the complete answer to knowledge management, it is vital to have an appropriate ICT infrastructure as it helps to design and implement systematic capture, storage, indexing and dissemination of information and knowledge (Ahmed et al. 2002, p.103, Lim and Klobas 2000, p.422, Smith 2001, p.317). According to Bloodgood and Salisbury (2001, p.62), ICT can be seen as embodying two general capabilities with respect to knowledge. They argue that ICT allows knowledge to be codified into decision support by making it explicit and help keeping track of persons with particular expertise. This will certainly allow better
communication flows and dissemination of knowledge across the organisation.

However, Kautz and Thaysen argue that most practitioners see knowledge management as the "implementation of new IT-based systems, neglecting important organisational aspects, in particular human and social issues" (Kautz and Thaysen 2001, p.349). But, Clarke stresses "technology platforms may assist, but no technology will stimulate the flow of knowledge without attention to the cultural and organisational contexts on which people are encouraged to develop and share their knowledge" (Clarke 2001, p.195). Hence, effective knowledge management requires a combination of many organisational elements, which include technology, human resources, organisational structure and culture. Since the use of knowledge management differs between one organisation and another, it can be concluded that the:

- knowledge is valued, shared and effectively used;
- knowledge processes are aligned to business processes;
- development of creative people is a core activity;
- people enjoy being part of the organisations (Skills for Knowledge Management 1999, p.10).

In a case study conducted within Expert Consulting, Robertson and Hammersley have found that technology is not the main factor in ensuring successful knowledge management. They argue that:

"It was evident, then, that technology and information systems played a very minor role in KM within the firm. In fact social networking was far more important for establishing who knew what – had relevant skills and expertise – than any formalised KM databases, which in this particular informal context would have probably proved impossible to maintain" (Robertson and Hammersley 2000, p.250).

Although technology and information systems do not seem to be playing a vital role in developing knowledge-based organisations, there are many organisations that still believe that technology is the primary source that can
help them cope with the latest information and knowledge. Duffy (2000, p.64) further argues that many people believe “every technology that ever had anything to do with digitised information is now a knowledge management product or, in an extreme cases of exaggeration, a complete knowledge management solution”.

In a survey conducted by the *Journal of Knowledge Management* in 1997, it was shown that 55% of respondents argued that information/communication technology was one of the main obstacles to creating a knowledge-based company. Furthermore, the survey also shows that only 3% of these 55% of respondents were in information technology functions. Therefore, This reflects the facts that most practitioners are still struggling to make computers work within the organisation (Chase 1997, p 47).

Although technology is an enabler to knowledge management, deploying technology to successfully organise and share knowledge will remain important to any organisation. Technology can be used as an important tool to facilitate the creation and transfer of knowledge, especially in collecting and codifying knowledge for distribution. In a large organisation particularly those with regional offices, finding who knows what in an organisation has always been problematic and time consuming. Eventually, many organisations have design databases or “knowledge repository” where employees contribute their expertise electronically to the organisation in a way that can be accessed by other employees (Connelly and Kelloway 2003, p.296, Vourous, G. A., 2003). This approach will certainly enable people to get connected and share information and insights faster regardless of their locations.

3.8 Conclusion

This chapter reviewed some of the concepts, models and researches done in relation to knowledge management and knowledge transfer performance both in the private and public organisations. In the early part of this chapter, a definition on data, information and knowledge was discussed. This is to
provide appropriate understanding on the terms that are often used interchangeably. An explanation on the ontology and epistemology of knowledge was also highlighted. This chapter also discusses some of the previous studies that focus on knowledge transfer in an organisation. However, all these researches were conducted in private organisations. The main area that was discussed in the literature review focused on several organisational issues that are the organisational culture, organisational structure, human resource and technology. All these issues are found to be important and influence the performance of knowledge transfer in any organisation.
Chapter 4
CONCEPTUAL FRAMEWORK AND HYPOTHESIS
The previous three chapters comprise the literature review which form the basis of this study. The next step is to develop working definitions of the variables identified in that literature review, especially on those on the creation of knowledge assets, and the performance of knowledge transfer.

4.1 Conceptual Framework

The literature review identified certain factors which determine the success of implementing knowledge management in an organisation. Two of the key factors that influence a knowledge management programme and the strategy are the creation of knowledge assets, and knowledge transfer within the organisation. Dixon argues that the most important aspect for sustaining the organisation's competitive advantage is continual reinvention and the updating of its common knowledge. She further stresses organisations need to "find effective ways to translate their ongoing experience into knowledge (create common knowledge) and to transfer that knowledge across time and space (leverage common knowledge)" (Dixon 2000, p.17).

Furthermore, to have an effective knowledge management strategy, an organisation should "encompass everything the organisation does to make
knowledge available to the business" (Donoghue et al. 1999, p.48). Donoghue et al. stress that an "effective knowledge management requires a combination of many organisational elements – technology, human resources practices, organisational structure and culture – in order to ensure that the right knowledge is brought to bear at the same time" (Donoghue et al. 1999, p.48). This is in line with the approach suggested by Rubenstein-Montano et al., who stress a knowledge management strategy should include the entire knowledge management process, namely the people, the technology infrastructure and the culture of sharing knowledge (Rubenstein-Montano et al. 2001a, pp.7-8). These factors assisted in formulating the conceptual frameworks underlying this present study.

As explained in chapter one, this study will see knowledge as a process (Alavi and Leidner 2001, p110). I put forward five main groups of factors to explain the performance of knowledge transfer, specifically as applied to the Ministry of Entrepreneur Development of Malaysia. Four of these factors, or independent variables, are categorised as technology, people/human resources, organisational structure and organisational culture. I have also identified another new element, also important for any public sector organisation, namely, its political directive. If these five independent variables can be managed efficiently and effectively, knowledge can be easily created and transferred in the Ministry.

The schematic diagram of the conceptual framework is shown in Figure 4.1
4.2 Major Variables

In exploring the relationship, I have identified seven major variables. These variables are discussed below.

4.2.1 Performance of Knowledge Transfer

The ability to transfer knowledge across the organisation has been found to contribute to organisational performance. Knowledge is transferred in various forms and levels. It can be transferred between individuals, from individuals to explicit sources, from individuals to groups, between groups, across groups, and from the group to the organisation (Kayworth and Leidner 2003, p.244). Sveiby (2001, p.347) argues knowledge that is transferred between individuals not only benefits the organisation but tend to also improve competence in both individuals involved in the process. Hence, my study will look into knowledge transfer performance within the Ministry of Entrepreneur Development of Malaysia. For these purposes, knowledge transfer in an
organisation is defined as a “process through which one unit (e.g., group, department, or division) is affected by the experience of another” (Argote and Ingram 2000, p. 151).

According to Wiig and Jooste (2003, p.301) “transfer of knowledge from source to recipient, from practitioner to practitioner, or through educational or training programmes is a knowledge management cornerstone”. All the processes will determine the success of knowledge management initiative in an organisation. Argote et al. (2000, p.1) claim that “organisations that are able to transfer knowledge effectively from one unit to another are more productive and more likely to survive than those that are less adept at knowledge transfer”. To be successful, Shariq (1999, p.244) argues:

“A more complete understanding of knowledge transfer process requires acknowledgement of the fact that the knowledge transfer process is ultimately a human-to-human process and since this process is inherently interactive and dynamic, in essence, transforms during the very process of its transfer”.

Knowledge can be transferred in various ways. Sveiby (1997) suggests knowledge can be transferred in two ways. “Information transfers knowledge indirectly through the media such as lectures and audio-visual presentations; tradition transfers knowledge directly, from person to person, through learning by doing” (Sveiby 1997, p.49). To look into the performance of knowledge transfer in the Ministry, I have drawn out three main questions:

- How fast is knowledge transferred in the Ministry?
- How accurately is the knowledge transferred?
- How reliable is the knowledge?

How fast knowledge can be transferred is the most important key element that needs to be identified. According to Bloodgood and Salisbury (2001, p.59) knowledge transfer may “lead to advantage through speedier deployment of knowledge to portions of the organisations that can benefit most by it”.

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Davenport and Prusak (1998, p.103) refer to speed as velocity in which knowledge moves through an organisation. The World Bank reported the “transfer of knowledge is inherently difficult, since even those who have knowledge may be not conscious of what they know or how significant it is” (World Development Report 1998/1999, p.138). With a proper infrastructure, individuals in the organisation are likely to obtain information faster and can make faster decisions. Mahathir Mohamed claims:

“But today knowledge refers more to the speed of communication and the speed of information and data. Everything that anyone needs to know in order to make decisions is at everyone’s fingertips literally. The deciding factor is the skill and the speed with which one uses information in order to decide. And that skill and speed comes from the depth of knowledge that one has of the different elements and technological capacities can be made to work to yield a desired result” (Mohamed 2000b)

However, speed on its own will never solve the problem, unless knowledge is transferred to the right person at the right time. Alavi and Leidner claim the most important aspect of knowledge management in the organisational setting “is the transfer of knowledge to location where it is needed and can be used” (Alavi and Leidner 2001, p.119). If information and knowledge can be transferred faster but then reach the wrong person it will cause more problems to any public organisation.

Basically, knowledge assets in the organisation normally do not flow efficiently to the target groups, even within the same organisation. Lord and Ranft (2000, p.577) claim “tacit knowledge may be more difficult to transfer because it is largely accumulated through personal experience and is not easy to separate from the individual who possesses it”. Teece (2000, p.38) asserts that “knowledge, which is trapped inside the minds of key employees, in the file drawers and databases, is of little value if not supplied to the right people at the right time”.

The third dimension that requires consideration is the reliability of the knowledge in the organisation. Reliability of data, information and knowledge
assets in the organisation are very important, since inaccurate knowledge could well cause problems to the Government as a whole. Since public organisations are responsible for providing services to the citizen, they have to ensure that all weaknesses are minimised or eradicated.

Another important issue that must be managed is the type of knowledge to be transferred. Although knowledge assets exist in various forms in the organisation, there are still possibilities that knowledge is lost somewhere in the organisation, if it is not properly managed. Without effective knowledge transfer, it is unlikely knowledge assets can perform and help the organisation serve the public.

4.2.2 Organisational Culture

Every organisation has its own culture. Culture is regarded as the key factor, since it determines the effects of other variables such as technology and management techniques on the success of knowledge management. Here, culture is defined as “the shared values, beliefs and practices of the people in the organisation” (McDermott and O'Dell 2001, p.77) and “a unique combination of expectations, written and unwritten rules, and social mores that dictates the everyday actions and behaviours of each employee” (O'Dell et al. 2003, p.260). According to Kayworth and Leidner 2003, p.248) culture is one of the important variables that have a great impact in facilitating knowledge creation, storage, transfer and application in an organisation.

This study has identified sharing culture and individualism as important variables, contributing to the creation of knowledge and the performance of knowledge transfer.

The main element considered is specifically on how information and knowledge are shared among officers in the Ministry. Here, knowledge sharing is defined as “activities of transferring or disseminating knowledge from one person, group or organisation to another” (Lee 2001, p.324).
Knowledge sharing culture is one of the most important elements, which needs to be understood before implementing any new strategies in public organisations. According to Clarke, although technology platforms play an important role in developing and sharing knowledge, without the attention to the cultural and organisational context in which people are encouraged to share their knowledge, technology may not be able to stimulate the flow of knowledge (Clarke 2001, p.195). In line with the statement by Clarke, Rubenstein-Montano et al. also argue that people, and the culture of the workplace, are the driving forces that ultimately will determine the success or failure of knowledge management initiatives (Rubenstein-Montano et al. 2001a, p.5).

In a study done by Liebowitz and Chen (2003, p.422) it was found that knowledge sharing in government possesses some unique challenges. Firstly, it involves developing a “motivate and reward” system, to encourage knowledge sharing, since it can only provide limited financial awards/incentives. Secondly, government agencies are typically hierarchical and bureaucratic organisations, that make sharing of knowledge difficult. Finally, there is a knowledge hoarding culture. Liebowitz and Chen argue most people seem reluctant to share knowledge, because they “keep knowledge close to heart as they move through ranks by the knowledge is power paradigm” (2003, p.422).

The World Bank has reported that the most important choices an organisation must make in establishing its knowledge management system are deciding with whom to share, deciding what to share, deciding how to share and deciding to share (World Development Report 1998/1999 p.138). Furthermore, the report stresses that “an open, sharing culture will promote the success of a knowledge management programme, and incentives can help in turn to make such a culture a reality” (World Development Report 1998/1999, p.142). Similarly, King argues that “a culture conducive to knowledge sharing is perhaps the most difficult to implement because it
requires the ubiquitous knowledge is power culture to be transformed into one in which sharing is appreciated" (King 2001, p.18).

According to Parker and Bradley, understanding the organisational culture of the organisation will certainly "help explain the outcomes of the reform process in terms of fit or absence of fit between public sector culture and the strategies and objectives of reform" (2000, p.126). Any changes need to be developed in line with the existing organisational culture. Ahmed et al. (2002, p.59) argue knowledge transfer can be promoted in the organisation depending on the right norms that are widely held by the organisation. They further argue, "if the wrong cultural norms exist, regardless of the effort and good intention of individuals trying to promote knowledge, little knowledge transfer is likely to be forthcoming as a result" (Ahmed et al. 2002, p.59).

In addition, successful knowledge asset creation in the organisation will have a lot to do with the employees' readiness to share their knowledge. Knowledge sharing can only work if the culture of the organisation promotes it (Stoddart 2001, p.19). An organisation that supports information sharing and knowledge creation among its members, and is committed to including and reconciling multiple viewpoints, is likely to establish effective and efficient processes as well as improve organisational life (Levine 2001, p.23). Hall (2001, p.19) stresses "knowledge creates knowledge when it is shared". Even with good infrastructure, technology and culture, without the willingness to share their tacit knowledge, it is hard to have good knowledge assets in the organisation.

Therefore, it is hypothesised that:

\[ H_1: \text{The organisation sharing culture is related positively to the performance of knowledge transfer} \]

Attitudes and behaviours are considered to be one of the important elements which could affect transfer of knowledge in an organisation. According to
McKeen and Staples (2003, p.40), the key challenge in managing knowledge is changing people's behaviour. There are not many individuals who can share their knowledge freely (Nonaka 1999, p.67), as members sometimes do not perceive what they could gain and what the organisation could gain in the long term (Kayworth and Leidner 2003, p.244). Two main potential problems, pertaining to attitude/behaviour, are with regard to how ready employees are to share their knowledge, and how easily they can overcome the resistance to change and share their knowledge in the organisation. McDermott and O'Dell (2001, p.77) reason that "in an organisation with a knowledge sharing culture, people would share ideas and insights because they see it as natural, rather than something they are forced to do". In a big organisation there is a tendency for individuals to use knowledge as their source of power for personal advantage rather than as an organisational resource.

According to Bennet and Bennet (2003, p.14), Bogdanowicz and Bailey (2002, p.127) and Goh (2002, p.5) most workers/managers see critical knowledge as a source of power, as job security, as leverage, or as a guarantee of continued employment and are reluctant to share it. In an article that appeared on the internet, it is argued that "public sector employees see information as an asset that needs to be protected and kept to themselves, not passed to other departments or agencies" (Industry Solution, 1999). Lim and Klobas (2000, p.423) state that most knowledge is not shared and is held by individuals. People do not share knowledge without a strong personal motivation. They would certainly not give it away without concern for what they may gain or lose by so doing (Stenmark 2000-2001, p.21). Furthermore, there are also instances where people do not share their knowledge because of the lack of any motivational systems to reward members for sharing their knowledge (Kayworth and Leidner 2003, p.244).

Therefore it is hypothesised that:

\[ H_2: \text{Individual resistance to sharing knowledge in the organisation is related negatively to the performance of knowledge transfer.} \]
4.2.3 Organisational Structure

Organisational structure refers to the way people and jobs in an organisation are arranged, so that the work of the organisation can be performed (Encyclopaedia of Management 2000, p.692). For the purpose of my study, the organisational structure will only be discussed in terms of communication flows between departments, and the proper documentation of policies, procedures and regulations, imposed in the Ministry, and how they help to create and transfer knowledge. According to Bennet and Bennet, naturally hierarchical, controlling structures “tend to prefer stability and minimise the learning and close collaboration needed to meet significant changes or paradigm shift” (Bennet and Bennet 2003, p.444).

This study has identified document confidentiality status, and communication flows, as important variables which could contribute in the performance of knowledge transfer.

One of the factors that influences the transfer of knowledge in an organisation is the status of the information and documentation. Certain items of information and documentation are restricted to certain levels of employees. This prevents the flow of knowledge across the organisation. In the Ministry, documents and information are classified into four classifications. These are ‘open’, ‘confidential’, ‘secret’ and ‘top secret’. Since information and knowledge can and do exist within the organisation, it is very important for them to be available to all employees without any restrictions or constraints (except for top secret documents). The status of the documentation in the Ministry has implications for the sharing of knowledge between individuals, divisions and organisations.

Therefore it is hypothesised that:

\[ H_3: \text{The confidentiality level of the documents is negative relationship with the performance of knowledge transfer.} \]
In a traditional model, large organisations normally have many layers of managers, where “formal reporting structures are more detailed at the top than at the bottom” (Davenport and Prusak 2000, p.73). Decision making flows vertically up and down this chain of command, and often communication also flows only up and down this chain of command. “This kind of communication/decision making can significantly slow organisational processes, which can be very detrimental to the organisation” (Huczynski, 1989, p.56). Formal organisational structures, which constrain reporting solely within divisional channels, limit each division's access to knowledge accumulated by the other divisions of the corporation. “Such ‘vertical’ structures raise barriers to knowledge transfer between different divisions because each division is operated largely as if an independent firm” (Lord and Ranft 2000. p.579).

In a survey conducted by McKinsey in 40 companies in Europe, Japan and the United States, it was found that successful companies overcome the problem of sharing knowledge by bringing people together across functions and hierarchies. “All the best performers had cross functional teams and frequent personal contacts among people at different levels” (Hauschild et al. 2001, p.78). In a survey undertaken in the public sector in Queensland, Australia, Parker and Bradley have also found “organisations continue to emphasise the values of a bureaucratic or hierarchical organisational culture” (2000, p. 127).

Most of the communication functions are “top down”, and too slow to meet employee needs. It takes too much time for information to filter down through every level of the organisation. According to Kluge et al. effective top-down and bottom-up communication is very important in making existing knowledge profitable to the organisation (Kluge et al. 2001, p.77). However, effective communication across hierarchies is very tricky (Kluge et al. 2001, p.75) and very difficult to transfer. Since information and knowledge can and do exist anywhere in the organisation, it is very important for them to be available to all employees without any restrictions. If an organisation supports
communication networks that operate freely, where knowledge providers and knowledge seekers can access information and knowledge through the shortest path, it will certainly enhance knowledge creation and knowledge transfer in the organisation.

Therefore it is hypothesised that:

\[ H_4: \text{The communication flow in the organisation is related positively to the performance of knowledge transfer.} \]

4.2.4 People/ Human Resources

People are another key element that must be considered in managing knowledge in an organisation. There are many organisations that relate knowledge management with the implementation of new IT-based systems, but neglect organisational aspects such as human and social issues (Kautz and Thaysen 2001, p.359). People are said to be true agents in business, where all tangible and intangible assets "are results of human action and depend ultimately on people for their continued existence" (Sveiby 2001, p.345). Lim and Klobas believe that having strong human resources policies in an organisation will affect the ways in which the organisation manages its knowledge (Lim and Klobas 2000, p.428). Their view were supported by Rubenstein-Montano et al. (2001b, p.300), who claim that the people and culture are the driving factors which determine the success or failure of knowledge management initiatives.

This study has identified posting, training and staff turnover as important variables that could contribute in the performance of knowledge transfer.

One of the important criterion in enhancing knowledge in an organisation is the provision of training to the employee either internally or externally. In a study done by Boland and Yoo (2003, p.3850, it was found that training, technology support, etc. have become the core activities in the creation and
sharing of knowledge. Holsapple and Singh (2003, p.224) suggest that during training sessions, employees capture knowledge from instructor via lectures, discussions, hands-on practices, etc., and later organise and internalise them. Knowledge gained by employees (people), through learning or training, will enable them to translate their knowledge into the organisation's routines, competencies, job descriptions and business processes, plans, strategies and cultures (Zaharias et al. 2001, p.7). Hence, employees should be given constant training to improve their knowledge and capabilities. According to Smith (2001, p.421), employees with a lack of adequate training, or explicit knowledge, struggle to keep up. Therefore it is important for the organisation to have proper training programmes to enable employees to gain knowledge and contribute to the creation and transfer of knowledge in the organisation.

Therefore it is hypothesised that:

\[ H_5: \text{Training and management support in the organisation is related positively to the performance of knowledge transfer} \]

Another criterion which will be looked at in this area is the posting (placement) done by the Public Service Department (PSD) and the other related agencies to the Ministry of Entrepreneur Development of Malaysia. According to Bogdanowicz and Bailey (2002, p.126), employees bring to an organisation their prior education, experiences, knowledge and skills, and will add value to the organisation. This aspect is important, since knowledge is likely to be created easily if employees are placed in the right positions. Smith (2001, p.313) suggests that people have slightly different types of tacit and explicit knowledge and they apply them in unique ways. With an appropriate qualification background, interests and experiences, employees will be able to perform well in all areas.

Therefore it is hypothesised that:
Conceptual Framework and Hypothesis

$H_6$: Posting of officers to the organisation is related positively to the performance of knowledge transfer.

In a case study of a knowledge-intensive company done by Zolingen et al. (2001, p.168), it was found that staff turnover is a problem for some organisations. Zolingen et al. states that "it happens regularly that employees with knowledge and experience, which in most cases is not recorded" (2001, p.179) leave the organisation. This will certainly affect the organisations especially when employees who leave the organisation take their valuable tacit knowledge, skills and experiences together with them. The organisation will certainly lose an individual's tacit knowledge (Lim and Klobas 2001, p.421), unless it is properly recorded or transformed into organisational knowledge (Bogdanowicz and Bailey 2002, p.125).

The problem of staff turnover happens in all public organisations. The retirement rate of public servants, the transfer of employees to other departments, and the resignation of knowledgeable employees, have some effects on the creation and transfer of knowledge in any organisation. Employees leaving the Civil Service pose a challenge to knowledge initiatives, because organisational knowledge assets may be lost, as people retire or leave for other positions. It is necessary to have an appropriate procedure to ensure such information and knowledge can be kept within the organisation.

Therefore it is hypothesised that:

$H_7$: An appropriate procedure to retain knowledge and know-how of officers who leave the Ministry is related positively to the performance of knowledge transfer.

4.2.5 Technology

Many factors have transformed the way organisations view knowledge and knowledge sharing, but perhaps most pivotal is the dramatically extended
reach of knowledge through new information technology (World Development Report 1998/1999 p.138). Bennet and Bennet (2003, p.13) claim that organisations which make use of information technology and relate it to the organisational culture have found that information technology is very effective in creating a competitive advantage. However, most of the literature reviewed suggests technology, particularly ICT, is not what knowledge management is. Technology is merely a key enabler in implementing a successful knowledge management programme and strategy.

This study has identified ICT infrastructure, ICT tools and ICT know-how as important variables that could contribute to the performance of knowledge transfer.

The large size of many enterprises, their global reach, the importance of knowledge for competitiveness, the distributed nature of competence within the firm and the availability of tools to assist knowledge transfer have sharpened the competitive importance of accomplishing knowledge transfer inside the firm (Teece 2000 p.38). Smith (2001, p.313) stresses that the availability of information technology tools play a key role in knowledge management.

Therefore it is hypothesised that:

\[ H_8: \text{An extensive use of ICT tools (software) among organisational members is related positively to the performance of knowledge transfer.} \]

Although technology is only an enabler to knowledge management, it is still considered as the most effective means of capturing, storing, transforming and disseminating information. In fact, effective knowledge management depends on people sharing their knowledge through computer facilities that users throughout the organisation have access to. Bloodgood and Salisbury assert that IT can be seen as embodying two general capabilities with respect to knowledge. Firstly, knowledge may be codified into a decision support or
expert system by making it explicit. Secondly, IT helps to keep track of persons with particular expertise and enabling rapid communication between them (Bloodgood and Salisbury 2001, p.62).

In a survey conducted by McAdam and Reid (2000, p.322), they have found that respondents from both the public and private sectors were not satisfied with the use of technology to facilitate learning transfer. Public and private organisations should take full advantage of the availability of IT infrastructure in their organisation, as “once every person and every business is connected electronically through networks, information can flow more readily” (Teece 2003, p.133). According to El Sawy and Josefek, IT infrastructures helps an organisation to “effectively create, capture, synthesize, and deploy organisational knowledge” (El Sawy and Josefek 2003, p.427).

Therefore it is hypothesised that:

\[ H_9: \text{The availability of ICT infrastructure in the organisation is related positively to the performance of knowledge transfer.} \]

An adequate training in ICT given to all employees has a positive relationship with the creation and transfer of knowledge. The more training given, the more knowledgeable the person will be in using all the ICT facilities and the better is the creation and transfer of knowledge.

Therefore it is hypothesised that:

\[ H_{10}: \text{ICT know-how that is available in the organisation is related positively to the performance of knowledge transfer.} \]

4.2.6 Knowledge Assets

Knowledge assets are very important to all organisations, as they play a major role in all decision making. However, very little attention is given to how
knowledge is created, and how the knowledge creation process can be managed (Nonaka 2000, p.7). Nonaka has also classified knowledge creation into two dimensions. The first dimension is the division of knowledge into tacit knowledge and explicit knowledge. It is very important to make a distinction between explicit and tacit knowledge, as people possess different types of tacit and explicit knowledge, and apply their knowledge in unique ways (Smith 2001, p.313). Another approach is the ontological dimension, which looks at knowledge that is created by individuals themselves (Nonaka 2000, pp.7-8).

This above view has also been discussed by Teece. He emphasises that knowledge assets cannot be bought and sold, and need to be built in-house by organisations, and “they must also be exploited internally in order for full value to be realised by the owner” (2000, p.36). He further states that the nature of knowledge itself makes organisational knowledge difficult to transfer, as it is embedded in the organisational processes, procedures, routines and structures (Teece 2000, p.36). According to Bloodgood and Salisbury (2001, p.55), every organisation needs to identify where knowledge resides in an organisation. It is very important, especially when designing strategies, “in order to ensure knowledge is being created, transferred and protected in the right way and with right individuals” (Bloodgood and Salisbury (2001, p.55).

With regard to an organisation's knowledge, Lee and Kwok disclose that knowledge can be analysed in three dimensions. These are individual, workgroup and organisational dimensions (Lee and Kwok 2000, p.387). Lee and Kwok emphasise the individual is the fundamental unit for knowledge creation, storage and use within an organisation. Furthermore, they define workgroups as “networks, both formal and informal” (2000, p.388), which involve groups of individuals who have a cumulative knowledge asset of individual skills that “can produce results of true competitive advantage” (2000, p.38). “The organisation” here refers to the entire organisation, which is “designed to facilitate and direct knowledge flows, and evolves with changing knowledge needs” (2000, p.38).
With reliable collections of knowledge assets, then knowledge can be transferred to the respective person at the right time and at the right place with greater accuracy. The performance of knowledge transfer depends particularly on the availability and the accessibility of the knowledge assets. Therefore, it is hypothesised that:

\[ H_{11}: \text{The availability of knowledge assets in the Ministry is related positively with the performance of knowledge transfer} \]

4.2.7 Political Directives

In a public organisation, political directives have a great impact on the creation of knowledge assets. Sometimes there are unwritten policies or directions that must be followed. I assume that political directives in a public organisation have an impact to the effectiveness of knowledge transfer.

Therefore it is hypothesised that:

\[ H_{12}: \text{Political directives (cross functional teamwork) are related positively with the performance of knowledge transfer.} \]

4.3 Predicted Relationship between Variables

A summary of the described variables and the predicted relationships with knowledge transfer are shown in Table 4.1.
4.4 Conclusion

This chapter explains in detail all the variables, i.e. sharing culture, individualism, document confidentiality status, communication flow, training, posting, staff turnover, ICT tools, ICT infrastructure, ICT know-how, knowledge assets and directive from politicians, that became the focus of the study. Twelve (12) hypotheses were derived and the predicted relationship between these variables with knowledge transfer performance was formulated. Two variables, i.e. individualism and document confidentiality status were predicted to have a negative relationship with the performance of knowledge transfer while the other ten (10) variables were predicted to have a positive relationship.
Chapter 5

RESEARCH DESIGN AND METHODOLOGY
CHAPTER FIVE

RESEARCH DESIGN AND METHODOLOGY

The previous chapter explained how the theoretical framework has been developed, and how key research questions, together with variables, were identified. Twelve hypotheses have also been formulated. This chapter discusses the research methodology, which constitutes the best way of data gathering, especially when testing these hypotheses, and also illustrates the questionnaire's design, the pre-testing, the pilot study, and finally, how the main survey was implemented.

5.1 Research Design

To achieve a research design that is valid, thorough and reliable, a research design requires prior formulation. A research design is "simply the framework or plan for a study used as a guide in collecting and analysing data" (Churchill 2001, p.104).

5.1.1 Type of Research Design

There are various types of research design. The most commonly used research design may be divided into three main classifications: exploratory research, descriptive research and causal research. Each classification is shown in Figure 1 below.
Figure 5.1 - Types of Research Design (adopted and modified from Bernard 2000, pp. 123-133, Churchill 2001, pp. 100-148)
5.1.1.1 Exploratory Research

In an exploratory research the main emphasis is on the discovery of ideas and insights (Churchill 2001, p. 104). Singleton et al. (1993, p.91) stress that exploratory studies are undertaken when relatively little is known about the subject. The purposes of exploratory researches are mainly for (Churchill 2001, p.108):

- formulating a problem for more precise investigation,
- developing hypotheses,
- establishing priorities for further research,
- gathering information about the practical problem,
- increasing the analyst's familiarity with the problem, and
- clarifying concepts

There are four different approaches in an exploratory research, which are literature search, experience survey, focus group and the analysis of selected cases.

Literature Search

A literature search refers to "a search of statistics, journals, articles, magazines, newspapers, and books for data or insight into the problem at hand" (Churchill 2001, p.109). Others term this the documentary search (Edwards and Talbot 1996, p.30), where information is gathered through documentary sources. This approach alone is not particularly suitable for this present study. However, the researcher did adopt this approach to gather data and information where it was helpful and relevant to the topic.

Experience Survey

An experience survey attempts to tap the knowledge and experience of those familiar with the general subject being investigated (Churchill 2001, p.109). Here, respondents would be selected very carefully, and chosen because of
the likelihood that they can contribute to the survey effectively. Random sampling may often be inappropriate in an experience survey, since it will be a waste of time to interview someone who does not have any information or knowledge pertaining to the subject. As such, an experience survey would be unsuitable with this present study, since it involves an in-depth study of knowledge management within a public organisation.

Focus Group

Focus groups have become one of the most popular interview techniques. They are personal interviews, simultaneously conducted amongst a small number of individuals, normally between six and twelve (Bernard 2000, p.210), brought together "by a trained moderator to explore attitudes and perceptions, feelings and ideas about a topic" (Descombe 1998, p.115). The interview relies primarily on group discussions rather than on directed questions in order to generate the data (Churchill 2001, p.110). But this approach is not suitable here, as this project involves a very large number of respondents, scattered across the whole of Malaysia. To bring them together to gain information would be incredibly difficult.

Case Analysis

Analysis of selected cases is sometimes referred to as the analysis of insight-stimulating examples (Churchill 2001, p.116). Such an approach would involve intensive study of selected cases of each phenomenon under investigation. This approach focuses on people, institutions or practices. A good example of this type of study might be benchmarking. Again, this approach is not appropriate for the present study.

5.1.1.2 Descriptive Research

In descriptive research the main emphasis is "on determining the frequency with which something occurs or the extent to which two variables covary"
Research Design and Methodology

Singleton et al. (1993, p.93) emphasise the purpose of this sort of research is simply to describe a particular phenomenon. They state there are three purposes of descriptive research:

- To find facts which focus on a well-defined entity and measure these dimensions systematically and precisely
- To estimate opinions or views from people, and
- To test relationships.

Longitudinal study

Longitudinal study is a form of developmental research strategy, where data is gathered over an extended period of time (Edwards and Talbot 1996, p.31), or where the same questions are asked at two or more points in time (Singleton et al. 1993, p.255). There are two categories of study used in longitudinal study: true panel and omnibus panel. True panel research involves the study of fixed respondents, which are "measured repeatedly over time with respect to the same variables" (Churchill 2001, p.129). With regard to omnibus panel, the research involves the study of fixed respondents, "who are measured repeatedly over the time but this time, on variables which change from measurement to measurement" (Churchill, 2001, p.129). Such an approach would not be suitable with this study, as the nature of a longitudinal study involves the gathering of data over a very long period of time.

Cross-sectional study

This technique is often termed as a sample survey or survey design. A sample survey is a cross sectional study in which the sample is selected as being representative of the target population at essentially one particular point in time (Singleton et al. 1993, p.254), and the emphasis here is on the generation of summary statistics (Churchill 2001, p.135). Many research projects study certain phenomena by taking cross sections at one particular time, and analysing these carefully. It is this approach that is particularly
appropriate for this present study. Details of the selection of this method are discussed later in the chapter.

5.1.1.3 Causal Research

The main emphasis in causal research is on a determination of cause-and-effect relation (Churchill 2001, p.103). It involves determining the relationship between two or more variables (Encyclopedia of Management 2000, p.808). Causal research may be divided into three main areas: thought experiment, true experiment and natural experiment.

Thought Experiment

Thought experiment is simply a thought where researchers “think about research questions as if it were possible to test them in true experiments” (Bernard 2000, p.123). Again, this approach is not suitable to the present study.

True Experiment (Laboratory Experiment)

Laboratory experiment is a research investigation in which investigators create a situation with exact conditions, so as to control some, and manipulate other variables (Churchill 2001, p.139). Bernard states that “laboratory experiment can test and clarify theories about how things work in the real world” (Bernard 2000, p.124). Laboratory experiment is of a relatively short duration, located on site, involves close control of variables and meticulous observation (Descombe 1998, p.48). Since the present study is concerned with obtaining data in natural settings, the laboratory experiment is clearly inappropriate.
True Experiment (Field Experiment)

Field experiment is a research study, used in a realistic situation, in which one or more independent variables are manipulated by the experimenter, under as carefully controlled conditions as the situation will permit (Churchill 2001, p.139). Descombe (1998, p.52) defines field experiment as a study where the research appears to be restricted to a specific situation, one in which crucial variables can be manipulated and controlled. This approach is not suitable with the present study, since it is very difficult to get any organisation willing to be subject to such experiment.

Natural Experiment

Natural experiment is a research study where the researcher collects experimental data under natural conditions. Bernard describes it as something that is "going on around us all the time" (Bernard 2000, p.127). In this experiment, the researcher make the data happen, out in the natural world (not in a lab) and it is then subsequently evaluated (Bernard 2000, p.130). Bernard stresses that many natural experiments evaluate data direct from observation or from archives. An example of the research done using this approach is by Gianfrancesco et al., where they studied new health insurance coverage among 1,800 members of United Mine Workers of America, using insurance claims data (Bernard 2000, p.129). This research shows that it is not "conducted by researcher at all – they are simply evaluated" (Bernard 2000, p.127). However, this approach is not suitable with the present study.

5.1.2 Research Strategy

5.1.2.1 Previous Research Strategy

Before selecting the research design suitable for this study, the researcher has reviewed several methodologies adopted in previous studies on
knowledge transfer in different organisations. Details of the previous researches were presented in section 3.6 of Chapter 3.

There are various approaches to the study of knowledge transfer in different organisations. The Darr and Kurtzberg (2000) and Szulanski (2000) studies on knowledge transfer seem to be more exploratory in nature. For example, Szulanski used regression techniques to examine the stickiness of knowledge transfer in eight firms, and how the characteristics of the source of knowledge, the context, the recipient and the knowledge itself effected transfer.

Other researchers, such as Birkinshaw et al. (2002), Gupta and Govindarajan (2000), Simonin (1999), Wathne et al. (1996) and Zander and Kogut (1995), have tested hypotheses to explore the nature of certain relationships or discussed the differences among groups. Birkinshaw et al. (2002), for example, used Pearson correlation coefficients and OLS regression techniques to examine the validity of knowledge as a contingency variable by looking into the thinking about the dimension of knowledge assets, and how that thinking influences the organisational structure. On the other hand, Simonin (1999) used standard deviations, correlation matrix and multiple group analysis methods to examine the 'casually ambiguous' nature of knowledge in the process of knowledge transfer between strategic partners.

The studies discussed in section 3.8 also showed most researchers used questionnaires as their main instrument in gathering data. However, Gupta and Govindarajan (2000) used not only questionnaires but also secondary sources and interviews to gather the information needed.

5.1.2.2 Present Research Strategy

After reviewing these different types of strategies, commonly used by other researchers, the researcher came to the conclusion that the most appropriate research strategy suitable here was through survey methods. However, in
order to obtain a comprehensive study, it was also decided to use the Ministry of Entrepreneur Development of Malaysia as a case study.

Edwards and Talbot (1996, p.98) suggest that in survey design method, data are collected though questionnaires, interviews and observations. The framework used by Edwards and Talbot is as follows:

![Diagram of survey design, method, and analysis]

**Figure 5.2 - Matching design, method and analysis (Edwards and Talbot 1996, p.98)**

The present researcher used mail questionnaires as the main instrument for data collection. However, interviews with key informants were also implemented, in order to get more information, particularly in terms of the overall views of the Ministry. In term of analysis, the researcher used content analysis and descriptive analysis on all the data collected, and perform hypothesis testing on the particular variables. Furthermore, the researcher conducted observations on how the officers in the Ministry organise and share their information and knowledge.
5.2 Questionnaire Design

For the purpose of this study, data was collected by means of a questionnaire survey. Initially, the questionnaire was developed through analysing the various elements believed to be important in the implementation of Knowledge Management, as had been identified previously during the literature review.

5.2.1 Framework of Developing a Questionnaire

In order to ensure the comprehensiveness of the questionnaire, the researcher adopted a framework design by Churchill (2001) and Czaja and Blair (1996). However, a little modification of the framework has been formulated specifically for this study. Churchill developed a very systematic procedure in developing a questionnaire. Although Churchill's framework is designed for marketing research, it is equally applicable for use in other disciplines.

For the purpose of this study, the researcher has developed a framework, which has eleven steps to be carried out before the final data collection is done. The framework is shown in Figure 5.3 below:
Research Design and Methodology

Specify Research Goals and Information Needed

Determine Type of Questionnaire and Method of Administration

Determine Content of Individual Question

Determine Form of Response to Each Question

Determine Wording of Each Question

Determine Question Sequence

Determine Questionnaire Layout

Re-examine steps 1 – 7 and Revise if Necessary

Pretest Questionnaire and Revise if Necessary

Pilot Study and Revise if Necessary

Finalise Questionnaire and Collect Data

Figure 5.3: Framework for Developing the Research Questionnaire [Adopted and Modified from Churchill (2001) and Czaja and Blair (1996)]
Step 1: Specify Research Goals and Information Needed

Specifying one’s research goals is absolutely fundamental before designing any questionnaire. It determines “what information will be sought and from whom” (Churchill 2001, p.315) the information will be gathered. The preliminary stage is the most critical part, as the researcher must “determine how best to accomplish them within the available time and resources” (Czaja and Blair 1996, p.11)

For this study, the researcher has completed an extensive and wide ranging literature review on knowledge management in a public organisation, and has underlined several aims and objectives to be achieved. The researcher has also purposely selected the Ministry of Entrepreneur Development of Malaysia as the main subject. Based on the information, an outline questionnaire was drafted.

Step 2: Determine Type of Questionnaire and Method of Administration

After specifying the basic information needed for the research, the researcher needed to decide how the information will be gathered. The type of questionnaire depends on whether a survey is to be administrated by mail, by telephone, or by personal interviews. Churchill suggests a researcher must “use the type of data to be collected as a basis for deciding on the type of questionnaire” and “use the degree of structure and disguise as well as cost factors to determine the method of administration” (Churchill 2001, p. 341)

For this study, the researcher conducted a survey (distributed by mail and personally by hand), and personal interviews. Two types of questionnaire were designed. The first questionnaire, which had all closed-ended questions, was designed for all officers from Grade 1 to Grade 6. The second questionnaire, which contained open-ended questions, was designed purposely for a personal interview with key personnel in the Ministry of
Entrepreneur Development, of Malaysia. Details of the interviews are discussed later in this chapter.

Step 3: Determine Content of Individual Question

Determining the content of individual questions is very important to ensure good responses. Churchill argues that the content of individual questions is highly important, and points out it is largely controlled by “the researcher’s previous decisions regarding information needed, the structure and disguise to be imposed on its collection, and the method for administering the questionnaire” (Churchill 2001, p.319). To ensure thoroughness, Churchill further suggests the researcher needs to ask some additional questions, such as (Churchill 2001, p.319):

- Is the question necessary?
- Are several questions needed instead of one?
- Do respondents have the necessary information?
- Will respondents give the information?

For this study, the questionnaire was based upon the literature review, and it incorporated all the variables discussed in Chapter Four. The questionnaire was separated into three parts, thereby ensuring that each question was “specific and addresses only one important issue” (Churchill 2001, p.341). The first part of the questionnaire asks for general information about the respondent. This data provides some basic information on the respondent’s qualifications, position and experience.

The second part asks each person’s basic understanding of knowledge management. Such data provides clear evidence on how knowledge management is implemented in the Ministry, if at all, and the respondents’ perception over particular issues. The third part of the questionnaire focuses on all the variables involved in the hypothesis testing. Respondents were asked to mark them on a five-item Likert scale. The full questionnaire is shown in Appendix 1, and details of the contents are discussed below.
Questions on Personal Background (Questions 1 to 8)

Sex
The gender of the respondents was sought.

Age
The respondents were required to indicate their age, using five-year bands, except for the extremes of 'below 26 years' and 'above 50 years'.

Highest Qualification
The respondents were required to indicate their level of education. The selections were Doctor of Philosophy, Master's Degree, First Degree/Equivalent, Diploma or other qualification.

Current Position
The respondents were also asked their current position in the Ministry.

Division/Unit
The respondents were required to indicate their current Division or Unit.

Working Experience
The respondents were required to indicate their length of working experiences, using five-year bands, except for the extremes of 'below 6 years' and 'above 20 years'.

Number of Years in the Ministry
The respondents were required to indicate the number of years they had served in the Ministry.

Number of Years in Division or Unit
The respondents were required to indicate the number of years they had served in the Division or Unit.
Questions on the Understanding of Knowledge Management (Questions 9 to 19)

Knowledge Management Strategy
The respondents were asked if their Ministry had any written knowledge management strategy. The definition of knowledge management was given in the preamble of the questionnaire, using a definition by Whitehill (1997). A selection of ‘yes’, ‘no’ and ‘don’t know’ was offered.

Importance of Knowledge Management
The respondents were asked if they believed it to be necessary to have a knowledge management strategy in the Ministry. A selection of ‘yes’, ‘no’ and ‘don’t know’ was offered.

Benefits of Managing Knowledge
The respondents were asked what they thought of the benefits they might gain in managing knowledge in the Ministry. They were given nine choices and were asked to choose any that applied to the Ministry. The choices were:

- To improve efficiency
- To be more effective
- To be up-to-date with new information
- To respond to other organisations’ need
- To respond to customers’ need
- To instigate changes
- To improve decision making
- To improve quality
- Others

Responsibility for Managing Knowledge
The respondents were asked to indicate who they thought was responsible in managing knowledge in the Ministry, and given a choice of:

- Secretary General
The respondents were asked whether they thought it necessary to have a Chief Knowledge Officer to manage knowledge in the Ministry. A choice of ‘yes’, ‘no’ and ‘doesn’t matter’ was offered.

Managing Issues
The respondents were required to answer a series of issues, based on a five point Likert scale, and how difficult they thought it was to manage these. The scales given were ‘very easy’, ‘easy’, ‘neutral’, ‘difficult’ and ‘very difficult’. The lists of issues were:

- Changing employees' behaviour
- Making knowledge/information accessible to everyone in the organisation
- Identifying knowledge/information internally
- Identifying knowledge/information externally
- Sharing knowledge/information among officers of different divisions/units
- Making knowledge/information available to everyone in the Ministry
- Dealing with confidential documents (files)
- Overcoming technological limitations
- Problems in maintaining data
- Others.

Potential to Develop a Successful Knowledge Management System
The respondents were required to answer for a series of issues, based on a five point Likert scale, which have potential in developing a successful
knowledge management system in the Ministry. The scales given were 'no potential', 'some potential', 'potential', 'lots of potential' and 'most potential'. The lists of issues were:

- Improve information technology infrastructure
- Provide support from the senior officer in the Ministry
- Develop systematic training for all the employees
- Develop an organisation database of information and knowledge
- Develop effective and efficient methods of gathering information and knowledge
- Develop a culture to promote sharing of knowledge
- Provide incentives to employees who contribute knowledge
- Have knowledgeable officers in all divisions/units
- Have a place where officers can discuss their tacit knowledge (personal knowledge)
- Encourage officers to be innovative and creative
- Others

**Issues in Encouraging Knowledge Generation and Knowledge Sharing**
The respondents were required to respond on a series of issues, based on a five point Likert scale, that have potentials in encouraging knowledge generation and knowledge sharing in the Ministry. The scales given were 'no potential', 'some potential', 'potential', 'lots of potential' and 'most potential'. The lists of issues are:

- Current procedures and policies
- Unwritten policies
- Job Manual Procedure
- ISO 9002
- Desk File
- Filing system
- Workflow
**Barriers in Knowledge Generation and Knowledge Sharing**

The respondents were required to respond to a series of issues, based on a five point Likert scale, that create barriers in knowledge generation and knowledge sharing in the Ministry. The scales given were 'no potential', 'some potential', 'potential', 'lots of potential' and 'most potential'. The lists of issues are:

- Organisational structure
- Political interference
- Communication channels between officers
- Command and control procedures
- Others

**Technology as an Important Element to Develop and Gain Knowledge**

The respondents were asked whether technology is the most important element in developing and gaining knowledge. A selections of 'yes', 'no' and 'don't know' were given.

**Technologies in developing and gaining knowledge**

The respondents were required to comment, based on a five point Likert scale, about a series of technologies, which they deemed to be important in developing and gaining knowledge. The scales given were 'not important', 'quite important', 'important', 'very important' and 'most important'. The lists of technologies are:

- Intranet
- Internet
- Video Conferencing
- Document Management
- File Management
- CD-ROMs
- Online Information Sources
- GroupWare
- E-mail
Questions on variables for testing hypotheses (Questions 20 to 35)

In part three of the questionnaire, respondents were asked to give answers about several variables which have been identified in the literature survey. The seven variables were knowledge transfer, knowledge assets, organisational culture, organisational structure, technology, people/human resources and political directives. The respondents were required, based on a five point Likert scale, to answer a series of questions related to the particular variables. The scales given were ‘strongly disagree’, ‘disagree’, ‘neutral’, ‘agree’ and ‘strongly agree’.

The questionnaire contained 43 items: nine related to knowledge transfer performance, four to knowledge assets, six to organisational culture, five to organisational structure, ten to technology, seven to people/human resources and two to directives from politicians. Details on how the constructs were chosen are discussed below.

Knowledge Transfer Performance

There were nine questions selected for the speed, reliability and accuracy of knowledge transfer. For the speed of knowledge transfer the questions sought information on how fast knowledge and information might be accessed and exchanged both within and between divisions or units in the Ministry. For the reliability of knowledge transfer, respondents were asked to determine how reliable and up-to-date knowledge and information were within the Ministry, and how confidently decisions can be made. With regard to accuracy of knowledge transfer, respondents were asked to indicate how accurately knowledge and information are transferred to the particular persons within and between divisions or units. Details of the constructs are as follows:
<table>
<thead>
<tr>
<th>Construct</th>
<th>Literature source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/Information is accessed very fast within the divisions/ units</td>
<td>Shariq 1999, Bloodgood and Salisbury 2001,</td>
</tr>
<tr>
<td>Knowledge/Information is accessed very fast with other divisions/ units</td>
<td>Shariq 1999, Bloodgood and Salisbury 2001,</td>
</tr>
<tr>
<td>Knowledge/Information is exchanged very fast within the divisions/ units</td>
<td>Shariq 1999, Bloodgood and Salisbury 2001,</td>
</tr>
<tr>
<td>Knowledge/Information is exchanged very fast with other divisions/ units</td>
<td>Shariq 1999, Bloodgood and Salisbury 2001,</td>
</tr>
<tr>
<td>Knowledge/Information that is transferred is generally very reliable</td>
<td>Shariq 1999, Bloodgood and Salisbury 2001,</td>
</tr>
<tr>
<td>Knowledge/Information that is transferred is generally very up-to-date</td>
<td>Shariq 1999, Bloodgood and Salisbury 2001,</td>
</tr>
<tr>
<td>Decisions can be made confidently using the available knowledge/ information</td>
<td>Shariq 1999, Bloodgood and Salisbury 2001,</td>
</tr>
<tr>
<td>Knowledge/Information can be transferred to the respective person within the divisions/units without difficulties</td>
<td>Shariq 1999, Bloodgood and Salisbury 2001,</td>
</tr>
<tr>
<td>Knowledge/Information can be transferred to the respective person in other divisions/units without difficulties</td>
<td>Shariq 1999, Bloodgood and Salisbury 2001,</td>
</tr>
</tbody>
</table>

**Table 5.1 – Themes presented in the Literature (Knowledge Transfer Performance)**

**Knowledge Assets**

There were four questions in this section. Respondents were asked to state how knowledge and information stored in paper and electronic documentation could be easily accessed, shared and transferred. With regard to tacit knowledge respondents were asked to indicate how easily knowledge and information could be shared and transferred through formal and informal meetings or discussions. Details of the constructs are as follows:
Table 5.2 – Themes presented in the literature (Knowledge Assets)

Organisational Culture

There were six questions in this section. Respondents were asked to indicate a view on whether the Ministry has a sharing culture that encouraged officers to share ideas, knowledge and experiences. Questions on officers' willingness to share such knowledge were also raised. Questions on individualism were also sought. Respondents were asked to state whether, in their views, individuals within the Ministry tend to use their knowledge as a source of power, but were reluctant to share their knowledge. Details of the constructs are as follows:
Construct | Literature source
--- | ---
Within the Ministry knowledge is disseminated to a wide range of people rather than to "need-to-know" basis | World Development Report 1998/1999, Clarke 2001, Levine 2001
In the Ministry interdisciplinary cross-functional teamwork is extremely important in taking decisions and solving problems | Lang 2001, Levine 2001, Hauschild et al. 2001
Individuals within the Ministry tend to use knowledge as a source of power to be used for personal advantage rather than as organisational resources to share with others in the organisation | King 2001, Liebowitz and Chen 2003, Nonaka 1999, McDermott and O'Dell 2001, Bennet and Bennet 2003, Bogdanowicz and Bailey 2002, Goh 2002, Wathne et al. 1996

Table 5.3 – Themes presented in the literature (Organisational Culture)

Organisational Structure

There were five questions in this section. The questions were on the document confidentiality status and communication flow. Respondents were asked to indicate if they perceived any problems in the status of documents, procedures, routines and policies, which might restrict officers' ability to gain access to certain knowledge. Respondents were also asked to state how communication between divisions affects individuals in sharing information. Details of the constructs are as follows:
Construct | Literature source
--- | ---
The confidentiality status of the document leads to problems in acquiring information and creating knowledge | Zander and Kogut 1995
Procedures, routines and policies that restrict officers to access certain knowledge/information give problems to create and shared knowledge | Lang 2001, Kluge et al. 2001, Birkinshaw et al. 2002

Table 5.4 – Themes presented in the literature (Organisational Structure)

Technology

There were ten questions in this section. The questions sought were related to the use of ICT infrastructure, tools and know-how in the Ministry. Respondents were asked to indicate whether they thought the current ICT infrastructure in the Ministry helps employees to do their daily work, especially in creating and sharing knowledge. Respondents were also asked to state how the current ICT tools help officers share ideas and information within the Ministry. Questions were asked to ascertain on how computer-based information systems helped officers to obtain new and up-to-date information. With regard to ICT know-how, respondents were asked to indicate whether or not employees in the Ministry were given adequate training internally or externally to use computers and ICT tools. Details of the constructs are as follows:
The Ministry has a very up-to-date ICT infrastructure which helps knowledge creation and sharing

ICT can speed up your work in searching for information

ICT facilitates employees in doing their daily work

The Ministry uses GroupWare, such as Lotus Notes, to encourage the sharing of ideas

Email is used to share information between officers

Computer-based information systems provide you with more up-to-date information than that available in manual files

Computer-based information systems make new information available to the Ministry that was not previously available

All employees are given adequate training internally to use computers in the Ministry

All employees are given adequate training internally to use ICT tools (software) in the Ministry

The technology know-how in the Ministry is easily transferable

<table>
<thead>
<tr>
<th>Construct</th>
<th>Literature source</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Ministry has a very up-to-date ICT infrastructure which helps knowledge creation and sharing</td>
<td>Teece 2000, Bloodgood and Salisbury 2001, McAdam and Reid 2000, El Sawy and Josefek 2003</td>
</tr>
<tr>
<td>ICT can speed up your work in searching for information</td>
<td>Bloodgood and Salisbury 2001, McAdam and Reid 2000, El Sawy and Josefek 2003</td>
</tr>
<tr>
<td>ICT facilitates employees in doing their daily work</td>
<td>Teece 2000, Bloodgood and Salisbury 2001, McAdam and Reid 2000, El Sawy and Josefek 2003</td>
</tr>
<tr>
<td>The Ministry uses GroupWare, such as Lotus Notes, to encourage the sharing of ideas</td>
<td>Teece 2000, Smith 2001</td>
</tr>
<tr>
<td>Email is used to share information between officers</td>
<td>Teece 2000, Smith 2001</td>
</tr>
<tr>
<td>Computer-based information systems provide you with more up-to-date information than that available in manual files</td>
<td>Teece 2000, Smith 2001</td>
</tr>
<tr>
<td>Computer-based information systems make new information available to the Ministry that was not previously available</td>
<td>Teece 2000, Smith 2001</td>
</tr>
<tr>
<td>All employees are given adequate training internally to use computers in the Ministry</td>
<td></td>
</tr>
<tr>
<td>All employees are given adequate training internally to use ICT tools (software) in the Ministry</td>
<td></td>
</tr>
<tr>
<td>The technology know-how in the Ministry is easily transferable</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.5 – Themes presented in the literature (Technology)

People/Human Resources

There were seven questions in this section that sought information on the placement or posting of officers in the Ministry, training programmes and staff turnover. Respondents were asked to indicate if their posting to the Ministry was suitably matched with their qualifications, interests and experiences. Respondents were also asked to indicate if they thought the Ministry provided them with opportunities to attend training internally and externally, not only in the specific field related to their tasks, but also in other fields. With regard to staff turnover, respondents were asked to indicate if there were procedures to
retain the knowledge and know-how of officers who might leave the Ministry. Details of the constructs are as follows:

<table>
<thead>
<tr>
<th>Construct</th>
<th>Literature source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posting to the Ministry is suitable with your qualifications and enable you to create and share knowledge</td>
<td>Sveiby 2001, Bogdanowicz and Bailey 2002, Smith 2001</td>
</tr>
<tr>
<td>Posting to the Ministry is suitable with your interests and enable you to create and share knowledge</td>
<td>Sveiby 2001, Bogdanowicz and Bailey 2002, Smith 2001</td>
</tr>
<tr>
<td>Posting to the Ministry is suitable with your experience and enable you to create and share knowledge</td>
<td>Lord and Ranft 2000, Sveiby 2001, Bogdanowicz and Bailey 2002, Smith 2001</td>
</tr>
<tr>
<td>The Ministry provides opportunities for the employees to attend training internally/externally in the fields related to their tasks</td>
<td>Zaharias et al. 2001</td>
</tr>
<tr>
<td>The Ministry also provides opportunities for the employees to attend training internally/externally in other fields which can enhance their knowledge</td>
<td>Zaharias et al. 2001</td>
</tr>
<tr>
<td>The management provides the time and resources to take part in learning and sharing exercises</td>
<td>Chua 2003, Zaharias et al. 2001</td>
</tr>
<tr>
<td>The Ministry has procedures to retain the knowledge and know-how of officers who leave the Ministry</td>
<td>Zolingen et al. 2001, Lim and Klobas 2001, Bogdanowicz and Bailey 2002</td>
</tr>
</tbody>
</table>

**Table 5.6 – Themes presented in the literature (People/Human Resources)**

**Directives from Politicians**

There were two questions in this section. Respondents were asked if the politicians in the Ministry contributed ideas, and helped officers to create and share knowledge/information. Also, questions were asked as to whether or not officers were encouraged to contribute knowledge/information. Details of the constructs are as follows:
Ideas from the politicians in the Ministry help officers to create and share knowledge/information

Officers are encouraged to contribute knowledge/information to politicians

<table>
<thead>
<tr>
<th>Construct</th>
<th>Literature source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideas from the politicians in the Ministry help officers to create and share knowledge/information</td>
<td></td>
</tr>
<tr>
<td>Officers are encouraged to contribute knowledge/information to politicians</td>
<td></td>
</tr>
</tbody>
</table>

### Table 5.7 – Themes Presented in the Literature (Directives from Politicians)

**Step 4: Determine Form of Response to Each Question**

The next step in designing a questionnaire is to decide what form of response to each question might fit the needs of the survey. Questions can be asked as closed-ended, open-ended, multiple choices, two choices, or to represent a scale (Churchill 2001, p.324, Czaja and Blair 1996, p.18). However most questions may be classified as either closed or open-ended (Pallant 2001, p.7). Questions will reflect the appropriate levels of measurement, which are nominal, ordinal, interval and ratio (Balnaves and Caputi 2001, p.77). Most researchers argue that a questionnaire should be kept short, in order to get good responses.

Since the aim of this research is to get an in-depth view of knowledge management in a Malaysian public organisation, the research questionnaire is quite lengthy. The questionnaire contained nine pages with 35 main questions (excluding sub-questions). Although most researchers claim that a lengthy questionnaire might increase the non-response rate, Dillman (1978, p.54) and Champion & Sear (1969, p.339) found out that there is no relationship between longer questionnaires and lower response rates. Champion and Sear (1969, p.339) conclude that longer questionnaires tended to be returned more frequently than shorter ones. They have found that the “nine-pages questionnaire were returned significantly more often than the shorter three pages questionnaire” (Champion and Sear 1969, p.339). In another study, Dillman (1978, p.54) claims that some research shows a lengthy
questionnaire often has a high response rate. However, Dillman (1969, p.55) and Frazer and Lawley (2000, p.38) suggest the optimal or ideal length for questionnaires was about 12 pages or 125 items.

To prevent respondents getting bored, every question in the main questionnaire was a closed-ended question. These enable respondents to fill the questionnaire much more easily.

**Step 5: Determine Wording of Each Question**

The choice of words and phrases employed in a questionnaire is extremely crucial in a mail survey. Descombe (1998, p.98) stresses the wording of the questions is in fact the most difficult part in questionnaire design, but it is certainly one of the most critical to get right. Churchill argues that choosing a right phrase in every question is very vital, as "poor phrasing of a question can cause respondents to refuse to answer it even though they agreed to cooperate in the study" (Churchill 2001, p.330). Although there are no "clear-cut rules that can guide this process" (Pallant 2001, p.10), the researcher should use simple words and phrases, which can easily be understand by respondents. Hence, all words used must be suitable, clear, precise and comprehensive (Janes 1999, p.322, Madu 1998, p.349). Balnaves and Caputi assert that a researcher need to understand "wording in a questionnaire is not only a matter of coming up with good questions that relate to the research question of hypothesis of interest but coming up with good questions that can be understood" (Balnaves and Caputi 2001, p.82).

To ensure clarity and appropriateness of questions, researchers should follow certain guidelines as stressed by experts. Some of the guidelines and principles were:

- Use complete sentences and questions (Fink 1995, p.22)


Avoid abbreviations (Dillman 1978, p.98, Fink 1995, p.23)

Avoid implicit alternatives (Churchill 2001, p.334)

Avoid implicit assumptions (Churchill 2001, p.334)


Use loaded questions, if necessary, but be cautious (Fink, 1995, p.27)


Have the questions reviewed by experts (Fink 1995, p.25)

Have the questions reviewed by potential respondents (Fink 1995, p.25)

Adopt or adapt questions that have been used successfully in other surveys (Fink 1995, p.25)

In this study, the researcher tried to follow all these guidelines. The questionnaire was reviewed by both the potential respondents and by an expert. The questionnaire, written in English, was also translated into the Malay language, in order to facilitate the completion by respondents with the utmost accuracy. In the process of translating the questionnaire into the Malay language, the researcher submitted a list of ‘terms' to the Dewan Bahasa and Pustaka (Institute of Language and Literature) in Malaysia for referencing purposes. This is to ensure that accurate terms were used in finalising the translated questionnaire.
Step 6: Determine Question Sequence

The determination of question sequence is also highly important. Churchill (2001, pp 335-337) underlines five guidelines in organising the questions:

- Use simple and interesting opening questions. The first question is very crucial. If the respondent cannot understand the question, it might affect the remainder of the question.
- Use funnel approach: starting with broad questions and progressively narrow down the scope.
- Design branching questions with care.
- Ask for classification information last.
- Place difficult or sensitive questions later in the questionnaire.

The “funnel approach”, suggested by Churchill in the formation of the sequence of questions was adopted. The easiest question was used as an introduction, followed by more specific and difficult questions. As discussed in Step 3, the questionnaire was divided into three parts: the general information, understanding on knowledge management, and questions for hypothesis testing.

Step 7: Determine Questionnaire Layout

The physical appearance or layout of a questionnaire must not be disregarded when seeking a clear response. A researcher must design a questionnaire that “looks professional and relatively easy to answer” (Churchill 2001, p.342). Sloppy and unattractive questionnaires will produce a poor response, as respondents may feel “the study is unimportant, and hence refuse to cooperate, despite researchers’ assurance that it is important” (Churchill 2001, p.337). But on the other hand, “well formatted questions assist response rate and accuracy of answers” (Balnaves and Caputi 2001, p.84). To ensure clear response, Sproull (1988, p.193) suggests that the
questionnaire should be “professionally typed and printed so that its appearance gives the impression of credibility and professionalism”.

Another important aspect in the design of a questionnaire must be to provide a clear introduction and direction (Sproull 1988, p.193). Any covering letter that is sent with a mail questionnaire is essential in introducing the study to the potential respondents (Czaja and Blair 1995, p.78). The researcher should always keep in mind the type of questions that respondents might have. These include: (Czaja and Blair 1995, p.79)

- What is the study about?
- Who is conducting it?
- Why is the study important?

Choosing answer formats must also be looked at when designing questionnaires. Balnaves and Caputi (2001, p.84) suggest that, whatever format a researcher chooses, it must be “(a) consistent in the use of the format, and (b) consistent in the type of response required for that format.” Moreover, item responses should also be well structured, “in order to facilitate quick and easy responses” (Sproull 1988, p.193).

For this study, the researcher provided a clear introduction and directive on what respondents should follow when completing the questionnaire. Specific definitions of ‘knowledge’ and ‘knowledge management’ were explicit right at the opening. This was to ensure all respondents would focus on the same definition, and assist them in answering it accurately. The format of the questions was clear and consistent with instructions given throughout. For example, respondents were specifically instructed to tick only one answer, if the question required only one answer. However, for multiple response questions, respondents were instructed to tick every answer applicable.

With regard to layout, the researcher made a conscious effort to make sure the appearance of the questionnaire looked professional. Every question was numbered, and given a sub topic to guide each respondent. Size and type of
font, and size of answer boxes, were standardised, so as to make the questionnaire look attractive and user-friendly. A covering letter was also attached to each questionnaire, which explained the aim of the research, introduced the researcher, stressed the confidentiality of the response, and asked the respondent to help by returning the questionnaire promptly.

**Step 8: Re-examine steps 1 – 7 and Revise if Necessary**

It was also essential for the researcher to re-evaluate the questionnaire that has been designed. Churchill argues that "re-examination and revision are staples in questionnaire construction" (Churchill 2001, p.340).

**Step 9: Pre-test Questionnaire and Revise if Necessary**

Questionnaire pre-test is very vital, before the real survey is conducted. Czaja and Blair (1996, p.105) reason that a pre-test is a necessary preliminary to pilot study, especially to detect potential flaws. They further stress:

"Underlying the first questionnaire draft is our judgement about what respondents will know, what words they will understand, what sorts of information they can provide, and what response task they can perform" (Czaja and Blair 1996, p.93)

To ensure comprehensiveness in the questionnaire, a pre-test was done, using postgraduate students in the Department of Information Science, Loughborough University. Upon receipt of their comments, a newly revised version was then presented to Dr. Anne Morris, an expert in the design of questionnaire surveys, to validate the questions, particularly within the section which are used for hypothesis test.

The comments and actions taken as a result of that pre-testing are shown in Table 5.1:
<table>
<thead>
<tr>
<th>Comments</th>
<th>Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>All the codes were removed</td>
</tr>
<tr>
<td>• Codes in the question should not appear in a questionnaire</td>
<td>The format was changed to a single column</td>
</tr>
<tr>
<td>• The format of the questionnaire should not be in two columns and should be standardised</td>
<td>Changed</td>
</tr>
<tr>
<td>• All the boxes to tick the answer should be in the same line with the questions</td>
<td></td>
</tr>
<tr>
<td>First Page</td>
<td></td>
</tr>
<tr>
<td>• All options should be on the same page</td>
<td></td>
</tr>
<tr>
<td>Page 2</td>
<td></td>
</tr>
<tr>
<td>• For question 9 – add the phrase &quot;written&quot;</td>
<td>Changed</td>
</tr>
<tr>
<td>• Confusion on “formal programme for Knowledge Management”</td>
<td>Changed</td>
</tr>
<tr>
<td>• Question 12 – suspected that respondent might tick all (question 11 in the final version)</td>
<td>Removed</td>
</tr>
<tr>
<td>Page 3</td>
<td></td>
</tr>
<tr>
<td>• Confusion on aspect of managing knowledge in the Ministry</td>
<td>The phrase “tick all that apply” was added</td>
</tr>
<tr>
<td>• Change the word ‘organisation” in question 14 (question 12 in final version)</td>
<td>Removed</td>
</tr>
<tr>
<td>• Question 16 (question 14 in the final version) – the word knowledge should also refer to information</td>
<td></td>
</tr>
<tr>
<td>Page 5</td>
<td>Definitions were added to the questions</td>
</tr>
<tr>
<td>• Question 21 (question 19 in the final version) – should explain the terms “GroupWare” and “Data Warehouse”</td>
<td></td>
</tr>
<tr>
<td>Page 6</td>
<td></td>
</tr>
<tr>
<td>• The words &quot;can be&quot; in question 22 (question 20 in the final version) should change to “is”</td>
<td>Changed</td>
</tr>
<tr>
<td>• Question 23 (question 21 in the final version) – the word &quot;being&quot; should be removed</td>
<td>Removed</td>
</tr>
<tr>
<td>• Question 25 (question 23 in the final version) – the word &quot;easily be&quot; should be changed</td>
<td>The word “easily be&quot; was changed to “be easily”</td>
</tr>
<tr>
<td>Page 7</td>
<td>Change it to “within the Ministry”</td>
</tr>
<tr>
<td>• Question 28 (question 26 in the final version) – the phrase &quot;at your organisation&quot; should be changed</td>
<td></td>
</tr>
<tr>
<td>Page 9</td>
<td>Removed</td>
</tr>
<tr>
<td>• Question 36 (question 33 in the final version) – the first issue in this question could be a yes/no answer</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.8: Comments and Actions Taken as a Result of Questionnaire Pre-testing.
Step 10: Pilot Study and Revise if Necessary

The pilot study "is usually a test-run of a data collection instrument" (Edwards and Talbot 1996, p.158) and involves testing the questionnaire on a "small number of respondents from the same population" (Hall and Hall 1996, p.126). By doing this, it gives the "opportunity for a questionnaire or interview to be examined closely before the main survey is undertaken" (Edwards and Talbot 1996, p.33). The main advantage of conducting a pilot study is to ensure the questionnaire is suitable for use in the final survey. Hoinville et al. state that the pilot study is very useful in "refining the wording, ordering, layout, filtering and helping to prune the questionnaire to a manageable length (Hoinville et al. 1987, p.51)

Here, a revised version of the questionnaire was developed, following the pre-test. This questionnaire was then used for a pilot study, using six actual respondents from the Ministry of Entrepreneur Development, Malaysia. The questionnaire was sent by e-mail. Replies from the respondents in the pilot study were then used to finalise the questionnaire. The comments that arose from the pilot study are shown in Table 5.2.

<table>
<thead>
<tr>
<th>Page 3</th>
<th>Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 14 – add another issue which is &quot;problem in maintaining data&quot;</td>
<td>Added</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page 9</th>
<th>Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>A respondent in the pilot study could not answer question 33 (in pilot study questionnaire)</td>
<td>This question was totally removed</td>
</tr>
</tbody>
</table>

Table 5.9: Comments and Actions Taken as a Result of Questionnaire Pilot Testing
5.2.2 Data Collection

The final questionnaires were sent to every respondent, together with a personalised official covering letter (a copy of the letter is shown in Appendix B). To ensure full coverage of the respondents, a current list of employees’ names, obtained from the Human Resources Division was used as a guide when distributing the questionnaire. All respondents in the headquarters were personally given a questionnaire by hand; the respondents in the regional offices and state offices were contacted by telephone, and then questionnaires were subsequently sent by mail. This was to ensure that all respondents understood the needs of the survey. According to Descombe (1998, p.24), surveys and sampling are frequently used in a small-scale research involving between 30 and 250 cases. Here, out of 221 potential respondents, a total of 204 questionnaires were distributed to all officers from Grade 1 to Grade 6. These included officers in the headquarters in Kuala Lumpur, and officers in both regional and state offices. A total of 17 respondents were unable to be contacted, because the potential respondents were on unpaid leave, maternity leave or attending courses externally.

A month after the questionnaires were distributed, the researcher contacted all the respondents by telephone and e-mail on various occasions. Kelley (1999, p.87) reasons that a follow-up either, by phone or mail will always enhance response rate. The researcher was also present in the Ministry every day for two months, in order to deal with any questions raised during the survey. According to Edwards and Talbot (1996, p.33), there is no single criterion for the return of a questionnaire. However, the figure should be more that 60 percent. A total of 154 questionnaires (75.49 percent) were returned. Details of the questionnaire sent and returned are shown in Table 5.3.
<table>
<thead>
<tr>
<th>Units/Divisions</th>
<th>No. of Staff (Grade 1 to 6)</th>
<th>Sent</th>
<th>Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Administration Unit</td>
<td>6</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2. Internal Audit Unit</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3. Legal Advisor Unit</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4. Public Relation Unit</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5. Human Resources Division</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>6. Planning and Evaluation Division</td>
<td>12</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>7. Entrepreneurship Training Division</td>
<td>14</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>8. Project and Program Development Division</td>
<td>14</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>9. Business Development Division</td>
<td>11</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>10. Franchise and Vendor Division</td>
<td>14</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>11. Commercial Vehicle Licensing Board, Head Quarters</td>
<td>11</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>12. Commercial Vehicle Licensing Board, Central Regional</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>13. Commercial Vehicle Licensing Board, East Regional</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>14. Commercial Vehicle Licensing Board, North Regional</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>15. Commercial Vehicle Licensing Board, South Regional</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>16. Commercial Vehicle Licensing Board, Sabah</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>17. Commercial Vehicle Licensing Board, Sarawak</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>18. Information Management Division</td>
<td>13</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>19. Contractor Services Centre, Head Quarters</td>
<td>32</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>20. Contractor Services Centre, Kedah</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>21. Contractor Services Centre, Perak</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>22. Contractor Services Centre, Pahang</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>23. Contractor Services Centre, Pulau Pinang</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>24. Contractor Services Centre, Selangor</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>25. Contractor Services Centre, Kelantan</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>26. Contractor Services Centre, Terengganu</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>27. Contractor Services Centre, Negeri Sembilan</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>28. Contractor Services Centre, Johor</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>29. Contractor Services Centre, Wilayah Persekutuan</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>30. Contractor Services Centre, Sarawak</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>221</td>
<td>204</td>
<td>154</td>
</tr>
</tbody>
</table>

Table 5.10: Number of questionnaires sent to respondents and returned to the researcher
5.2.3 The Interviews

Interview is another important technique widely used by researchers for collecting data. An interview is a "conversation with a purpose" (Robson 1996, p.228). Bernard (2000, p.190) has divided the continuum of interviews into four different approaches: the informal, the structured, the semistructured, and the unstructured interviews. Informal interviewing is characterised by "a total lack of structure or control where the researcher just tries to remember conversations heard during the course of a day in the field" (Bernard 2000, p.190). An unstructured interview takes place when the objectives may be general and questions developed spontaneously. The structured interview has specific questions, and all questions are written beforehand (Singleton et al. 1993, p.249). Semistructured interviews are based on a written list of questions and topics, which need to be covered in a particular order (Bernard 2000, p.191). However, researchers are "free to modify their order based on the perception of what seems most appropriate in the context of the conversation" (Robson 1996, p.231).

For the purpose of this study in the Ministry of Entrepreneur Development of Malaysia, I interviewed the Secretary General, the Deputy Secretary General, the Under Secretary to the Information Management Division and the Under Secretary to the Human Resources Division. It was necessary to deliberately handpick the senior officers in the Ministry, on the clear assumption that they were the key informants, people who might therefore have a holistic view of the Ministry. It was also hoped they might be able to contribute insights and information on the implementation of Knowledge Management in the Ministry, should there be any, particularly on knowledge creation and knowledge transfer.

In this study, structured interview schedules (Appendix C) were designed, containing Knowledge Management related aspects. Appropriate subsets of the questions were addressed to each of the officers interviewed. All the respondents were given the interview questions in advance to enable them to...
Research Design and Methodology

reply with greater accuracy. Although structured interview questions were designed, the researcher adopted a semistructured interview approach. The transcripts of the interviews are shown in Appendix D. Bernard (2000, p.191) argues that a semistructured interviewing works very well in a project where we are dealing with managers, bureaucrats and elite members of the community. The main reason why the researcher adopted semistructured interviewing was to offer both the researcher and the respondent new leads, and prevent excessive control over the respondent.

5.2.4 Response Rate/Non Response Bias

Highly critical problems can arise in the administration of interviews and questionnaires with regard to response bias. Non-response rate can arise for a variety of reasons. In terms of the questionnaire, de Vaus states that some of the problems were “the question might be unclear, too instructive, provide insufficient responses or appear to be too similar to previously answered questions” (de Vaus 1999, p.101). In terms of samples chosen in a survey, de Vaus further claims that “some of the sample might not finally be included, some will refuse, others were uncontactable and others will be uninterviewed (de Vaus 1991, p.73). Kelley (1999, p.86) stresses that non-response bias occurs in two different forms, that is when individuals respond only to portions of the survey or individuals do not respond to the survey itself.

Singleton et al. (1993, pp. 306-307), however, underline three major response bias problems: ‘social desirability’, ‘acquiescence response set’ and ‘ordinal or position biases’. Social desirability arises when respondents want to make a good impression on the researcher by appearing sensible and answering all questions in positive ways. Acquiescence response set refers to the tendency of the respondents to be very agreeable. The third problem, which is the ordinal or position bias, occurs when the respondents mark options located in a certain position.
Non-response bias arises when the researcher fails to obtain enough information from the respondents. Bloch and Nebenzahl (1983, p.1230), Sproull (1988, p.193) and Yu and Cooper (1983, p.40) have underlined some suggestions on how to increase response rate with mail questionnaires. Some suggestions are:

- Preliminary notification
- Include a cover letter which appeals to respondent's affiliation.
- Mail a reminder/follow-up letter
- Write clear directions
- Foot-in-the-door techniques
- Structure the entire questionnaire so that the respondent can complete it easily and quickly.

With regard to response rates, Kanuk and Berenson (1975, p.450) have conducted research and concluded that the only techniques that seem to be consistently effective in increasing response rate are follow-up letters and advance notification by telephone. This statement was agreed by Bush and White (1985, p430), who also claimed the response rate would increase by having personalised initial contact, clear research purpose and established face-to-face contact.

5.3 Sampling Frame

According to de Vaus, the sample size required in a survey depends on two factors. Firstly, "the degree of accuracy we required for the sample" and secondly, "the extend to which there is a variation in the population in regard to the key characteristics of the study" (de Vaus 1991, p.70).

The Ministry of Entrepreneur Development of Malaysia was selected for the survey setting. All public organisations in Malaysia are required to employ the same policies and procedures, and with identical organisational culture and organisational structure. In order to obtain a comprehensive study on knowledge creation and the performance of knowledge transfer in a public
organisation, it was decided to use one specific Ministry for a case study. Since the number of employees in this Ministry was of medium size, when compared to other Ministries, it was felt to be reasonable and appropriate to conduct a very thorough survey, involving every officer in the Ministry. This would ensure all data collected could be studied in greater depth, and it was felt that such data would be more accurate, since it would involve every officer at each of the different levels within the Ministry.

5.4 Statistical Analysis

Apart from using descriptive analysis, I also tried to investigate whether the relationships or correlations postulated in the hypothesis hold true. Before testing the relationship between the independent and the dependent variables identified earlier, the researcher has conducted factor analysis to group all the particular constructs into meaningful groups (factor). Once grouped, the researcher has tested the correlation on all the factors using a regression technique.

5.5 Conclusion

In this chapter, various research methods were identified and discussed in great depth. However, the most appropriate method used in this study was using survey method. Before conducting the survey, a questionnaire was carefully design based on the issues discussed in the literature review. Questions that are not related were dropped from the questionnaire. The survey was conducted in the Ministry of Entrepreneur Development of Malaysia, and 75.49 percent (out of 220) respondents involved in the survey have returned the questionnaire.
Chapter 6

A DESCRIPTIVE ANALYSIS OF THE QUESTIONNAIRE SURVEY
CHAPTER SIX

ANALYSIS OF THE QUESTIONNAIRE SURVEY

This chapter presents a descriptive analysis of responses gathered from section A and B of the questionnaire that was used during the survey. All of the results were generated from the Statistical Package for Social Sciences (SPSS) version 10.0 for Windows. The researcher conducted a range of descriptive analyses using frequencies, cross-tabulation and graphs to examine the distribution of the responses. It is very important to conduct such an analysis, especially to check for data errors with regard to any mistakes in data entry, and to check if there are any outliers in the survey. It is also beneficial to examine the distribution shape before any formal statistical test is done.

6.1 Personal Background

This section provides background information on the respondents who participated in the survey. The characteristics examined include age, sex, educational background, current position, Division/Unit, working experience and number of years in the Ministry and Division/Unit.
6.1.1 Respondent Profile

As discussed in section 5.3, there are 221 potential respondents from grade 1 to grade 6 in the Ministry of Entrepreneur Development of Malaysia. However, only 204 questionnaires were successfully distributed, either personally by hand or by mail. Out of that, only 154 responses (75.4 percent) were collected, of which 78 (50.6 percent) were male and the other 76 (49.4 percent) were female. The highest response was received from the age group 41 – 45 years old, where, out of 39 responses (25.3 percent of the total respondents), a total of 20 questionnaires were received from male respondents, while the other 19 were from female respondents. The findings confirm that the total number of respondents by sex and age are well distributed. Figure 6.1 shows the breakdown of the total number of responses returned categorised by sex and age.

![Figure 6.1 - Number of Respondents by Age Group](image)

6.1.2 Highest Qualification

As presented in Table 6.1, the highest frequency was from respondents who have a first degree or equivalent, representing 48.4 percent of the total
respondents. The second largest group, which represents 23.5 percent of the respondents, have a diploma, followed by 18 percent respondents who have a Master's degree.

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Master's Degree</td>
<td>18</td>
<td>11.8</td>
</tr>
<tr>
<td>First Degree/Equivalent</td>
<td>74</td>
<td>48.4</td>
</tr>
<tr>
<td>Diploma</td>
<td>36</td>
<td>23.5</td>
</tr>
<tr>
<td>Others</td>
<td>24</td>
<td>15.7</td>
</tr>
</tbody>
</table>

Table 6.1 – Number of Respondents by Qualification

6.1.3 Current Position

Table 6.2 shows the majority of the respondents were either Assistant Secretaries/Directors (29.9 percent) or Assistant Administration Officers (26 percent), which represents 45.9 percent of the total respondents. Other major respondents were the Principal Assistant Secretaries/Directors (14.9 percent) and the Technical Assistants (9.1 percent).

<table>
<thead>
<tr>
<th>Current Position</th>
<th>Sex</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Under Secretary/Director</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Principal Assistant Secretary/Director</td>
<td>15</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>Assistant Secretary/Director</td>
<td>24</td>
<td>22</td>
<td>46</td>
</tr>
<tr>
<td>Engineers</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Information System Officer</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Assistant Administration Officer</td>
<td>16</td>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td>Technical Assistant</td>
<td>7</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Assistant Information System Officer</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 6.2 – Number of Respondents by Current Position
6.1.4 Division/Unit

Table 6.3 reveals most of the respondents were from the Contractor Services Centre, which represents 45.5 percent of the total. This is not surprising, as this division has more grade 1 to 6 officers (scattered in every state) compared to other Division/Units. Other major groups of respondents were from the Commercial Vehicle Licensing Board (14.3 percent), Entrepreneurship Training Division (6.5 percent) and the Project and Programme Development Division (6.5 percent).

<table>
<thead>
<tr>
<th>Division/Unit</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurship Training</td>
<td>10</td>
<td>6.5</td>
</tr>
<tr>
<td>Contractor Services Centre</td>
<td>70</td>
<td>45.5</td>
</tr>
<tr>
<td>Project &amp; Programme Development</td>
<td>10</td>
<td>6.5</td>
</tr>
<tr>
<td>Information Management</td>
<td>8</td>
<td>5.2</td>
</tr>
<tr>
<td>Franchise &amp; Vendor</td>
<td>7</td>
<td>4.5</td>
</tr>
<tr>
<td>Business Development</td>
<td>7</td>
<td>4.5</td>
</tr>
<tr>
<td>Commercial Vehicle Licensing Board</td>
<td>22</td>
<td>14.3</td>
</tr>
<tr>
<td>Planning &amp; Evaluation</td>
<td>7</td>
<td>4.5</td>
</tr>
<tr>
<td>Human Resources</td>
<td>6</td>
<td>3.9</td>
</tr>
<tr>
<td>Administration</td>
<td>4</td>
<td>2.6</td>
</tr>
<tr>
<td>Internal Audit</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Public Relation</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Legal</td>
<td>1</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Table 6.3 – Number of Respondents by Division/Unit

6.1.5 Working Experience

Figure 6.2 reveals that most respondents fall into two main categories. In the first category are those respondents who have working experience of less than 6 years. This represents 30.5 percent of the respondents, of whom 16 were males and 31 were females. The second category comprises those who have working experience of more than 20 years. There were 28 males and 14 females in this category, and they represent 27.3 percent of the respondents. Other categories were those who have working experiences of
6 to 10 years (12.3 percent), 11 to 15 years (8.4 percent) and 16 to 20 years (21.4 percent).

![Figure 6.2 - Number of Respondents by Sex and Working Experiences](image)

6.1.6 Years in the Ministry and Division/Unit

More than half (61.5 percent) of the respondents have been working with the Ministry for one to six years. The trend seems to be the same with the number of respondents working in the respective Division/Unit, where a total of 97 respondents (63.0 percent) have been working between one and six years. Details are shown in Table 6.4.

<table>
<thead>
<tr>
<th>Number of Years</th>
<th>Years in Ministry</th>
<th>Years in Division/Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Less than 1 year</td>
<td>27</td>
<td>17.6</td>
</tr>
<tr>
<td>1 – 3 years</td>
<td>52</td>
<td>34.0</td>
</tr>
<tr>
<td>4 – 6 years</td>
<td>42</td>
<td>27.5</td>
</tr>
<tr>
<td>7 – 9 years</td>
<td>17</td>
<td>11.1</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>15</td>
<td>9.8</td>
</tr>
</tbody>
</table>

Table 6.4 – Number of Respondents by Years in Ministry and Division/Unit
6.2 Understanding of Knowledge Management

This section provides the background to perception and understanding by respondents about knowledge management. It discussed all the items in depth, and made some comparison between certain variables which were also analysed. For this matter, a cross-tabulation technique was used in analysing all items in this section, such as focusing on working experiences, number of years in the Ministry, etc. To give constant understanding of what knowledge management is, the researcher included the definition of knowledge management in the questionnaire. The researcher also conducted a statistical test using chi-square particularly in detecting if the respondent working experiences and number of years in the Ministry has some influences on the results. The Chi-square test is used to find associations and relationships between the groups with the investigated variables. The author presents the results of the Chi-square test by giving the $p$-value. If $p$ is less than 1 percent, or 5 percent, the author will reject the prediction that there is no relationship between the variables under study.

6.2.1 Knowledge Management Strategy

Respondents were asked whether the Ministry had a written knowledge management strategy (applying the definition of knowledge management detailed in the questionnaire). Figure 6.3 demonstrates that 52.6 percent of the respondents agree that the Ministry has a knowledge management strategy, compared with 19.7 percent who said 'no'. However, there were 27.6 percent who did not know whether the Ministry had any knowledge management strategy.
When checking if there is any difference between the response and working experiences, it was found that the significant level was 0.113 and $\chi^2 = 7.464$. This is more than the alpha value of 0.05. Therefore, the results suggest that there is no significant difference in understanding whether the Ministry has a knowledge management strategy or not. An inspection of the mean ranks for the groups suggests that the less experienced groups (less than 6 years, mean = 87.65) had the highest result, with the more experienced group (more than 20 years, mean = 67.88) reporting the lowest.

With regard to the responses with number of years in the Ministry, it was clear that there is also no significant difference in response. The significant level was 0.071, which is higher than the alpha value of 0.05 and $\chi^2 = 8.616$. Further analysis shows that the less experienced groups (less than 6 years, mean = 90.91) had the higher responses compare to the more experienced group (more than 20 years, mean = 67.23).

Further analysis shows that among those who were uncertain as to whether or not the Ministry has a knowledge management strategy, 12 (7.95 percent) respondents have been working with the Ministry for over four years. Four of these respondents were Assistant Secretaries/Assistant Directors, and all four have more than 11 years working experiences. Others include an engineer, five Assistant Administration Officers and one Technical Officer. The results indicate that there were officers who still do not really know what is happening

![Figure 6.3 – Knowledge Management Strategy](image)
in the Ministry. Two respondents who responded 'don't know' had been working with the Ministry for over ten years and have working experiences between 16 and 20 years.

With regard to the importance of having a knowledge management strategy in the Ministry, a total of 96.8 percent respondents were in agreement. This figure also shows the respondents who said that the Ministry does not have a knowledge management strategy felt it to be important to have one.

6.2.2 Benefits of Managing Knowledge

Figure 6.4 demonstrates that most of the respondents agree that the Ministry could gain a lot of benefit from managing knowledge. The respondents agree that by managing knowledge, the Ministry could improve work quality (77.9 percent), have 'up-to-date' information (76.6 percent), improve efficiency (75.5 percent), be more effective (67.5 percent), improve decision making (66.9 percent) and be able to respond to customer needs (64.9 percent). The least-rated benefits, in the respondents' opinion, are to respond to other organisations' needs (48.7 percent) and to instigate changes (47.7 percent).
The number of responses seems to vary with the respondents' working experiences. The results show that only three issues have significant differences across the different groups of working experiences, with the alpha level less than 0.5. The issues are to improve quality ($\chi^2 = 10.105, \alpha = 0.038$), improve decision-making ($\chi^2 = 12.255, \alpha = 0.016$) and response to customers' needs ($\chi^2 = 10.10, \alpha = 0.039$). An inspection on the mean rank for the groups suggests that the older (> 20 years) had the highest score. Other issues show that there is no significant difference across the groups. There are to improve efficiency ($\chi^2 = 9.048, p = 0.060$), be more effective ($\chi^2 = 8.319, \alpha = 0.081$), up-to-date with new information ($\chi^2 = 0.194, p = 0.996$), able to respond to other organisation's need ($\chi^2 = 2.908, p = 0.016$) and to instigate changes ($\chi^2 = 2.799, p = 0.592$). Checking the mean rank of the groups again show that the older group (> 20 years) had the highest score, with the less experiences group reporting the lowest. Surprisingly, respondents with less than six years of working experiences have a relatively higher mean score showing that they are quite confident that knowledge is important to the organisation. The results may indicate that some of the employees who have more working experiences are still less confident on how knowledge can be managed effectively and efficiently in the Ministry. Details of the results are shown in Table 6.5.
<table>
<thead>
<tr>
<th>Issues</th>
<th>Chi-square</th>
<th>Alpha</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Highest (Group)</td>
</tr>
<tr>
<td>To improve efficiency</td>
<td>9.048</td>
<td>0.060</td>
<td>87.83 (&gt; 20 years)</td>
</tr>
<tr>
<td>To be more effective</td>
<td>8.319</td>
<td>0.081</td>
<td>89.17 (&gt; 20 years)</td>
</tr>
<tr>
<td>To be up-to-date with new information</td>
<td>0.194</td>
<td>0.996</td>
<td>79.76 (6-10 years)</td>
</tr>
<tr>
<td>To respond to other organisation's needs</td>
<td>2.908</td>
<td>0.573</td>
<td>82.33 (16-20 years)</td>
</tr>
<tr>
<td>To respond to customers' needs</td>
<td>10.10</td>
<td>0.039*</td>
<td>89.00 (&gt; 20 years)</td>
</tr>
<tr>
<td>To instigate changes</td>
<td>2.799</td>
<td>0.592</td>
<td>84.67 (&gt; 20 years)</td>
</tr>
<tr>
<td>To improve decision making</td>
<td>12.255</td>
<td>0.016*</td>
<td>90.50 (&gt; 20 years)</td>
</tr>
<tr>
<td>To improve quality</td>
<td>10.150</td>
<td>0.038*</td>
<td>89.83 (&gt; 20 years)</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level

Table 6.5 – Working Experiences and Issues on Managing Knowledge (Chi-Square Test)

When further analysed on the responses with the number of years in the Ministry, the results seem to have slight differences. The results clearly indicate respondents that have been in the Ministry for more than ten years are more confident on how the Ministry could benefit from managing knowledge compare to those who have been in the Ministry for less than a year. Detail results are shown in Table 6.6. When the responses are statistically tested using chi-square, it shows that four out of eight issues have significant differences in scores, having the alpha level less than 0.5. The issues concerned are to be up-to-date with new information ($\chi^2 = 10.333, p = 0.035$), to instigate changes ($\chi^2 = 10.209, p = 0.037$), to improve decision-making ($\chi^2 = 14.95, p = 0.005$) and to improve quality ($\chi^2 = 11.405, p = 0.022$).
## Analysis of Questionnaire Survey

### Table 6.6 – Number of years in the Ministry and Issues on Managing Knowledge (Chi-square Test)

<table>
<thead>
<tr>
<th>Issues</th>
<th>Chi-square</th>
<th>Alpha</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Highest (Group)</td>
</tr>
<tr>
<td>To improve efficiency</td>
<td>4.193</td>
<td>0.381</td>
<td>84.00 (&gt; 10 years)</td>
</tr>
<tr>
<td>To be more effective</td>
<td>4.787</td>
<td>0.310</td>
<td>83.10 (&gt; 10 years)</td>
</tr>
<tr>
<td>To be up-to-date with new information</td>
<td>10.344</td>
<td>0.035*</td>
<td>94.70 (&gt; 10 years)</td>
</tr>
<tr>
<td>To respond to other organisation's needs</td>
<td>1.972</td>
<td>0.741</td>
<td>87.50 (7-9 years)</td>
</tr>
<tr>
<td>To respond to customers' needs</td>
<td>6.572</td>
<td>0.160</td>
<td>86.20 (&gt; 10 years)</td>
</tr>
<tr>
<td>To instigate changes</td>
<td>10.209</td>
<td>0.037*</td>
<td>91.00 (7-9 years)</td>
</tr>
<tr>
<td>To improve decision making</td>
<td>14.95</td>
<td>0.005*</td>
<td>90.25 (1-3 years)</td>
</tr>
<tr>
<td>To improve quality</td>
<td>11.405</td>
<td>0.022*</td>
<td>86.00 (&gt;10 years)</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level

### 6.2.3 Responsibility to Manage Knowledge

Davenport and Prusak believe that ‘the most successful organisations are those in which knowledge management is part of everyone's job’ (Davenport and Prusak 2000, p.107). When asked who is responsible for managing knowledge in the Ministry, 51.7 percent respondents did not agree that it is everybody's job and only 48.3 percent of the respondents feel that the responsibility to manage knowledge in the Ministry should be everyone's job. This is quite surprising, as many respondents still feel that the head of the Ministry (27.5 percent) or the head of the division/unit (16.1 percent) are the ones who are responsible for managing knowledge in the Ministry.

When these data were further analysed using cross-tabulation between working experiences and responsibility for managing knowledge, it was found that 32.2 percent of respondents who have working experiences of more than ten years argued that knowledge is not their own responsibility. In contrast,
only 24.8 percent respondents who have working experiences of more than ten years believed that knowledge is to be managed by everyone in the organisation. It also revealed that 17.5 percent of the respondents who have more than 20 years working experiences stated that knowledge should be managed by someone else in the organisation. This is definitely not a good sign for a public organisation where the employees who have more working experiences still depend on others to manage the knowledge available in the organisation. To be successful, all tacit and explicit knowledge should be managed by each and every person in the organisation and shared at all times.

However, when they are statistically tested, the results suggest that there is no significant difference between both working experiences and number of years in the Ministry and responsibility of managing knowledge. The results indicate that working experiences and responsibility of managing knowledge has a significant level of 0.079 ($\chi^2 = 8.359$), which is above the alpha level of 0.05. Thus, it proves that there is no significant difference between the two items. The result on number of years in the Ministry and responsibility of managing knowledge also reveal the same, where the alpha level was 0.639. These results suggest that there is no significant difference on the responses across the different years or working experiences in the Ministry.

6.2.4 Chief Knowledge Officer

Table 6.7 shows that 64.9 percent respondents agreed that the Ministry should have a Chief Knowledge Officer (CKO) compared to 15.6 percent who disagree with the idea. However, 19.5 percent were still not sure if it is necessary to have a CKO.
### Chief Knowledge Officer (CKO) Frequency (Percent)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Yes (Percent)</th>
<th>No (Percent)</th>
<th>Don't Know (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>48 (31.2%)</td>
<td>16 (10.4%)</td>
<td>14 (9.1%)</td>
</tr>
<tr>
<td>Female</td>
<td>52 (33.7%)</td>
<td>8 (5.2%)</td>
<td>16 (10.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>100 (64.9%)</td>
<td>24 (15.6%)</td>
<td>30 (19.5%)</td>
</tr>
</tbody>
</table>

**Table 6.7 – Chief Knowledge Officer**

#### 6.2.5 Problem in Managing Issues in the Ministry

Respondents were asked to specify issues (problems) they think are difficult to manage in the Ministry. Figure 6.6 indicates that the most difficult issue to manage was the changing of employees' behaviour, where 69.5 percent believed than it was either “difficult” or “very difficult”. Other highly scored issues were: problems in maintaining data (48.7 percent), overcoming technological limitations (34 percent), identifying knowledge/information externally (33.1 percent), dealing with confidential documents (29.2 percent) and sharing knowledge/information among officers of different divisions/units (27.2 percent). The least difficult issue to manage (not shown in the graph) was making knowledge/information accessible to everyone, where 45.1 percent respondents believed that it was either “easy” or “very easy” to manage. Others include, identifying knowledge/information internally (36.3 percent) and making knowledge available to everyone (43.3 percent).
Further analysis using cross-tabulation between the issues in Figure 6.5 and the respondents' number of years of work experiences has also been conducted. Experienced workers are considered to be more knowledgeable, and it will certainly influence the way they overcome particular problems. Davenport and Prusak state that experiences “provides a historical perspective from which to view and understand new situations and events” (Davenport and Prusak 2000, p.7) and “experiences changes ideas about what should happen into knowledge of what does happen” (Davenport and Prusak 2000, p.8).

With regard to problems in maintaining data, 57.9 percent of respondents with working experiences of six to ten years claim that maintaining data were either “difficult” or “very difficult” to overcome. This is followed by 54.6 percent of those from the group that have less than six years working experiences.

<table>
<thead>
<tr>
<th>Problem in maintaining data</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>57.9%</td>
<td>42.0%</td>
<td>42.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overcoming technological limitations</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>42.0%</td>
<td>43.8%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dealing with confidential documents (files)</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>43.8%</td>
<td>35.1%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Making knowledge/information available to everyone</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>32.9%</td>
<td>32.5%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sharing knowledge/information among officers of different division/unit</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>46.8%</td>
<td>44.8%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identifying knowledge/information externally</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>44.8%</td>
<td>34.6%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identifying knowledge/information internally</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>44.8%</td>
<td>46.8%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Making knowledge/information accessible to everyone</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>46.8%</td>
<td>44.8%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Changing employees' behaviour</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>51.3%</td>
<td>22.7%</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 6.5 – Difficulties in Managing Issues in the Ministry**
Other results are 46.2 percent, 45.5 percent and 41.5 percent from the groups of 11 to 15 years, 16 to 20 years and more than 20 years respectively. However, the results indicate that there is no significant difference in the responses between working experiences and issues on maintaining data ($\chi^2 = 3.074$, $p = 0.545$). The significant level was more than the alpha level of 0.05.

With regard to the issue and number of years in the Ministry, the finding revealed the same result ($\chi^2 = 5.886$, $p = 0.208$). The results suggest that there is also no significant difference across the groups.

Pertaining to overcoming technological limitations, 46.8 percent of respondents from the group who have working experiences of less than six years said that it was either “difficult” or “very difficult” to deal with the technological limitations. In contrast, only 26.2 percent from the group who have more than 20 years working experiences feel that technological limitations are difficult to overcome. On the other hand, in the group that have 16 to 20 years working of experiences, 60.6 percent were undecided. When the results were tested, it shows that there is a significant difference between working experiences and the issue on technological limitations, where $\chi^2 = 9.103$ and $p = 0.050$. The results indicate that respondents with more working experiences felt it to be less difficult to overcome technological limitations in the Ministry. However, the results show that there is no significant difference between number of years in the Ministry and the issue. An inspection of the mean ranks for the groups suggest that respondents who has been with the Ministry of 4 to 6 years (mean = 81.13) have the highest score.

Dealing with confidential documents (files) seems not to be a real problem for most of the respondents. The survey shows that 35.7 percent of the total respondents said that it was either “easy” or “very easy” to deal with such a document. Perhaps this is due to the fact that the respondents were from Grade 1 to Grade 6, where most of them can have access to certain confidential documents in the organisation. When responses are analysed between groups, they show 52.4 percent of respondents from the group with
working experiences of more than 20 years felt it was either "easy" or "very easy" to manage confidential records, as compared to only 38.3 percent from the group who have less than six years of working experiences. Statistically, a chi-square test shows that there is a significant difference in the score, where $\chi^2 = 10.118$, $p = 0.038$. The result reveals that the alpha value was lower than the alpha level of 0.05. However, the study also reveals that there is no significant difference between number of years in the Ministry and the issue dealing with confidential documents, where $\chi^2 = 3.088$, $p = 0.543$.

The least difficult issue to manage is making knowledge available to everyone in the organisation. A total of 43.3 percent of respondents believed it was either "easy" or "very easy" to make knowledge available. The highest scores were from the group that have working experiences of 11 to 15 years and of more than 20 years, where a total of 53.9 percent and 48.8 percent respondents in these groups respectively, claim it was an easy task. Further analysis reveals that there is no significant difference between this issue and working experiences ($\chi^2 = 3.131$, $p = 0.538$) and number of years in the Ministry ($\chi^2 = 1.691$, $p = 0.792$). Both the results have values of more than 0.05.

With regard to sharing knowledge/information among officers of different divisions/units, 40.3 percent of the total respondents felt it was either "easy" or "very easy", compared to only 27.2 percent who said it was either "difficult" or "very difficult". When comparison is made between groups of different lengths of working experiences, the group with working experiences of six to ten years have the highest score, where 73.9 percent of the respondents said it was either "easy" or "very easy". This was followed by 47.6 percent of those that have more than 20 years of working experiences. However, the results indicate that sharing knowledge/information between officers is not a big problem in the Ministry. Checking the chi-square results show that there is no significant difference between sharing of knowledge and working experiences ($\chi^2 = 1.958$, $p = 0.743$) and number of years in the Ministry ($\chi^2 = 1.741$, $p = 0.783$). An inspection of the mean ranks for both groups suggests that the
group with more working experiences and those who have been with the Ministry for a longer period of time has the highest score.

Identifying knowledge/information externally was not a real problem to the Ministry. Only 33.1 percent of respondents felt it was either “difficult” or “very difficult” to manage, while 46.8 percent of respondents remain undecided of this issue. When comparison is made between groups of different lengths of working experiences, it was found that 42.4 percent of respondents with working experiences of 16 to 20 years felt that identifying knowledge externally was either “difficult” or “very difficult”. This is followed by 31.0 percent from the group with working experiences of more than 20 years. Surprisingly, 55.6 percent of respondents of the group who have working experiences of 16 to 20 years were also undecided about the issue. Further analysis shows that, although these two groups have working experiences more than 16 years, they have been working with the Ministry for only less than 6 years. Furthermore, 51.5 percent and 84.9 percent respectively were from officers of Grade 4 to Grade 6. The researcher believes that these groups of officers were those who got promoted to a higher grade after showing good performance, and have been serving public organisations for more than 16 years. Although the results above show some differences between the particular groups, the Chi-square test does not support it. The study shows that there is no significant different between identifying knowledge externally with either working experiences ($\chi^2 = 8.637, p = 0.071$) and number of years in the Ministry ($\chi^2 = 4.011, p = 0.405$).

In contrast with identifying knowledge externally, the respondents were more confident in identifying knowledge internally. A total of 36.3 percent of respondents believed that it to be either “easy” or “very easy” to access knowledge internally, as compared to only 18.8 percent who claimed it “difficult” to manage. Further analyses show that out of the total 36.3 percent, 42 percent of respondents with working experiences of more than 16 to 20 years and 47.6 percent of respondents with more than 20 years were more confident in accessing knowledge/information internally. The Chi-square test,
however, shows that there is no significant different between the responses and working experiences, where $\chi^2 = 4.183$ and $p = 0.382$. The relationship between accessing knowledge internally and number of years in the Ministry also shows no significant difference, where $\chi^2 = 1.887$, $p = 0.757$.

Another issue which is easy to manage is making knowledge/information accessible to everyone in the Ministry, where a total of 45.1 percent of respondents believed that it was an easy task. Out of the 45.1 percent, 42.2 percent and 62.0 percent of respondents from the groups who have working experiences of 16 to 20 years and more than 20 years, respectively, felt it was either “easy” or “very easy” to make knowledge accessible to everyone. On the other hand, only 28.3 percent of respondents in the group who have working experiences of less than six years said that it was either “easy” or “very easy”. On the contrary, 32.6 percent of respondents in this group found it to be either “difficult” or “very difficult”. Although the results above show that the more experienced respondents felt making knowledge/information to everyone is much easier compared to those who have less working experiences, the chi-square test shows that there is no significant difference between the responses from the particular group. The alpha level was higher than 0.05 ($\chi^2 = 8.684$, $p = 0.071$). With regard to the number of years in the Ministry, the results also shows that there is no significant difference between the group, where $\chi^2 = 2.201$, $p = 0.699$. An inspection on the mean rank for the groups suggests that newer respondents seem to have the higher score (four to six years, mean = 80.67) compare to those who have been in the Ministry for a longer period (seven to nine years, mean 66.53).

The most difficult issue to be managed in the Ministry is to change employees’ behaviour. A total of 69.5 percent of respondents felt it was either “difficult” or “very difficult” to manage. When comparison is made between groups with different lengths of working experiences, the highest responses were found in the group with working experiences of 16 to 20 years, where 84.9 percent of respondents felt it was either “difficult” or “very difficult”. This is followed by those who have working experiences of six to ten years (79.0 percent), less
than six years (76.6 percent), 11 to 15 years (53.9 percent) and more than 20 years (50.0 percent). Among the total respondents who state it was either “difficult” or “very difficult” were those who have less than ten years working experiences (33.8 percent) and those who have been with the Ministry for less than six years (55.8 percent). When further analysed, using the cross-tabulation technique, it was found a total of 31.8 percent of the responses were from those who have less than ten years experiences and have been with the Ministry for less than six years. The results indicate that in general employees with less working experiences, who have been with the Ministry for fewer years, have more difficulties in changing their behaviour. The chi-square test, however, does not support the statement. For working experiences, it shows that there is no significant difference between the groups, where the alpha value is more than 0.05 ($\chi^2 = 6.076, p = 0.194$)

6.2.6 Potential in Developing a Successful Knowledge Management System

Respondents were asked for their views of various issues, that they may think have potential for developing a successful knowledge management system (KMS) in the Ministry. Most of the respondents believed all the issues that were specified in the questionnaire have “lots of potential” and “most potential”. A cross-tabulation analysis between different groups of working experiences and number of years in the Ministry and various issues highlighted in the questionnaire has also been performed. A statistical test using Chi-square was also been conducted to check if there are any differences in the responses. Details of the results are shown in Figure 6.7.
As shown in Figure 6.6, 75.4 percent of respondents believed that developing an organisation database of information and knowledge was the most important issue in developing a KMS. When responses on this issue were compared between groups with different years of working experiences, it shows most respondents in each group agreed it has either “lots of potential” or “most potential”. The highest score was in the group which has working experiences between 11 and 15 years, where 92.3 percent of respondents in this group felt it has great potential. The lowest was from the group that has less than six years working experiences. However, the results indicate that there is no significant difference in the responses between working experiences and issues on developing organisation’s databases ($\chi^2 = 3.276$,
The significant level was more than the alpha level of 0.05. With regard to the issue and number of years in the Ministry, the finding reveals the same result ($\chi^2 = 3.257, p = 0.516$). The results suggest that there is also no significant difference across the groups. This result indicates that the majority of respondents believed that developing an organisational database of information and knowledge is vital for developing a successful KMS in the Ministry.

The second highest score was given to develop effective and efficient methods of gathering information and knowledge, where 71.4 percent of respondents believed it was of great potential. When comparison is made between groups with different lengths of working experiences, it was found all five groups were confident that the Ministry would be able to have a successful KMS, if this issue is managed appropriately. The highest score was from the group that have working experiences of six to ten years (mean = 93.24), the lowest was from those who have more than 20 years of working experiences (mean = 68.89). Although the results show that the less experienced respondents felt that there was more potential compared to those who have more working experiences, the chi-square test shows that there is no significant difference between the responses from the particular group. The alpha level was higher than 0.05 ($\chi^2 = 6.780, p = 0.148$). With regard to the number of years in the Ministry, the results also shows that there is no significant difference between the groups, where $\chi^2 =2.713, p = 0.607$. An inspection on the mean rank for the groups suggests that newer respondents seem to have the higher score (4 to 6 years, mean = 82.61) compare to those who have been in the Ministry for a longer period (more than 10 years, mean = 63.0).

Developing systematic training for all employees is another potential area that should be taken into consideration in developing a successful KMS in the Ministry. A total of 68.2 percent of respondents believed it has either "lots of potential" or "most potential". A comparison of responses between different groups shows that 84.2 percent of respondents who have working
experiences of six to ten years believe in its potential. This is followed by respondents with working experiences of 11 to 15 years (76.9 percent), 16 to 20 years (75.8 percent), more than 20 years (69.1 percent) and less than six years (53.2 percent). Statistically, a chi-square test shows that there is a significant difference in the score, where $\chi^2 = 5.237$, $p = 0.264$. The result revealed that the alpha value was higher than the alpha level of 0.05. The study also reveals that there is no significant difference between number of years in the Ministry and issue on having systematic training, where $\chi^2 = 0.819$, $p = 0.936$. The highest response was from respondents who have been with the Ministry for seven – nine years, with mean of 83.00, while the lowest was from those who have less than one year where the mean was 73.74.

With regard to improving the information technology infrastructure, 58.4 percent of respondents cited it had either “lots of potential” or “most potential”. The highest responses were from the group with working experiences of six to ten years (68.4 percent), followed by those who have experiences less than six years (65.9 percent), 11 to 15 years (61.5 percent), 16 to 20 years (54.6 percent) and more than 20 years (47.6 percent). The results indicate that respondents with less than ten years working experiences, and in this case, younger in age too, believed better information technology infrastructure will ensure the success of the KMS. The results also indicate that the younger generations are more computer literate, and prefer to access information and knowledge from electronic sources rather than manually. However, the results indicate that there is no significant difference in the responses between working experiences and issues on improving the information technology infrastructure ($\chi^2 = 3.326$, $p = 0.505$). The significant level was more than the alpha level of 0.05. With regard to the issue and number of years in the Ministry, the finding revealed the same result ($\chi^2 = 1.259$, $p = 0.868$). The results suggest that there is also no significant difference across the groups. An inspection on the mean rank for the groups suggests respondents that are new to the Ministry seem to have the higher score (< 1 year, mean = 81.78) compare to those who have been in the Ministry for a longer period (more than 10 years, mean = 69.10).
Other issues which have more than 50 percent of responses (for lots of potential and most potential) were, in the case of developing a culture to promote knowledge sharing (57.8 percent), encouraging officers to be more innovative and creative (51 percent) and in respect of allocation of resources for generating knowledge (50.6 percent). The issues with the fewest respondents felt have “lots of potential” and “most potential” were having knowledgeable officers (48 percent), providing incentives to employees who contribute knowledge (45.4 percent), providing support from senior officers (42.2 percent) and having a place for discussing tacit knowledge (39 percent). Although the results above show some differences between the particular groups, the Chi-square test does not support it. The study shows that there is no significant difference between all the issues with either working experiences or number of years in the Ministry.

6.2.7 Knowledge Generation and Knowledge Sharing

With regard to issues that encourage knowledge generation and knowledge sharing, 54.5 percent (responses “lots of potential” and “most potential”) of respondents believed the current workflow that the Ministry is implementing has great potential. Other highly important issues cited by the respondents were Desk File (49.3 percent), Job Manual Procedure (46.8 percent), filing system (44.8 percent) and ISO 9002 (43.5 percent). However, there are two issues that scored lower (either “some potential” or “no potential”) by the respondents. Although 32.5 percent of respondents cited the current procedures and policies as having “lots of potential” and “most potential”, there were 29.2 percent of respondents who felt that there was “no potential” or “some potential”. The unwritten policies had the worse response. Here 44.1 percent respondents felt it had "no potential" or "some potential". These figures, however, show the Ministry's current approaches have proven to be effective in generating and sharing of knowledge among the employees. Table 6.8 shows details of the results.
When further analysed on the responses with working experiences, the results seem to have significant differences in some of the issues. The results clearly indicate respondents that have working experiences of less than six years seem to have lower results, to those who have more working experiences. When the responses are statistically tested, it shows that three out of seven issues have significant differences in scores, having the alpha level less than 0.5. The issues concerned are job manual procedure ($\chi^2 = 10.913, p = 0.029$), ISO 9002 ($\chi^2 = 11.879, p = 0.018$) and filing system ($\chi^2 = 12.623, p = 0.013$). An inspection on the mean rank for the groups suggests that respondents with less than six years working experiences cited that the particular issue are less potential in encouraging knowledge generation and knowledge sharing (mean between 66.88 and 69.8) compare to those who have been in the Ministry for a longer period. The highest group was either from those who have 11 to 15 years of working experiences (mean between 98.68 and 106.08) or six to ten years (mean between 95.53 and 98.68).
### Table 6.9 – Chi-square Test on the Related Issues with Length of Working Experiences

<table>
<thead>
<tr>
<th>Issues</th>
<th>Chi-square</th>
<th>Alpha</th>
<th>Mean</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Highest (Group)</td>
<td>Lowest (Group)</td>
<td></td>
</tr>
<tr>
<td>Current procedures and policies</td>
<td>5.474</td>
<td>0.242</td>
<td>95.53 (6-10 years)</td>
<td>70.94 (11-15 years)</td>
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<tr>
<td>Unwritten policies</td>
<td>5.448</td>
<td>0.244</td>
<td>98.85 (6-10 years)</td>
<td>72.20 (&gt;20 years)</td>
<td></td>
</tr>
<tr>
<td>Job Manual Procedure</td>
<td>10.813</td>
<td>0.029*</td>
<td>98.68 (6-10 years)</td>
<td>66.88 (&lt; 6 years)</td>
<td></td>
</tr>
<tr>
<td>ISO9002</td>
<td>11.879</td>
<td>0.018*</td>
<td>103.19 (11-15 years)</td>
<td>70.13 (&lt; 6 years)</td>
<td></td>
</tr>
<tr>
<td>Desk File</td>
<td>8.785</td>
<td>0.067</td>
<td>96.96 (11-15 years)</td>
<td>68.70 (&lt; 6 years)</td>
<td></td>
</tr>
<tr>
<td>Filing System</td>
<td>12.623</td>
<td>0.013*</td>
<td>106.08 (11-15 years)</td>
<td>69.80 (&lt; 6 years)</td>
<td></td>
</tr>
<tr>
<td>Workflow</td>
<td>6.251</td>
<td>0.181</td>
<td>100.92 (11-15 years)</td>
<td>70.00 (16-20 years)</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

However, when the issues are compared with the number of years in the Ministry, it shows that there are no significant differences between the issues and number of years in the Ministry. Table 6.10 shows details of the results.

### Table 6.10 – Chi-square Test on the Related Issues with Number of Years in the Ministry

<table>
<thead>
<tr>
<th>Issues</th>
<th>Chi-square</th>
<th>Alpha</th>
<th>Mean</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Highest (Group)</td>
<td>Lowest (Group)</td>
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<tr>
<td>Current procedures and policies</td>
<td>3.490</td>
<td>0.479</td>
<td>87.47 (7-9 years)</td>
<td>69.98 (1-3 years)</td>
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<tr>
<td>Unwritten policies</td>
<td>4.206</td>
<td>0.379</td>
<td>87.76 (7-9 years)</td>
<td>67.81 (1-3 years)</td>
<td></td>
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<tr>
<td>Job Manual Procedure</td>
<td>6.873</td>
<td>0.143</td>
<td>88.18 (7-9 years)</td>
<td>67.63 (1-3 years)</td>
<td></td>
</tr>
<tr>
<td>ISO9002</td>
<td>7.177</td>
<td>0.127</td>
<td>78.53 (7-9 years)</td>
<td>68.00 (&gt; 10 years)</td>
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</tr>
<tr>
<td>Desk File</td>
<td>7.665</td>
<td>0.108</td>
<td>94.47 (7-9 years)</td>
<td>67.23 (1-3 years)</td>
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<tr>
<td>Filing System</td>
<td>5.271</td>
<td>0.261</td>
<td>93.76 (7-9 years)</td>
<td>67.10 (&gt; 10 years)</td>
<td></td>
</tr>
<tr>
<td>Workflow</td>
<td>6.239</td>
<td>0.182</td>
<td>89.38 (7-9 years)</td>
<td>61.03 (&gt; 10 years)</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level
6.2.8 Barriers to Knowledge Generation and Knowledge Sharing

Respondents were asked about the issues that create barriers to generating and sharing knowledge. Figure 6.7 shows how respondents rated "agree" or "strongly agree" on the barriers that they felt have a great impact in the Ministry. In the survey, 57.2 percent of respondents cited the current command and control procedures are the main barriers in the Ministry, followed by communication channels between officers (53.6 percent), political interference (44.8 percent) and organisational structure (44.1 percent).

![Figure 6.7 - Barriers to Knowledge Generation and Knowledge Sharing](image)

Further analysis, between the number of years of working experiences and the issues mentioned in Figure 6.7, has also been undertaken. With regard to command and control procedures, most of the respondents with working experiences less than 15 years felt that they created barriers in generating and sharing of knowledge in the organisation. The highest scores were those who have working experiences of 11 to 15 years (84.6 percent), followed by respondents with working experiences of six to ten years (84.2 percent) and
less than six years (59.9 percent). In contrast, respondents with working experiences more than 20 years (46.3 percent) and of 16 to 20 years (46.2 percent) responded with either “disagree” or “strongly disagree” with the statement. Checking the chi-square results show that there is a significant difference between this issue and working experiences ($\chi^2 = 17.605, p = 0.002$). However, when compare it with the number of years in the Ministry, it shows that there is no significant difference between the groups ($\chi^2 = 4.056, p = 0.399$).

The result above shows some similarity with issues related to communication channels between officers. Most respondents with working experiences less than 15 years either “agree” or “strongly agree” with the statement. A total of 76.9 percent respondents with working experiences of ten to 15 years and 78.9 percent with six to ten years working experiences claimed that the related issues create barriers in generating and sharing of knowledge in the organisation. On the other hand, 46.3 percent of respondents with working experiences more than 20 years said either ‘disagree” or “strongly disagree” with the statement. The chi-square test reveals that there is a significant difference between the issue and working experiences, where $\chi^2 = 20.384, p = 0.0001$. With regard to the number of years in the Ministry, the chi-square test reveals that there is no significant difference of responses between the groups, where $\chi^2 = 5.069, p = 0.278$.

Pertaining to political interference and organisational structure issues, it was found that the number of respondents who either “agree” or “strongly agree” with the statement were almost similar between groups. The chi-square test shows that there are no significant difference in responses between both political interference ($\chi^2 = 6.078, p = 0.154$) and organisational structure ($\chi^2 = 4.839, p = 0.304$) and working experiences. Pertaining to these issues and the number of years in the Ministry, the study also reveals that there are no significant difference in the responses.
6.2.9 Technology

When asked whether technology is the most important element to develop and gain knowledge, 83.6 percent respondents agreed with the statement. This is not surprising, as most people still think that technology is the answer to knowledge management. Figure 6.8 shows the full result.

![Figure 6.8 - Issue on Technology](image.png)

6.2.10 Technology to Develop and Gain Knowledge

Respondents were asked how important current technologies are in developing and gaining knowledge. Figure 6.9 shows how respondents rated them - either as important, very important or most important.
Electronic mail was said to be the most important of technologies in developing and gaining knowledge, and 73.4 percent of respondents cited it as either "very important" or "most important". An average of 70 percent of respondents in every group of different lengths of working experiences believed electronic mail to be the most important tool to disseminate knowledge in the Ministry. An interview with the Chief Secretary General of the Ministry of Entrepreneur Development provided evidence that top management in the Ministry encourages employees to use electronic mail in their daily work. This is also in line with the Government aspiration to make every office a "paperless office".

Another important technology that is used in developing and gaining knowledge is online information sources, which 72.1 percent of respondents cited as either "very important" or "most important". Further analysis shows
that there is not much difference in responses between groups of different lengths of working experiences. The highest score was from respondents who have working experiences of 11 to 15 years, where 77 percent cited it as "very important" or "most important". This group is followed by respondents who have working experiences of more than 20 years (73.8 percent), 16 to 20 years (72.8 percent), less than 6 years (70.2 percent) and 6 to 10 years (68.4 percent). These results indicate that online information sources have great impact on most employees in the Ministry.

The Internet was also claimed to be either a "very important" or "most important" tool in developing and gaining knowledge in the Ministry, where a total of 72.1 percent respondents agreed with this statement. Responses between groups of different working experiences indicate that the internet is accepted by every level of employees. The highest score was from employees who have less than six years of working experiences, where 76.6 percent respondents in this group felt it as either "very important" or "most important". The result also indicates that the younger generation seem to be more inclined to use the internet in searching for information and knowledge.

The least important technologies that were used in developing and gaining knowledge were video conferencing (27.2 percent) and CD-ROMs (41.6 percent). Cross-referenced between the number of years of working experiences with the particular technologies indicates that most respondents believed that video conferencing and CD-ROMs as less important compared to other technologies.

When comparing all the issues with length of working experiences, it was found that all, except document management has no significant difference between the responses. However, the highest groups were from those who have working experiences of six – ten years and 11 – 15 years, while the lowest were from those who have working experiences of 11 – 15 years and 16 – 20 years. The only issue that has a significant difference is document
management where $\chi^2 = 15.838$, $p = 0.003$. Detail results are shown in Table 6.11.

<table>
<thead>
<tr>
<th>Issues</th>
<th>Chi-square</th>
<th>Alpha</th>
<th>Mean</th>
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<tbody>
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<td></td>
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<td>Highest (Group)</td>
<td>Lowest (Group)</td>
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<tr>
<td>Data Warehouse</td>
<td>2.943</td>
<td>0.567</td>
<td>85.27 (11-15 years)</td>
<td>70.08 (16-20 years)</td>
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<td>E-mail</td>
<td>5.987</td>
<td>0.200</td>
<td>83.54 (&gt; 20 years)</td>
<td>55.42 (11-15 years)</td>
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<td>GroupWare</td>
<td>7.092</td>
<td>0.131</td>
<td>99.35 (11-15 years)</td>
<td>66.77 (16-20 years)</td>
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<td>Online Information Sources</td>
<td>1.871</td>
<td>0.759</td>
<td>83.87 (11-15 years)</td>
<td>72.36 (&lt; 6 years)</td>
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<td>CD-ROMs</td>
<td>4.897</td>
<td>0.298</td>
<td>84.80 (&gt; 20 years)</td>
<td>65.47 (16-20 years)</td>
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<td>File Management</td>
<td>7.312</td>
<td>0.120</td>
<td>90.45 (6-10 years)</td>
<td>68.45 (&lt; 6 years)</td>
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<td>Document Management</td>
<td>15.838</td>
<td>0.003*</td>
<td>92.54 (11-15 years)</td>
<td>63.85 (16-20 years)</td>
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<td>Video Conferencing</td>
<td>1.687</td>
<td>0.793</td>
<td>86.50 (6-10 years)</td>
<td>68.42 (16-20 years)</td>
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<tr>
<td>Internet</td>
<td>2.849</td>
<td>0.583</td>
<td>83.46 (&lt; 6 years)</td>
<td>63.27 (11-15 years)</td>
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<td>Intranet</td>
<td>4.792</td>
<td>0.309</td>
<td>84.45 (6-10 years)</td>
<td>58.42 (11-15 years)</td>
</tr>
</tbody>
</table>

* Significant at 0.01 level

Table 6.11 – Chi-square Test between Type of Technology and Lengths of Working Experiences

When these issues were compared with the number of years in the Ministry, the results revealed that there were no significant difference between the responses. The only issue that has a significant difference is on data warehouse. The result shows that $\chi^2 = 14.857$ and $p = 0.005$. However, an inspection of the mean ranks for the groups suggest that respondents who have been with the Ministry of less than one year have the highest score, while the lowest was from those who have been with the Ministry for over seven years. The results indicate that those who are new in the Ministry believe that the technology available as important in developing and gaining knowledge. On the other hand, those who have been in the Ministry for over seven years have little confidence on the types of technology used. Detail results are shown in Table 6.12.
### Table 6.12 - Chi-square Test between Type of Technology and Number of Years in the Ministry

<table>
<thead>
<tr>
<th>Issues</th>
<th>Chi-square</th>
<th>Alpha</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Highest (Group)</td>
</tr>
<tr>
<td>Data Warehouse</td>
<td>14.857</td>
<td>0.005*</td>
<td>94.09 (&lt; 1 year)</td>
</tr>
<tr>
<td>E-mail</td>
<td>6.225</td>
<td>0.183</td>
<td>82.02 (1 year)</td>
</tr>
<tr>
<td>GroupWare</td>
<td>4.257</td>
<td>0.372</td>
<td>86.33 (&lt; 1 year)</td>
</tr>
<tr>
<td>Online Information Sources</td>
<td>7.694</td>
<td>0.103</td>
<td>89.56 (&lt; 1 year)</td>
</tr>
<tr>
<td>CD-ROMs</td>
<td>4.194</td>
<td>0.380</td>
<td>90.89 (&lt; 1 year)</td>
</tr>
<tr>
<td>File Management</td>
<td>6.202</td>
<td>0.185</td>
<td>89.68 (4-6 years)</td>
</tr>
<tr>
<td>Document Management</td>
<td>9.083</td>
<td>0.059</td>
<td>89.81 (4-6 years)</td>
</tr>
<tr>
<td>Video Conferencing</td>
<td>3.385</td>
<td>0.496</td>
<td>89.94 (7-9 years)</td>
</tr>
<tr>
<td>Internet</td>
<td>8.961</td>
<td>0.062</td>
<td>93.02 (&lt; 1 year)</td>
</tr>
<tr>
<td>Intranet</td>
<td>6.736</td>
<td>0.151</td>
<td>95.91 (&lt; 1 year)</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

6.3 Conclusion

The trend of responses for the top three issues seems to be alike. When comparing the respective issues to the respondents' lengths of working experiences, the highest scores was from the group who have six to ten years followed by those who have experiences of 11 to 15 years, 16 to 20 years, more than 20 years and less than six years. The researcher believes this result was due to the fact that respondents with working experiences of six to ten years were seeking more knowledge to build their self-competence, and to make themselves more knowledgeable. The research also indicates that the more working experiences the respondents have, the less knowledge and information they need from training and an organisational database. In contrast, respondents with less than six years working experiences gave lower responses. The researcher believes that this is due to the fact that all government officers in Malaysia need to undergo several induction courses within the first three years from their first appointment. However, the study...
reveals that the number of years in the Ministry does not have any significant differences in the response.
Chapter 7
HYPOTHESIS TESTING: RESULTS AND ANALYSIS
CHAPTER SEVEN

HYPOTHESES TESTING: RESULTS AND ANALYSIS

This chapter presents further analysis on the responses gathered from the questionnaire survey. All analyses were generated using the Statistical Package for Social Sciences (SPSS) version 10.0 for Windows.

7.1 Preparation of Variables for Data Analysis

Before testing the hypotheses, in order to ensure accuracy, a thorough check has been done on all the raw data. Accordingly, all mistakes in data entry were corrected. There are several steps to be taken before the hypotheses are tested. Pallant (2001, p.74), suggests two main steps which need to be taken before doing the analysis.

Step 1: Reversing negatively worded items

In the questionnaire, there were several items that were negatively worded to prevent response bias. Therefore, it is necessary to reverse all the negatively worded items to ensure all items are worded positively (Pallant 2003, Sekaran 2000, p.312)
Step 2: Adding up the total scores for the scales

According to Pallant, before performing statistical analyses on the data set, there is a “need to calculate the total scores for any scales used” (2001, p.74) in the study. Items of each variables were added together to get the overall scores.

7.2 Presenting the Results

In analysing the correlation between the variables identified in the study, several steps were taken into consideration before presenting the results. The steps taken are as follows:

Step 1: Checking the number of cases

To ensure that the result of the test was accurate, the number of cases in each test was checked. This is to make sure that there is no missing data in the test.

Step 2: Determining the direction and the strength of the relationship

The significant level is strongly influenced by the size of the sample. Smaller samples may result in a moderate correlation which does not reach statistical significance at the $p < 0.05$ level. However, in a larger sample where $N=100+$, a “very small correlation may sometimes be statistically significant” (Pallant 2001, p.121).

Step 3: Accessing the significance level

For this research, it was decided to set the significant level to test the hypothesis at 5 percent ($p \leq 0.05$). According to Hollander and Wolfe (1999, pp.394-395), there are two types of directional one-tailed tests that are used
in hypothesis testing. These are the one sided upper-tail test, and one sided lower-tail test.

The one sided upper-tail test is to test the null hypothesis of independence $H_0$ versus the directional $H_1$ ($x$ and $y$ are positively associated) at the $\alpha$ level of significance. In this test, the $H_0$ is rejected if $r_s \geq r_{s, \alpha}$; otherwise do not reject.

The one sided lower-tail test is to test the null hypothesis of independence $H_0$ versus the directional $H_1$ ($x$ and $y$ are negatively associated) at the $\alpha$ level of significance. In this test, the $H_0$ is rejected if $r_s \leq -r_{s, \alpha}$; otherwise do not reject.

7.3 Reliability and Validity Issues

Questions on validity and reliability can be considered very important in an exploratory survey. The procedure selected for collecting data has to be reliable and valid. Trochim uses target as a metaphor for explaining what reliability and validity is. According to Trochim (1996a) if a person hitting a target consistently away from the centre of the target (Figure 7.1), he is consistently and systematically measuring the wrong value of respondent. If the person hits randomly and spreading across the centre of the target, and seldom hit the centre, he is getting a valid group estimate, but inconsistent. However, if the person hits is spreading across the target but missing the centre, he is considered neither reliable nor valid. Finally, if the person hits consistently at the centre of the target, he is measuring something reliable and valid.
Most measures of reliability and validity are expressed as correlation coefficients. Although in general their interpretation does follow the standard rules of correlation, the main emphasis must be on substantial common variance (high correlation) rather than statistical significance that can often be achieved with relatively low values.

### 7.3.1 Reliability Test

Sekaran claims "the reliability of a measure indicates the stability and consistency with which the instrument measures the concept and helps to assess the 'goodness' of a measure" (Sekaran 2000, p.204). Generally, there are four types of reliability of measures. There are test-retest reliability, parallel-forms reliability, interitem consistency reliability (internal consistency reliability) and split-half reliability (inter-rater or Inter-observer Reliability (Sekaran 2000, p.205; Trochim 1996b). Details are shown in Figure 7.2.
The reliability coefficient for the test-retest is obtained when the researcher administered the same test sample (or respondents) on two different occasions. According to Trochim (1996b), the approach assumes that there is no substantial change in the construct being measured between the two occasions.

On the other hand, the parallel-forms reliability is a measure of equivalence, and it involves administering two different forms to the same group of people and obtaining a correlation between the two forms. According to Sekaran, both forms have a similar items and the same response format with only the wording of questions changed (Sekaran 2000, p.206).

The split-half reliability refers to the correlations between two halves of an instrument. According to Trochim (1996b), in split-half reliability, all items that purport to measure the same construct are randomly divided into two sets.

The fourth, internal consistency reliability is a test of consistency of respondents’ answer to all items in a measure (Sekaran 2000, p.206). Furthermore, it uses a single measurement instrument that is administrated to
a group of people on one occasion. Sekaran suggests, "in almost all cases, Cronbach's alpha can be considered a perfectly adequate index of the inter-item consistency reliability" (Sekaran 2000, p.206).

Cronbach's reliability coefficient alpha indicates the degree to which variance is present in scale. Cronbach alpha varies between 0 and 1 inclusive, with higher numbers indicating greater reliability. However, Sekaran stresses that in most literature, the lower cut-off point for a sufficient coefficient lies between 0.60 and 0.70. Furthermore, Sekaran argues that "reliability less than 0.60 are considered poor, those in the 0.70 range, acceptable, and those over 0.80 good" (Sekaran 2000, p.312). However, according to Pallant (2001, p.85) values for Cronbach alpha greater than 0.70 are preferred.

The test of reliability for the questionnaire was done by performing the SPSS reliability analysis test for the 154 respondents who participated in the present study. The reliability between statements in the 43 items using the Likert scale was analysed by computing Cronbach Alpha. The results of the item analysis showed that the Cronbach Alpha was 0.8893. Therefore, in this study a Cronbach Alpha of 0.8893 is an authoritative source to justify that the items in the questionnaires were reliable. A further test on the reliability on each factor loading extracted using factor analysis was also performed. Discussions on these issues is presented in the next sections. Hasan and Kerr (2003, p.288) quoted Nunally that the accepted value alpha for a new measure of scale reliability is at least 0.6.

7.3.2 Validity Test

Validity can be defined as the agreement between a test score or measure and the quality it is believed to measure. Basically, validity can be grouped under three broad headings that are content validity, criterion validity and construct validity (Sekaran 2000, p.207). Furthermore, criterion validity can be divided into predictive and concurrent validity, while construct validity
includes convergent and discriminant validity. Details are shown in Figure 7.3.

According to Sekaran (2000, p.207) content validity “ensures that the measures includes an adequate and representative set of items that tap the concept.” He further stresses that content validity “is a function of how well the dimensions and elements of a concept have been delineated” (2000, p.207). In other words, it is the extent to which a scale measures the concept it is intended to measure. It is largely a logical process that does not require statistical analysis. These dimensions included in this study have content validity since they were derived from an exhaustive review of literature.

Criterion validity is established “when the measure differentiates individuals on a criterion it is expected to predict” (Sekaran 2000, p.207). There are two different types of criterion validity which are concurrent validity and predictive validity respectively. According to Trochim (1996c), predictive refers to the “correlation between the test scores and the scores of a criterion performance
given at a later date", and concurrent validity refers to the "correlation between the test scores and the scores of a criterion performance when both tests are given at the same time".

Basically, construct validity "testifies how well the results obtained from the use of the measure fit the theories around which the test is designed" (Sekaran 2000, p.208). In other words, construct validity "is an assessment of how well you translate your ideas or theories into actual programmes or measures" (Trochim 1996d) or "establishes appropriate operational measures for theoretical concepts being researched" (Riege 2003, p.80). Construct validity has two sub-components: convergent validity and discriminant validity. When the "score obtained by two different instruments measuring the same concept are highly correlated" (Sekaran 2000, p.208) is established, it is called convergent validity. However, it is called discriminant validity, when, "based on theory, two variables are predicted to be uncorrelated, and the scores obtained by measuring them are indeed empirically found to be so" (Sekaran 2000, p.208).

Some of the way validity can be established is through correlational analysis, multi-method matrix and factor analysis. For the present study, factor analysis was used to test the construct validity of each of the dimensions. Hair et al. stress that the general purpose of factor analytic techniques is to find a way to condense (summarise) the information contained in a number of variables (factors) with a minimum loss of information. Moreover, it is to search for and define the fundamental constructs or dimensions assumed to underlie the original variable (Hair et al. 1998, p.95). In other words, factor analysis was used to reduce a large number of variables to a smaller number of presumed underlying unites called factors (Kerlinger and Pedhazur 1973, p.360). Hair et al. (1998) emphasised that,

"The component factor model is appropriate when the analyst is primarily concerned about the prediction or the minimum number of factors needed to account for the maximum portion of the variance represented in the original set of variables, and when the factor analyst has prior knowledge suggesting that specific and error variance represent a relatively small proportion of the total variance" (Hair et al. 1998, p.102)
7.4 Data Analysis

Analysis of the data was conducted using factor analysis and regression techniques.

7.4.1 Factor Analysis

The first step before conducting factor analysis was to check the pattern of relationships between all the questions using the Pearson correlation coefficient. In checking the relationship, a correlation matrix was extracted. In scanning the results, there is no correlation above 0.9. Therefore, multicollinearity is not a problem for these data. All questions in the study correlate fairly well and none of the correlation coefficients are particularly large; therefore, there is no need to consider eliminating any questions at this stage. For component analysis, the figure placed in the diagonal of the correlation matrix is equal to unity. In doing so, it is assumed that the communalities are equal to 1.0, i.e., all of the variance is common.

In testing whether factor analysis was appropriate for summarising the underlying factor, the computation of correlation matrix was carried out on the 43 variables. These variables must be related to each other for the factor model to be appropriate. According to Hair et al. if visual inspection reveals no substantial number of correlations greater than 0.3, then factor analysis is probably inappropriate (Hair et al., 1998). The present research revealed that most of the correlations were above 0.3, proved that it is appropriate to conduct a factor analysis.

Kaiser-Meyer-Olkin (KMO) and Bartlett tests were used to summarise the entire correlation matrix. The Bartlett Test of Sphericity is a statistical test for the overall significance of all correlations within a correlation matrix. "It provides the statistical probability that the correlation matrix has significant correlations among at least some of the variables" (Hair et al. 1998, p.99).
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy 0.697
Bartlett's Test of Sphericity
   Approx. Chi-Square 3823.740
   Degree of freedom 903
   Significance 0.000

Table 7.1 – KMO and Bartlett’s Test Results

From Table 7.1, the Kaiser-Meyer-Olkin value for knowledge transfer was 0.697, indicating that the appropriateness of the data for factor analysis is acceptable. The data was therefore adequate for use on factor analysis. Of the 43 variables, the factor analysis extracted 13 factors or components, which explained 73.86 percent of the variance, as shown in Table 7.2. Thirteen components were chosen because they had eigenvalues greater than 1.0, i.e., greater than the variance contributed by any one variables. This is consistent with Hair et al.:

"Only the factors having latent roots or eigenvalue greater than 1 are considered significant, all factors with latent roots less than 1 are considered insignificant and are disregarded" (Hair et al. 1998, p.103)

Hair et al. (1998) further stress that using eigenvalue for establishing a cut-off is most reliable when the number of variables is between 20 and 50. This study contains 43 items (variables).
### Table 7.2 – Extraction Method using Principal Component Analysis

<table>
<thead>
<tr>
<th>Components</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% Variance</td>
</tr>
<tr>
<td>3</td>
<td>2.947</td>
<td>6.854</td>
</tr>
<tr>
<td>4</td>
<td>2.822</td>
<td>6.563</td>
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<tr>
<td>5</td>
<td>2.550</td>
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<td>1.764</td>
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<td>3.852</td>
</tr>
<tr>
<td>8</td>
<td>1.530</td>
<td>3.559</td>
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<tr>
<td>9</td>
<td>1.392</td>
<td>3.238</td>
</tr>
<tr>
<td>10</td>
<td>1.277</td>
<td>2.970</td>
</tr>
<tr>
<td>11</td>
<td>1.163</td>
<td>2.705</td>
</tr>
<tr>
<td>12</td>
<td>1.122</td>
<td>2.610</td>
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<td>15</td>
<td>.847</td>
<td>1.971</td>
</tr>
<tr>
<td>16</td>
<td>.740</td>
<td>1.722</td>
</tr>
<tr>
<td>17</td>
<td>.723</td>
<td>1.682</td>
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<td>18</td>
<td>.689</td>
<td>1.602</td>
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<td>19</td>
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<td>1.572</td>
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<td>.970</td>
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<td>26</td>
<td>.375</td>
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<td>37</td>
<td>.153</td>
<td>.355</td>
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<td>38</td>
<td>.140</td>
<td>.325</td>
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<td>39</td>
<td>.120</td>
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<td>40</td>
<td>.112</td>
<td>.261</td>
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<td>41</td>
<td>8.383E-02</td>
<td>.195</td>
</tr>
<tr>
<td>42</td>
<td>7.096E-02</td>
<td>.165</td>
</tr>
<tr>
<td>43</td>
<td>3.982E-02</td>
<td>9.260E-02</td>
</tr>
</tbody>
</table>

From the answers given to the 43 questions by the 154 respondents, the author applied a principal component analysis, eliminating factor loads lower than 0.45. Factor loadings are the correlation of each of the variable and the factor. It indicates the degree of correspondence between the variable and
the factor, which higher loadings making the variable representative of the
d factor (Hair et al. 1998, p.106). According to Hair et al., “factor loadings
greater ± 0.30 are considered to meet the minimum, level; loading of ± 0.40
are considered more important, and if the loading are ± 0.50 or greater, they
are considered practically significant” (Hair et al. 1998, p.111). Hair et al. also
suggested that for the number of respondents (sample) from 150 and 199, the
minimum factor loading of 0.45 is more appropriate and can be considered
significant. This is to obtain a power level of 80 percent, a 0.05 significance
level and the prepared inflation of the standard errors of factor loadings. Since
the present study involved 154 respondents, it was decided to use 0.45 as the
minimum factor loading.

The next step is to analyse the component matrix of the study. The results
show that the loadings were scattered in the entire 13 components (factors)
with most loadings falling in component one. However, the result obtained
from the unrotated component matrix is very difficult to interprete, as it does
not show the real combination of all the loadings in the particular component.
That is why a rotation is necessary. In this case, the component analysis was
rotated using Varimax rotation, in an attempt to identify separate or distinct
factors. The results of factor analysis emerged with 13 factor loadings
ranging from 0.453 to 0.882. The results show that only one factor loading fall
below the minimum factor loading of ± 0.45, that is question (item) 17 of the
questionnaire. On the basis of the factor loadings, all the factors are named
accordingly.

Similarly, to test the internal consistency of the measurement, instrument
reliability analysis was conducted on the factors extracted. Cronbach’s alpha
was used to test the internal consistency. The loadings on the components
after rotation are shown in Table 7.4.

After the components were rotated, four items had a ‘dual loadings’. These
are items 12, 13, 21, and 30. However, two items (12 and 21) were dropped
as they were loaded on Factor 10 and Factor 11, which have low reliability.
Item 30 that was loaded on Factor 11 was then included in Factor 3 and item 13 (Factor 10) was included in Factor 7. Item 17 was also dropped from the analysis as it has a factor loading less than 0.45.

<table>
<thead>
<tr>
<th>Factor Loadings</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1: Training/Management Support (scale α = 0.8363)</td>
<td></td>
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<tr>
<td>38. The Ministry provides opportunities for the employees to attend training internally/externally in the fields related to their tasks.</td>
<td>0.847</td>
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<tr>
<td>39. The Ministry also provides opportunities for the employees to attend training internally/externally in other fields which can enhance their knowledge.</td>
<td>0.829</td>
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<tr>
<td>40. The management provides the time and resources to take part in learning and sharing exercises.</td>
<td>0.781</td>
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<tr>
<td>41. The Ministry has procedures to retain the knowledge and know-how of officers who leave the Ministry</td>
<td>0.629</td>
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<tr>
<td>24. Officers from different divisions/units always interact to discuss the Ministry strategies and future plan.</td>
<td>0.492</td>
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<tr>
<td>Factor 2: Speed of Knowledge Transfer (scale α = 0.8827)</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>1. Knowledge/information is accessed very fast within the divisions/units</td>
<td>0.875</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>2. Knowledge/information is accessed very fast with other divisions/units</td>
<td>0.871</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>3. Knowledge/information is exchanged very fast within the divisions/units</td>
<td>0.714</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Knowledge/information is exchanged very fast with other divisions/units</td>
<td>0.701</td>
<td></td>
<td></td>
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<tr>
<td>Factor 3: ICT Infrastructure (scale α: 0.7782)</td>
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<tr>
<td>26. ICT can speed up your work in searching for information</td>
<td>0.867</td>
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<tr>
<td>27. ICT facilitates employees in doing their daily work</td>
<td>0.815</td>
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<tr>
<td>31. Computer-based information systems make new information available to the Ministry that was not previously available</td>
<td>0.666</td>
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<tr>
<td>28. The Ministry uses GroupWare, such as Lotus Notes, to encourage the sharing of ideas</td>
<td>0.525</td>
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<tr>
<td>30. Computer-based information systems provide you with more up-to-date information than that available in manual files</td>
<td>0.513</td>
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<tr>
<td>25. The Ministry has a very up-to-date ICT Infrastructure which helps knowledge creation and sharing</td>
<td>0.474</td>
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<tr>
<td>Factor 4: ICT Know-how (scale α: 0.8967)</td>
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<tr>
<td>33. All employees are given adequate training internally to use ICT tools (software) in the Ministry</td>
<td>0.868</td>
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<tr>
<td>32. All employees are given adequate training internally to use computers in the Ministry</td>
<td>0.831</td>
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<tr>
<td>34. The technology know-how in the Ministry is easily transferable</td>
<td>0.694</td>
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<td>Factor 5: Posting (scale α: 0.8792)</td>
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<tr>
<td>35. Posting to the Ministry is suitable with your qualifications and enable you to create and share knowledge</td>
<td>0.877</td>
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<tr>
<td>37. Posting to the Ministry is suitable with your experience and enable you to create and share knowledge</td>
<td>0.875</td>
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<tr>
<td>36. Posting to the Ministry is suitable with your interests and enable you to create and share knowledge</td>
<td>0.811</td>
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<tr>
<td>Factor 6: Sharing Culture (scale α: 0.7657)</td>
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<tr>
<td>16. Within the Ministry knowledge is disseminated to a wide range of people rather than to &quot;need-to-know&quot; basis</td>
<td>0.820</td>
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<tr>
<td>14. The culture of the Ministry encourages and provides opportunity for the communication of ideas, knowledge and experiences among all employees throughout the organisation</td>
<td>0.794</td>
<td></td>
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<tr>
<td>15. All officers are ready and willing to give advice and help upon request</td>
<td>0.624</td>
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</table>

179
Hypotheses Testing: Results and Analysis

Factor Loadings

<table>
<thead>
<tr>
<th>Factor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
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</thead>
<tbody>
<tr>
<td>Factor 7: Accuracy of Knowledge Transfer (scale α : 0.7270)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.27</td>
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<td>0.727</td>
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<tr>
<td>8. Knowledge/Information can be transferred to the respective person within the divisions/units without difficulties</td>
<td></td>
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<td></td>
<td></td>
<td>0.827</td>
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<tr>
<td>9. Knowledge/Information can be transferred to the respective person in other divisions/units without difficulties</td>
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<td></td>
<td></td>
<td>0.701</td>
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<tr>
<td>12. Knowledge/Information from individuals can be shared and transferred through formal discussions/meetings without difficulties</td>
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<td></td>
<td>0.582</td>
<td>0.555</td>
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<tr>
<td>13. Knowledge/Information from individuals can be shared and transferred through informal discussion without difficulties</td>
<td></td>
<td></td>
<td>0.456</td>
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<tr>
<td>7. Decisions can be made confidently using the available knowledge/information</td>
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<td>0.453</td>
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</tbody>
</table>

Factor 8: Communication flow (scale α : 0.7449)

23. The organisation is very bureaucratic and makes it difficult to share information |   |   |   |   |   |   |   |   |   |   |   | 0.854 |   |
| 22. The nature of the organisational structure restricts communication flow between divisions/units |   |   |   |   |   |   |   |   |   | 0.816 |   |   |   |
| 21. Procedures, routines and policies that restrict officers to access certain knowledge/information give problems to create and share knowledge |   |   |   |   |   |   |   |   |   | 0.603 | -0.498 |   |   |

Factor 9: Reliability of knowledge transfer (scale α : 0.8047)

5. Knowledge/Information that is transferred is generally very reliable |   |   |   |   |   |   |   |   |   |   |   |   | 0.839 |
| 6. Knowledge/Information that is transferred is generally very up-to-date |   |   |   |   |   |   |   |   |   |   |   | 0.758 |   |

Factor 10: Knowledge Assets (scale α : 0.5141)

11. Knowledge/Information that is created and stored in electronic documentation can be easily accessed, shared and transferred |   |   |   |   |   |   |   |   |   |   |   | 0.636 |   |
| 10. Knowledge/Information that is created and stored in paper documentation can be easily accessed, shared and transferred |   |   |   |   |   |   |   |   |   |   | 0.615 |   |   |
| 13. Knowledge/Information from individuals can be shared and transferred through informal discussion without difficulties |   |   | 0.456 |   |   | 0.473 |   |   |   |   |   |   |   |

Factor 11: Source of knowledge/Document Status (scale α : -0.1207)

20. The confidentiality status of the document leads to problems in acquiring information and creating knowledge |   |   |   |   |   |   |   |   |   |   |   | -0.678 |   |
| 29. Email is used to share information between officers |   |   |   |   |   |   |   |   |   |   | 0.578 |   |   |
| 30. Computer-based information systems provide you with more up-to-date information than that available in manual files |   |   |   |   |   |   |   |   |   |   | 0.577 |   |   |

Factor 12: Individualism (scale α : 0.8527)

19. Individuals within the Ministry tend to use knowledge as a source of power to be used for personal advantage rather than as organisational resources to share with others in the organisation |   |   |   |   |   |   |   |   |   |   |   | 0.882 |   |
| 18. Within the Ministry people tend not to disseminate the knowledge they acquire and are reluctant to share it with others |   |   |   |   |   |   |   |   |   |   |   | 0.869 |   |

Factor 13: Cross-functional teamwork (scale α : 0.6277)

43. Officers are encouraged to contribute knowledge/information to politicians |   |   |   |   |   |   |   |   |   |   |   | 0.737 |   |
| 42. Ideas from the politicians in the Ministry help officers to create and share knowledge/information |   |   |   |   |   |   |   |   |   |   | 0.580 |   |   |
| 17. In the Ministry interdisciplinary cross-functional teamwork is extremely important in taking decision and solving problem |   |   |   |   |   |   |   |   |   |   | 0.411 |   |   |

Table 7.3 - Rotated Component Matrix
The first factor consists of predominantly five (5) questions about training and management's support for managing knowledge. Accordingly, the factor is named 'training/management's support'. The Cronbach alpha is 0.8363. This factor accounted for 19.52 percent of the total variance, with one item having less than 0.5 loading. The highest loading is 0.847.

Factor 2 centres on the speed of exchanging and accessing knowledge and information both within the divisions/units and with other divisions/units. There are four items loaded in this dimension. The factor is named 'speed of knowledge transfer'. The Cronbach alpha value is 0.8827. This factor accounted for 9.46 percent of the total variance. All the items have loadings above 0.7 with the highest has 0.875 loading.

Factor 3 reflects on the use of ICT in facilitating employee daily works and sharing of ideas. The factor is named 'ICT infrastructure'. The Cronbach alpha is 0.7782. There are six items loaded in this dimension. This factor accounted for 6.85 percent of the total variance. The loading ranged from 0.474 and 0.867.

Factor 4 relates to the items that contribute to the ICT know-how. The items under this factor include training on using computers and sharing of technology know-how. Thus, it is named 'ICT know-how'. The Cronbach alpha is 0.8967. There are three items loaded in this dimension and contribute 6.56 percent of the total variance. The highest loading was 0.868 and the lowest is 0.694.

Factor 5 consists of items related to the suitability of respondents being posted to the Ministry, which was based on experience, interest and qualifications. The factor is named 'posting'. The Cronbach alpha is 0.8792. There are three items loaded in this dimension. This factor accounted for 5.93 percent of the total variance. The loading in this factor was very high, ranging between 0.811 and 0.877.
Factor 6 centres on the sharing culture of the organisations. Items that were included in this factor include encouragement by the management and officers' readiness to share knowledge, and the dissemination of knowledge in the Ministry. This factor is named ‘sharing culture’. The Cronbach alpha is 0.7657. There are three items loaded in this dimension. This factor accounted for 4.10 percent of the total variance and have factor loading between 0.625 and 0.820.

Factor 7 centres on the accuracy of knowledge transfer either within the divisions/units or with other divisions/units. Accordingly, this factor is named ‘accuracy of knowledge transfer’. The Cronbach alpha is 0.7270. There are five (5) items loaded in this dimension and represents 3.85 percent of the total variance and the highest loading is 0.827.

Factor 8 reflects the organisational structure of the Ministry. Items that were grouped in this factor are more on how the organisational structure and procedures/policies in the Ministry restrict officers to share knowledge and information. This factor is named ‘communication flow’. The Cronbach alpha is 0.7449. There are three items loaded in this dimension. The loading was quite high, with two items loading above 0.8 and the lowest was 0.603. The factor accounted for 3.559 percent of the total variance.

Factor 9 focuses on how reliable is the knowledge and information that are available in the Ministry. This factor is named ‘reliability of knowledge transfer’. The Cronbach alpha is 0.8047. There are only two items loaded in this dimension. However, the loadings are quite high with one item having a loading of 0.758 and the other item has a loading of 0.839. This factor accounted for 3.24 percent of the total variance.

Factor 10 centres on the availability of knowledge in the Ministry, which includes the creation of knowledge and information in electronic and paper documentation and as well as tacit knowledge. This factor is named knowledge assets. The Cronbach alpha is 0.5141. This factor accounted for
2.97 percent of the total variance. These items have a moderate loading between 0.473 and 0.636. However, due to low reliability, this factor was dropped from further analysis.

Factor 11 consists of items that are related to the confidentiality status of document and other source of knowledge and information. Hence, it is named 'source of knowledge/document status'. However, this factor has a Cronbach alpha of -0.1207. This factor accounted for only 2.71 percent of the total variance. These items have a moderate loading between 0.577 and 0.678. However, due to low reliability, this factor was also dropped from further analysis.

Factor 12 reflects the tendency of individuals to use knowledge as a source of power and how people are reluctant to share their knowledge and information that they have. This factor is named 'individualism'. The Cronbach alpha is 0.8527. There are only two items loaded in this dimension. This factor accounted for 2.61 percent of the total variance, with both items having high factor loadings (0.869 and 0.882)

Factor 13 centred on the share of knowledge between officers/officers and officers/politicians. This factor is named 'cross functional teamwork'. The Cronbach alpha is only 0.5897. There are three items loaded in this dimension. This factor accounted for 2.496 percent of the total variance. However, due to low reliability [below 0.7 as suggested by Sekaran (2000) and Pallant (2001)] this factor was also dropped from further analysis.

After all the factors were identified, a revised conceptual framework was developed. This is shown in Figure 7.5. The original conceptual framework is shown in Figure 7.4.
A few items in the independent variable that was identified earlier were either changed or mix with other variables. The researcher has named the factors accordingly. Variables that were not identified are staff turnover and ICT tools. Document confidentiality status has been mixed with another variable and was renamed as source of knowledge/document status. Directives from politicians was renamed as cross functional teamwork. The new conceptual framework is shown in Figure 7.5.
The revised conceptual framework has dropped Factor 10, Factor 11 and Factor 13, from further analysis due to low reliability (Cronbach alpha). However, Factor 2 (speed of knowledge transfer), Factor 7 (accuracy of knowledge transfer) and Factor 9 (reliability of knowledge transfer) were grouped together under the performance of knowledge transfer. As discussed in Chapter 1, Chapter 3 and Chapter 4, the researcher believes that the performance of knowledge was determined by the speed, accuracy and reliability of the knowledge that were transferred within or across organisation. Hence, correlations between the speed, accuracy and reliability of knowledge transfer with other variables were not performed. These three factors were grouped as the dependent variables and were tested with seven (7) independent variables, i.e. sharing culture (Factor 6), individualism (Factor 12), training/management support (Factor 11), posting (Factor 5), communication flow (Factor 8), ICT infrastructure (Factor 3) and ICT know-how (Factor 4).
7.4.2 Regression

To analyse the model, a correlation among all the factors identified was conducted. A correlation matrix of all the independent variables in the model is shown in Table 7.4. As can be seen, no more than 13 out of 28 pairwise correlations are highly significant (1% level). The highest correlation coefficient is between training/management support and ICT know-how with the value of 0.50. Pallant (2000, p.143) quoted Tabachnick and Fidell (1996, p.86) states that the correlation among the independent variable, in the same analysis, should not be over 0.70. The results presented in Table 7.4 show that there are no independent variables that exceed the cut off point. The highest was 0.50, which is between training/management support and ICT know-how. In this case there is no need to omit the particular variable.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>Y1</th>
<th>X1</th>
<th>X2</th>
<th>X3</th>
<th>X4</th>
<th>X5</th>
<th>X6</th>
<th>X7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1: Knowledge Transfer Performance</td>
<td>32.36</td>
<td>5.79</td>
<td>1.00</td>
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<tr>
<td>X1: Training/Management Support</td>
<td>0.8455</td>
<td>15.78</td>
<td>3.88</td>
<td>0.20**</td>
<td>1.00</td>
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<tr>
<td>X2: ICT Infrastructure</td>
<td>0.7384</td>
<td>19.60</td>
<td>2.76</td>
<td>0.10</td>
<td>0.24**</td>
<td>1.00</td>
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</tr>
<tr>
<td>X3: ICT Know-how</td>
<td>0.8967</td>
<td>9.08</td>
<td>2.71</td>
<td>0.34**</td>
<td>0.50**</td>
<td>0.31**</td>
<td>1.00</td>
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<tr>
<td>X4: Posting</td>
<td>0.8792</td>
<td>11.08</td>
<td>2.33</td>
<td>0.08</td>
<td>0.31**</td>
<td>0.11</td>
<td>0.25**</td>
<td>1.00</td>
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</tr>
<tr>
<td>X5: Sharing Culture</td>
<td>0.7657</td>
<td>9.80</td>
<td>2.29</td>
<td>0.40**</td>
<td>0.34**</td>
<td>0.27**</td>
<td>0.34**</td>
<td>0.20**</td>
<td>1.00</td>
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</tr>
<tr>
<td>X6: Communication Flow</td>
<td>0.7449</td>
<td>8.47</td>
<td>2.26</td>
<td>0.05</td>
<td>0.06</td>
<td>0.11</td>
<td>0.10</td>
<td>0.03</td>
<td>0.17**</td>
<td>1.00</td>
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<tr>
<td>X7: Individualism</td>
<td>0.8527</td>
<td>6.31</td>
<td>1.73</td>
<td>0.16*</td>
<td>0.13*</td>
<td>-0.13*</td>
<td>0.02</td>
<td>0.03</td>
<td>0.13</td>
<td>0.29**</td>
</tr>
</tbody>
</table>

Note: $\alpha$ is the standardised Cronbach alpha coefficient; *correlation is significant at the 0.05 level; ** correlation is significant at the 0.01 level

Table 7.4 – Descriptive Statistics, Internal Consistency and Correlation

However, in order to detect potential multicollinearity problems, the researcher has also inspected the tolerance values. Tolerance is the amount of variability of the selected independent variable not explained by other independent variables. According to Pallant (2000, p.143), "if the value is very low (near zero), then this indicates that the multiple correlation with other variables is high, suggesting the possibility of multicollinearity. The tolerance value for each of the variables shown in Table 7.5 indicates that the tolerance
values are between 0.671 and 0.884. The two lowest values are training/management support (0.671) and ICT know-how (0.681). However, both are well above the usual applied thresholds of 0.6 (Hair et al., 1998). Therefore the researcher does not expect any multicollinearity problems.

<table>
<thead>
<tr>
<th></th>
<th>Unstandardised Coefficients</th>
<th>Standardised Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>21.051</td>
<td>4.056</td>
<td>5.19</td>
<td>0.000</td>
<td>Tolerance 0.671 VIF 1.489</td>
</tr>
<tr>
<td>Training/Management Support</td>
<td>-5.806E-02</td>
<td>0.134</td>
<td>-0.039</td>
<td>-0.44</td>
<td>0.664 Tolerance 0.671 VIF 1.489</td>
</tr>
<tr>
<td>ICT Infrastructure</td>
<td>-9.451E-02</td>
<td>0.169</td>
<td>-0.045</td>
<td>-0.56</td>
<td>0.577 Tolerance 0.828 VIF 1.208</td>
</tr>
<tr>
<td>ICT know-how</td>
<td>0.581</td>
<td>0.190</td>
<td>0.272</td>
<td>3.062</td>
<td>0.003 Tolerance 0.681 VIF 1.469</td>
</tr>
<tr>
<td>Posting</td>
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<td>0.194</td>
<td>-0.037</td>
<td>-0.476</td>
<td>0.635 Tolerance 0.884 VIF 1.131</td>
</tr>
<tr>
<td>Sharing Culture</td>
<td>0.856</td>
<td>0.209</td>
<td>0.338</td>
<td>4.106</td>
<td>0.000 Tolerance 0.791 VIF 1.264</td>
</tr>
<tr>
<td>Communication Flow</td>
<td>-0.155</td>
<td>0.200</td>
<td>-0.060</td>
<td>0.772</td>
<td>0.441 Tolerance 0.882 VIF 1.134</td>
</tr>
<tr>
<td>Individualism</td>
<td>0.434</td>
<td>0.265</td>
<td>0.130</td>
<td>1.638</td>
<td>0.104 Tolerance 0.857 VIF 1.167</td>
</tr>
</tbody>
</table>

Table 7.5 – Coefficients for the Variables

After checking the assumption, it is also important to evaluate the model. The results of regressing the seven independent variables against knowledge transfer performance can be seen in Table 7.6 and 7.7. Table 7.6 shows that the value of R in the regression model is 0.482, while the R-square is 0.232. This shows the correlation of the seven independent variables with the dependent variable, after all the inter-correlation among the seven, dependent variable were taken into account. The result indicates that the model explains 23.3 per cent of variance in the performance of knowledge transfer. The ANOVA table (Table 7.7) shows that the F value of 6.173 is significant at the 0.001 level. The results indicate that 23.3 percent of the variance (R-square) in the performance of knowledge transfer performance has been significantly explained by the seven independent variables.
Hypotheses Testing: Results and Analysis

Table 7.6 – Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R-Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.482</td>
<td>0.232</td>
<td>0.194</td>
<td>5.1990</td>
</tr>
</tbody>
</table>

Table 7.7 – ANOVA test

The next step that is necessary to evaluate is to see which variables included in the model contributed to the prediction of the dependent variable (knowledge transfer performance). Of the seven hypotheses tested, two (2) were substantiated and five (5) were not. From the results of multiple regression analysis, it is clear that sharing culture is a critical factor in explaining the performance of knowledge transfer in the Ministry. The largest beta coefficient is 0.338, which means that this variable makes the strongest unique contribution to explaining the dependent variable. The results in Table 7.5 show that the sharing culture has a significant level less than 0.01 (p = 0.0001). Hence, whatever is done to increase the sharing culture in the Ministry, will help in increasing the knowledge transfer performance. The second variable that is equally critical is ICT know-how. The results indicate that the beta coefficient of this variable is 0.272 and significant level less than 0.01 (p = 0.003).

7.4.3 Testing the Hypotheses

The relationship between the independent variable and the dependent variables as identified and discussed earlier in Chapter 4, has also been investigated. Results of the test are shown in Table 7.4. Details are as follows:
H1: *The organisation sharing culture is related positively to the performance of knowledge transfer*

The results, as given on Table 7.4 show that (knowledge) sharing culture significantly and positively influences the performance of knowledge transfer in the Ministry, where \( p = 0.01 \) and \( r = 0.40 \). The result supports the prediction (H1) that having strong sharing cultures within the organisation will affect the extent of the knowledge transfer performance. The survey results support the claims of many authors (e.g. Ahmed *et al.* 2002, Clarke 2001, Hall 2001, Kayworth and Leidner 2003, Levine 2001, Liebowitz and Chen 2003, and Rubenstein-Montano *et al.* 2001a) that sharing culture is essential in the success or failure of knowledge management initiatives. All these authors believe that having a strong sharing culture in an organisation (public and private) will certainly boost the performance of knowledge transfer. On the other hand, if employees prefer to keep the knowledge to themselves and are reluctant to share it with others, knowledge would never be transferred successfully. Deciding on what, with whom and how to share the knowledge should be a major task, to which an organisation should give priority (Syed-Ikhsan and Rowland, 2003b).

H2: *Individual resistance to sharing knowledge in the organisation is related negatively to the performance of knowledge transfer*

The results fail to support H2. Individualism seems to affect the organisation's knowledge transfer performance, where \( p < 0.05 \) and \( r = 0.16 \). Although the strength of the relationship is relatively small, it still shows that the variables are not negatively related. Most literature argues that the higher the individualism (the more people keep knowledge to themselves) among the employees, the less will be the ability to transfer knowledge across the organisation. This result is not consistent with that claimed by many authors such as Bennet and Bennet (2003), Bogdanowicz and Bailey (2002), Goh (2002), McDermott and O'Dell (2001), Nonaka (1999) and Stenmark (2000-2001). Lim and Klobas (2000, p.423) argue that most knowledge is not shared and is held by individuals. People will only share their knowledge if
there is a strong personal motivation (Lim and Klobas, 2000) or having a motivational system to reward members for sharing their knowledge. Most probably, in the public service of Malaysia, individualism is not such a big problem. People seem to work as a team and make knowledge as an organisational asset, rather than making it as an individual source of power. Although the results in this study show a significant positive relationship, management, however, should not lose sight of the fact that individuals will tend to use knowledge as their source of personal power. Management must promote a culture that encourages individuals to share their knowledge, rather than keep it privately (Syed-Ikhsan and Rowland, 2003b)

\[ H_4: \text{The communication flow in the organisation is related positively to the performance of knowledge transfer} \]

The communication flow, in which the organisation is less bureaucratic, the organisational structure is less rigid and less restriction to access knowledge/information will lead to a higher performance of knowledge transfer. The hypothesis was not supported, which may be considered a surprising result. The finding of the study was also not consistent with the view of several authors (e.g. Huczynksi 1998, Lord and Ranft 2000) who claimed that the nature of the organisation's structure sometimes restrict the flow of knowledge across the organisation. However, one explanation for the lack of support for this hypothesis might be the direct link between sharing culture and the performance of knowledge transfer. An alternative formulation would be a path from communication flow to sharing culture and then to knowledge transfer performance. Kluge et al. (2001, p.75-77) explains that effective communication across hierarchies was very tricky but with effective top-down and bottom-up communication will definitely make knowledge profitable to an organisation.

\[ H_5: \text{Training and management support in the organisation is related positively to the performance of knowledge transfer} \]
Examining the coefficient of training and management support with knowledge transfer performance, it is positive and significant ($p < 0.01$ and $r = 0.20$). This is evident that training and management support is very important and allow knowledge to be transferred positively across the Ministry. The results are in line with the view of many authors (e.g. Boland and Yoo 2003, Holsapple and Singh 2003, Smith 2001 and Zaharias et al. 2001) who state that adequate training may enable employees to translate their knowledge into organisation's tacit and explicit knowledge. This result also indicates that the Ministry has training programmes (internally and externally) that contributed to the performance of knowledge transfer. The result also shows that the management always support the employee to share knowledge through providing time and resources, have procedures to retain knowledge, and have platforms for employees to contribute to the Ministry's performance.

$H_6$: Posting of officers to the organisation is related positively to the performance of knowledge transfer

With regard to posting or placement of officers/staff and the performance of knowledge transfer, the coefficient is not significant. The study reveals that posting of officers/staff based on the interest, experience and qualification does not have a significant relationship with knowledge transfer performance. The hypothesis has not been substantiated, where $p > 0.05$ and $r = 0.05$. This is quite a surprise, since Bogdanowicz and Bailey (2002, p.126) assert that people who come to a new organisation bring along their prior education, knowledge, experience, skills etc. and will be able to add value to the organisation. The study indicates that the more working experience a person has, the better their prior education was and the higher the interest was, do not have much influence on the performance of knowledge transfer. The researcher believes that the Ministry's current procedures, policies, organisational culture etc. have enabled new officers to contribute to the Ministry's performance without much difficulties.
Hypotheses Testing: Results and Analysis

$H_9$: The availability of ICT infrastructure in the organisation is related positively to the performance of knowledge transfer

The relationship between the availability of ICT infrastructure and knowledge transfer performance was also tested. Although most authors (e.g. McAdam and Reid 2000, Bloodgood and Salisbury 2001, Teece 2003 and El Sawy and Josefek 2003) suggest that ICT infrastructure help organisations to effectively capture, create and transfer information and knowledge across the organisation, the test shows there is no significant relationship between the two variables. The hypothesis was not substantiated, where $p > 0.05$ and $r = 0.10$. However, the researcher believes that the result is logical. Although ICT infrastructure is a necessity to all organisations, it is not a significant condition for knowledge to be transferred effectively.

$H_{10}$: ICT know-how that is available in the organisation is positively related to the performance of knowledge transfer

The study shows that there is a significant association between ICT know-how among organisational members, and knowledge transfer performance. The test indicates that there is a positive relationship between the two variables, where $p < 0.01$ and $r = 0.34$, with high levels of ICT know-how among the organisational members correlating with high levels of knowledge transfer performance. The results show that ICT know-how is very important in enhancing the performance of knowledge transfer. Having better knowledge on ICT will enable employees to use it as the main instrument in communicating with other organisational members. This will certainly helps to speed up the flow of information/knowledge, to be able to send information/knowledge to the particular person more accurately and make the information/knowledge more reliable. The results indicate employees in the Ministry were given adequate training on using computers and software, which clearly contributes to the performance of knowledge transfer.

Hypotheses that were not tested due to low reliability or that were not loaded in an appropriate factor as hypothesised earlier are as follows:
H3: The confidentiality level of the documents is related negatively with the performance of knowledge transfer

H7: An appropriate procedure to retain knowledge and know-how of officers who leave the Ministry is related positively to the performance of knowledge transfer

H8: An extensive use of ICT tools (software) among organisational members is related positively to the performance of knowledge transfer

H11: The availability of knowledge assets in the Ministry is related positively with the performance of knowledge transfer

H12: Political directives (cross functional teamwork) is related positively with the performance of knowledge transfer

7.4.4 Relationship between all the Variables

The last step in the statistical analysis was calculating the correlation among several variables as shown in Table 7.4 and Figure 7.5. Although there is a need for more in-depth investigation for the future, the data in Table 7.4 and Figure 7.5 provide initial insights to better understand the impact that several organisational elements have an impact on the performance of knowledge transfer and with other organisational activities.

Sharing culture can be seen as one of the most important variables that have significant relationships with other independent variables identified in this study. Apart from having a positive relationship with knowledge transfer performance, sharing culture also has significant relationships with training/management support ($p < 0.01, r = 0.34$), ICT infrastructure ($p < 0.01, r = 0.27$), ITC know-how ($p < 0.01, r = 0.34$), posting ($p < 0.01, r = 0.20$), and communication flow ($p < 0.05, r = 0.17$). The results show that, sharing culture involves not only the human aspect of knowledge management, but also on the technological activities and the organisational structure of the organisation (communication flow). The only independent variable that has no relationship with sharing culture is individualism. This is not a surprising
result as most literature argues that the more individuals keep knowledge or information to themselves, the less possibility that knowledge is being shared with others.

Training/management support is another variable that is also important in an organisation. Apart from having a positive relationship with knowledge transfer performance and sharing culture, this study shows that there is a significant relationship between this variable with ICT infrastructure ($p < 0.01$, $r = 0.24$), ICT know-how ($p < 0.01$, $r = 0.25$), posting ($p < 0.01$, $r = 0.31$), individualism ($p < 0.05$, $r = 0.13$). The only variable that has no relationship is with communication flow. The study shows that the Ministry’s organisational structure and procedures, routines and policies (communication flow) have no relationship with training and management support.

With regard to ICT infrastructure, the study shows that this variable has a positive relationship with ICT know-how ($p < 0.01$, $r = 0.31$), and a negative relationship with individualism ($p < 0.05$, $r = -0.13$); apart from knowledge transfer performance and sharing culture. This study shows an interesting result in relation to individualism as it reveals that the better or more adequate the Ministry’s ICT infrastructure the less individualistic an employee will be. On the other hand, with better ICT infrastructure, it is less likely that individuals will keep knowledge/information to themselves.

With regard to ICT know-how, the study shows that this variable has a significant positive relationship with posting to the Ministry ($p < 0.05$, $r = 0.25$), apart from knowledge transfer performance, training/management support and ICT infrastructure. The researcher believes that the main reason why there is a relationship between the two variables is due to the fact that the Ministry requires officers who have knowledge in ICT in their daily works. There are two divisions that use ICT facilities extensively, namely the Commercial Vehicle Licensing Board and the Contractors Services Centre.
Another interesting result is on communication flow. Apart from having a significant relationship with sharing culture, this variable has a positive relationship with individualism ($p < 0.05, r = 0.29$). Organisations need to consider this variable as one of the important elements in managing knowledge. Making an organisation structure flatter or more flexible, may help organisations to prevent individuals using knowledge as their source of power and helps in creating a more sharing environment.

Details of the correlation between the variables are shown in Figure 7.6.

![Correlation Diagram](image)

**Figure 7.6 – Correlations between Variables**

### 7.5 Conclusion

In conclusion, this study provides the first empirical evidence to help clarify what are the most important organisational elements that have an impact on the performance of knowledge transfer in an organisation, particularly in a public organisation in Malaysia. The study reveals that there are few
organisational elements that have an impact on the performance of knowledge transfer. The variables that have a significant positive relationship are training/management support, ICT know-how, sharing culture and individualism. Three other variables, ICT infrastructure, posting and communication flow, have no significant relationships with the performance of knowledge transfer. The study also shows that several independent variables that were identified in the study indicate a positive relationship among them. The important independent variables that correlate with almost all the other independent variables are sharing culture and training/management support.

The study has also produced a result that determined the most important variables that could predict the dependent variables. Increasing sharing culture and ICT know-how are the variables that could help to increase the performance of knowledge transfer in the Ministry. However, the fact that only 23.3 percent of the variance in the study was significantly explained by the seven independent variables, which leaves 72.7 percent that still needed to be explained. In other words, there are other additional variables that are important for determining the performance of knowledge transfer that have not been considered in this study. So, further research might be necessary to explain more of the variance in performance of knowledge transfer.
Chapter 8
INTERVIEW WITH KEY INFORMANTS
CHAPTER EIGHT

INTERVIEW WITH KEY INFORMANTS

This chapter presents an analysis of the interviews, which were conducted between September and October 2001. The researcher was privileged to interview five key players in the Ministry of Entrepreneur Development of Malaysia (MED). There were the Secretary General, the Deputy Secretary General (Entrepreneur), the Deputy Secretary General (Development), the Under Secretary to the Information Management Division and the Under Secretary to the Human Resources Division. A number of critical issues were discussed, especially issues that are related to knowledge creation and knowledge transfer in the Ministry. The transcripts of the interview are shown in Appendix C.

8.1 Interview with the Secretary General of MED

In response to the Malaysian 2001 Budget Speech, which urged Malaysian citizens to be well prepared with the emergence of the k-economy, the Secretary General stresses it was important for the Ministry to have knowledgeable officers to support the government, especially in implementing all the relevant policies. To ensure the Ministry is able to use the facilities that they have and to facilitate the clients (entrepreneurs), the Secretary General points out that the Ministry's initial effort was focused on the development of
the people within the Ministry. To be successful, the Secretary General believes that the people are the most important element that needs to be managed efficiently. She stresses:

"In my opinion, the most important element that needs to be managed is the people. Sometimes you have the best of the facilities or infrastructure. But if you have people who do not want to change their attitude, who are not committed, who couldn't care less about what happening around the world, and not committed to help people or the client, I think we will be failing in whatever we want to do"

When asked if there is a need to have a knowledge management strategy, the Secretary General agrees that the Ministry needs to develop such a strategy particularly in imparting knowledge to the officers and related staff. She believed that by having well-structured knowledge and up-to-date information relevant to the Ministry, the officers would be able to give advice and information required by the Ministry's clients. In doing so, she has instructed the relevant divisions, especially the Human Resources Division, to "look into and to create a learning Ministry within the Ministry".

One of the most important aspects in managing knowledge is having officers share knowledge with one another, regardless of their divisions or positions. Most organisations (particularly private organisations) believe that sharing information is very difficult to implement, especially when people regard knowledge as the source of power. However, this situation also happens in public organisations. The interview reveals that, even though the Ministry has lots of information in "files, brochures, annual reports, and also through forums and seminars", the Secretary General still felt that there are times where knowledge and information are not well disseminated between divisions. She stresses:

"I think this is an area, which certainly the Ministry needs to improve further. I think there are times, I believe that there are divisions who probably keep information for themselves and do not share this with others. I believe that there are some divisions who do not see that the information that they have is also relevant to other divisions. Sometimes they thought what they have is sufficient to be disseminated within their division, their own staff only. They do not
see that their information is actually supporting and required by all other divisions as well."

To overcome the problem of sharing information, the Ministry has promoted a mechanism in which all programmes available are geared toward achieving the Ministry's objectives. One of the main approaches is by having a regular Monday meeting. This is a place where "the latest policies relating to national development, the latest amendment to the new policies, and certainly the latest budget would be informed to all the heads of divisions". All matters pertaining to cabinet decisions on the Ministry's programme and feedback received from the public are also discussed. The information that is disseminated in the meeting is then transferred to the respective divisions through their regular meetings with their officers and staffs.

Another approach that is currently being implemented is the setting up of a coordinating committee to integrate the information and the programmes within the Ministry. An officer in each division was appointed as a liaison officer and is responsible for giving information needed by other divisions. In getting feedback on matters pertaining to staff development, the top management has also occasionally conducted several series of forums with all the staff. This is to ensure all staff are given the opportunity to voice their ideas and problems direct to the top management.

Forums, seminars and talks are also organised in the Ministry regularly with the hope that this kind of platform will encourage officers to share their information, knowledge and experience with other officers. Officers attending courses, especially courses overseas, are asked to prepare a report upon their return and this report is then circulated to all officers. Talks from prominent speakers and successful entrepreneurs are also conducted regularly. Besides the specific topics on entrepreneurship, talks on motivation, programmes by other ministries, economics, knowledge, etc., are also given to the officers and staff in the Ministry.
One of the biggest issue that the Secretary General felt needs to be addressed is the transfer of knowledge in the Ministry. She argues:

"I believe that sometimes officers do take things very easy, lightly and they have the attitude of 'wait and see'. And I believe that some of them could not see the urgency."

To overcome the problem, the Secretary General asserts that the top management always gives officers and staff lots of encouragement, motivation, support and recognition, and wants them to “feel that they are an important part of the changes in the current knowledge based world”. These approaches seem to work well, as the Secretary General claims that the quality of information/knowledge being transferred was reliable, accurate and fast to access. However, she admits that there are still instances where information is not updated fast enough due to the changes that happen very fast. She further says:

"I believe that we should have some related programmes to encourage our officers to see that information needs to be updated and must be fast enough in order to help our clients."

According to the Secretary General, one of the fastest ways of disseminating information across the Ministry and getting the response back quickly is by using e-mail. She states that whenever she seeks information from the branches, she will easily get the response, which enables her to respond to the complaints that she receives. When asked if she is satisfied with the level of usage, she claims that;

"I am not very satisfied, as I do know that there are certain senior level officers who do not use the e-mail as often as they should. The excuses given that, 'I don't have time to use the e-mail', is not acceptable anymore. If you do not make any attempt, you will never use it."

With regard to staff turnover, the Secretary General is of the opinion that there are some setbacks to the Ministry, especially when well-trained officers leave the divisions/Ministry as "knowledge and experience which is gained
over the years and that actually develop one’s skill in managing cannot be written down and documented”. However, she believes that with the latest modern technology of transferring information, this issue can be overcome easily. Information pertaining to all jobs was well documented and new officers can learn faster on how the previous officers have done their work. Furthermore, she states:

“There are certain things that the previous officers acquired, which are not documented. This is a skill. People have got their own skill in managing and doing things. New personnel that come from another Ministry bring in their own managerial skill, which also contributes to the organisation. We also benefited with what the new officers acquired from their previous Ministry. So, in that sense, it is a win-win situation. New officers, I believe, bring in new ideas and style, which also in the end benefits the Ministry”.

Finally, in facing the new millennium, the Secretary General is of the opinion that:

“In the new millennium, knowledge economy is important and we are also encouraging our officers to know more about what it means and what it means to the entrepreneur. They need to acquire expertise in the global world so that they would be able to assist the client to face the challenge of the global market.”

8.2 Interview with the Deputy Secretary General (Entrepreneur) and Deputy Secretary General (Development) of MED

In line with the Secretary General’s opinion, both the Deputy Secretary General for Entrepreneur (DSGE) and the Deputy Secretary General for Development (DSGD) also believe that developing personnel who can do work professionally should be the main focus of the Ministry in preparing for the emergence of the k-economy. By having knowledgeable officers, the Ministry would be able to focus their efforts in “developing entrepreneurs who are resilient, entrepreneurs who are able to withstand the rigours, the economic downturn, the competitiveness in the market, creativity, innovative and keeping up with the time” (DSGD, 2001). To enhance the officers'
knowledge, the Ministry has formed two distinctive approaches, namely by having clinic and consultation groups and by increasing networking between officers in the Ministry, in other public organisations and in public sectors. The Deputy Secretary General (Entrepreneur) believes that by using this approach, officers in the Ministry will be "able to mix and get ideas on how to enhance their knowledge" (DSGE, 2001).

With regard to having a knowledge management strategy, both the Deputy Secretaries General (DSG) agree the Ministry needs to have a plan of action and strategy in moving towards the k-economy, especially in upgrading the knowledge of officers and the entrepreneurs. The Deputy Secretary General (Entrepreneur) informs that the Ministry currently has a five-year plan (2000 to 2005) to ensure that all the staff in the Ministry be more knowledgeable. He further states that the Public Service Department (PSD) has formed a new division in every Ministry known as the Human Resource Development Division, replacing the Services Unit, to come out with a plan of action, especially in formulating a knowledge management strategy. On the other hand, the Deputy Secretary General (Development) consider that it is important to create a knowledge organisation, where officers will have the ability to interpret and use all the information specifically for the good of the organisation.

Besides the five-year plan, the Ministry has various ways of disseminating knowledge to all the officers. Both Deputy Secretary Generals argue that one of the common ways of transferring knowledge and information in the Ministry is through the weekly top management meeting. In this meeting, the Secretary General will provide all the heads of the divisions in the Ministry with the latest information pertaining to matters related to the Ministry's jurisdiction. This information will then be transferred to all officers through another meeting, chaired by the divisional head. In this meeting, all officers are given the opportunity to bring out any issues or problems that they faced in their daily work and share them with other officers. This information will then be discussed in the top management meeting, especially if it is relevant.
Interview with Key Informants

and needs further action. The top management has also initiated a platform, whereby all staff in the Ministry are given a chance to voice all their problems and requests.

Apart from managing knowledge through formal and informal meetings, all officers and staff are given access to all information with respect to the core business of the Ministry. This is done through the Ministry’s official web site, databases, pamphlets, etc. A Resource Centre has also been established, where all books, documents on policies of the government, government circulars, profiles of businesses, articles on entrepreneurs and annual reports are kept. Papers pertaining to entrepreneurs and other things related to the Ministry are now being transferred onto CD-ROM too. This will enable officers and entrepreneurs to search for more information.

Both Deputy Secretary Generals stress that they always motivate their officers who are under their supervision to share their knowledge. The Deputy Secretary General (Development) articulates that:

“When I have a meeting, I expect everyone to speak on what they are doing or new things they discover. I used to have before a session where each officer takes turn to share their knowledge so the rest of the divisions know, especially those who have been sent for training and come back and tell what they had learned from their training”

The same approach has also been implemented by the Deputy Secretary General (Entrepreneur), and he believes that sharing knowledge is very important for the Ministry. Apart from having “float files” as a method of sharing knowledge, he stressed:

“We have sent officers abroad for training. Upon returning they have to write a report and we have also plan whereby they also have to talk to their fellow officers on their experience and how they can relate their experience to improve the things that they are doing in the Ministry”.

The officers in the Ministry are said to have fewer problems in obtaining knowledge via networks, training, other departments, manuals etc. The
Deputy Secretary General (Entrepreneur) stresses that the Ministry is quite well equipped with Internet connections, and is connected through the internet network with other departments and ministries. He further emphasises that “in Malaysia there is no problem for us in gaining access to information from other departments, as long as this information is for public domain”. With regard to training, the Ministry also has good contacts with various training institutions in Malaysia. However, the Deputy Secretary General (Development) highlights that the main concern of the Ministry is when suffering a system breakdown, especially on personal computers (PC) which sometimes can lead to information being lost. However, she believes that the Ministry has taken serious action to overcome the problem. One of the approaches is by organising technical courses on minor computer repairs for the staff from all divisions.

When asked if the Ministry faces any problem when officers left the Ministry, both the Deputy Secretary Generals disagreed. Both argue that it is a win-win situation. The Ministry might lose some good officers but in return they could get new officers with different experience and background. This will certainly be an advantage to the Ministry. They further stress that new officers will face no difficulties when doing their work, as officers who leave the Ministry have to follow procedures that required them to prepare a detailed handing-over note before they are transferred. The handing-over notes contain detailed works still pending and needing further actions. These procedures help new officers who take over the particular jobs to understand what they should do and what works need to be continued. "So, the person who takes over will know what to do", adds the Deputy Secretary General (Development). Furthermore, the Deputy Secretary General (Entrepreneur) states:

"Therefore, when the other officers take over, then it doesn't pose any difficulties for him to carry on with the work functions. Because, in that handing-over note, it contains all process of work, the contents, procedures and what not. I think it is a win-win situation".
On the other hand, the Deputy Secretary General (Development) argues that even though "we lose whatever knowledge the officer has", it is "unfair to stop them if they got promotion elsewhere". To minimise the problem, she notes that every division will normally have another officer who is trained with the same task and is able to take over the particular post when needed. Besides, she emphasises that the officers who are being transferred can always be called for references as long as there are still working with the government.

The biggest and only obstacle to knowledge transfer in the Ministry that both Deputy Secretary Generals see is the individual. The Deputy Secretary General (Entrepreneur) states:

"The government can provide the infrastructure, PC, environment, books, documents and training, but at the end of the day, it must be the individual that makes full use of the services the government provided. To overcome this big impediment, we encourage the people. We make them read, and to interact among themselves. They must be able to speak up, and do not be frightened with their superiors. This is how we strengthen the capacity of the individuals ".

According to the Deputy Secretary General (Development), another way of overcoming the problem of transferring knowledge is encouraging officers to share their knowledge during regular meetings. The Deputy Secretary General (Development) points out that recently, officers do share their information and knowledge with other officers. This is supported by the Deputy Secretary General (Entrepreneur), and he argues that the officers in the Ministry "are of very high standard" and "their confidence levels are very high". The Deputy Secretary General (Entrepreneur) further affirms:

"You can also judge from the things that they deliver in terms of speeches they prepare for the Minister, the things that they organise the EXPO and the standard that they have portrayed when they give briefings to foreigners".
With regard to measures of knowledge performance in the Ministry, the Deputy Secretary General (Development) suggests that tracking the number of successful entrepreneurs the Ministry creates, and the number of implemented projects that are monitored on schedule by the officers, are the two measurements that can be measured. On the other hand, the Deputy Secretary General (Entrepreneur) is of the opinion that the two main things to measure are the amount of knowledge that is stored in the systems, and the number of communications through email by officers in the Ministry.

8.3 Interview with the Under Secretary, Human Resources Division

With regard to education and training, the Under Secretary to the Human Resources Division (HRD) emphasises that all officers and staff have to undergo a formal training once they are appointed to work in the government. The main training is the General Induction Course, which focuses on the government infrastructure, strategies and policies in general, and the Specific Induction Course which focuses on the specific functions of the particular Ministry or Department. This particular training aims to provide the officers and staff with some basic knowledge of the government set-up in general, and an in-depth knowledge of the specific organisations. This will help them to understand the role they need to accomplish in their daily work. Apart from the Induction Courses, officers and staff are also trained on administration, finance and services matters.

Basically, training for all officers and staff is determined by the Human Resources Division (HRD). The HRD will identify the needs and send the respective officers or staff to attend training either locally or overseas. However, each division can also identify their officers' training needs and inform the HRD. Allocations for training are budgeted every year and only budgeted training can be attended. However, if officers need certain courses that are not budgeted, a special allocation will be asked from the central agencies. The Ministry has a Training Committee that comprises
representatives from all divisions, and each of them must formulate their training needs.

Apart from training, there are also exchange programmes for officers between various agencies under the Ministry. The Under Secretary to the Human Resources Division notes: "This is to allow officers to get a first-hand knowledge" and help them to be more confident in giving advice to people/entrepreneurs. Other than the Ministry, the Public Service Department (PSD) also has its own training programme. Some of the officers in the Ministry have the opportunity to be attached to various British and German companies that have subsidiaries in this country. "This kind of programme is about six months. Those selected will definitely gain knowledge for the Ministry", he added.

Knowledge is shared among officers through various mediums. The Under Secretary to the Human Resources Division claims that all officers must submit a report every time they return from attending certain courses. "It is part and parcel of the training," he explained. Apart from writing a report, the HRD is also planning to have a forum twice monthly (on Saturdays), where officers who returned from training are requested to give a talk or lecture to all officers. This is to ensure that the knowledge they gain from that particular training can be disseminated successfully.

When asked who holds the most critical knowledge to the organisation's success, the Under Secretary to the Human Resources Division highlights that everyone is equally important to the Ministry. He stresses, "There is nobody cleverer that the others. Their duties are to carry out the mission of the Ministry. Everybody has their important role for the Ministry".

Having updated policies and procedures is very crucial in an organisation, as it helps officers do their work more effectively and efficiently. The Under Secretary to the Human Resources Division claims that the Ministry's policies and procedures are updated regularly. The information is kept either on
“Everybody has their manual job procedures, desk files, handing-over notes”, and “new officers taking over the job won’t face any difficulties,” said the Under Secretary to the Human Resources Division. Apart from the Ministry’s policies and procedures, everyone in the Ministry is also well informed with all the standard procedures from the Public Service Department (PSD), The Treasury and the Malaysian Administrative Modernisation and Planning Unit (MAMPU). All divisions were given hard copies whenever they are changes to the procedures. However, the latest information can also be accessed from the web site of each particular agency. He further stresses that, although the procedures are normally straightforward, if anyone has difficulties in understanding, they can get clarification from the HRD.

Pertaining to officers that left the Ministry, the Under Secretary Human Resources Division argues that this is the problem that the Ministry has to face. However, he said, “We may be losing a good officer but on the other hand, there will be some kind of gain to another Ministry. Hopefully, the replacement officer will have other knowledge that we don’t have before. Continuous learning will be on.” To minimise the problem, the Ministry always have back-up officers within the Ministry who can take over any job left by the officers transferred out. The Under Secretary to the Human Resources Division also informs that the Ministry has an agreement with the Public Services Department to retain certain knowledge workers in the Ministry by giving them promotion in the same Ministry.

8.4 Interview with the Under Secretary, Information Management Division

While most respondents (86.5 percent) believe that technology is the answer to knowledge management, the Under Secretary of the Information Management Division gives a different response. He argues:
"Information technology (IT) and knowledge management (KM) are two different things. IT is just a supportive tool to KM. KM is another area. It is how you want to use the knowledge. IT is only a tool. We have lots of tools. Without IT, KM can also be done."

When asked what technological tools that have the greatest potential for enhancing the Ministry's knowledge base, the Under Secretary to the Information Management Division emphasises that the current best technological tools are still the Internet and the web search. By using the Internet, information from all over the world could be accessed very fast and with ease. However, he argues that the web search still has some weaknesses, as the current search is only a one-way search and not a knowledge-based search. For example, if we ask for "entrepreneur" in the web, it displays not only on entrepreneur but other related things as well. With regards to the search application that was developed internally, the Under Secretary to the Management Information Division claims that the most important search is using the applications available in the Ministry. But it is still limited as the search is ready-made and has less flexibility. "Currently we still don't have knowledge. We are concentrating on data. Our system now is more on operational", he added.

The Ministry currently has two main databases, those for the Commercial Vehicle Licensing Board (CVLB) and the Contractor Services Centre (CSC). However, problems arise, since both the databases run on different platforms. The Ministry has launched a new main database known as PANDAK [Pangkalan Data Usahawan (Entrepreneur Database)]. While both the CVLB and CSC databases run at the lower level (operational level), PANDAK operates on the higher level and incorporates both the other databases.

With regard to the Internet, the Under Secretary to the Management Information Division claims the Ministry has access to the Internet. Although, he says that in the Ministry the level of knowledge on Internet is high, but the level on how to manipulate the maximum potential of Internet is still low. "There are a few reasons. Firstly, they don't know how to do it. Secondly, in
Malaysia's usage of Internet is high at certain periods of time. However, the method on how to acquire knowledge is very little. Maybe they don't know the features," he added.

The only groupware or collaborative working tools in the Ministry is email. However, the use of email in the Ministry is still not very active, as the official email is only confined to the Ministry, and cannot be accessed from outside. Apart from this limitation, officers are still not confident in sending information through email, and on most occasions officers are still sending official letters simultaneously with email. The Ministry has introduced a few approaches to overcome the problem. One of the approaches is by encouraging everyone to use email as a method of communication within the Ministry. The Human Resources Division is said to be the most effective user, as all training matters are sent to officers through email. Another approach is by upgrading Lotus Notes and using a web-based email. This will allow officers to login to their email both at the office or at home.

Pertaining to technology that can support document imaging, document management and document storage, the Under Secretary to the Management Information Division informs that the Ministry has a propose for such a mechanism for the Ministry to the Malaysian Administrative Modernisation and Planning Unit (MAMPU) in the Ministry's Eighth Malaysian Plan (EMP). However, it was not approved by MAMPU, as such an approach has been developed by certain government agencies under the e-government project. Instead, MAMPU has requested the Ministry to wait until the e-government project is completed and use the application provided by the project once it is made available.

When asked if the Ministry has any management information decision support and statistical analysis systems, the Under Secretary to the Management Information Division claims that at the moment the Ministry has yet to develop such systems. However, the Ministry is planning to have a Decision Support System (DSS) or Executive Information System (EIS) to assist management
in their daily work. Discussions have been conducted with the Planning and Evaluation Division with regard to the development of the Decision Support Systems or Executive Information Systems. The PANDAK system will be able to accommodate the needs of the Ministry where it aims to provide information on forecasting, analysis, information needs, etc. Information pertaining to entrepreneurs in PANDAK will then be linked to the Commercial Licensing Vehicle Board, the Contractor Service Centre, the Public Service Department, MARA, the Registrar of Company (ROC) and the Registrar of Business (ROB).

With regards to training on using computers and certain softwares, the Management Information Division planned to hold advanced courses, as most officers and staff in the Ministry already have all the basic knowledge. The Under Secretary to the Management Information Division claims that in the previous year very few officers and staff had signed up for certain courses. He argues “I understand, in this Ministry, maybe everyone has become expert in using Word and Power Point. That is why, when we offer a course, we get very little response”. The Management Information Division is now working with the Human Resources Division to organise more formal courses together, and the courses attended will be recorded in officers and staff’s Service Book. The Under Secretary to the Management Information Division believes that this will attract more to attend.

8.5 Conclusion

From the interview with the key personnel in the Ministry, it was found that the Ministry was serious about turning the organisation as a learning organisation. Most of the activities and programmes implemented in the Ministry are geared towards creating, storing and disseminating the information and knowledge both within the Ministry and for the public. Officers in the Ministry were always encouraged to seek new knowledge and learn to share it with others. This approach was certainly the main concern of the Ministry, where a few steps were taken to ensure that knowledge is not
kept to the officers themselves or to the particular divisions. The top management always make sure that knowledge in the Ministry were well disseminated to all level of officers in every divisions/units. Another pertinent issue that were revealed in the study is the approach taken by the Ministry, whereby, their concentration were on people and technology.
Chapter 9

CONCLUSIONS AND RECOMMENDATIONS
CHAPTER NINE

CONCLUSIONS AND RECOMMENDATIONS

This study can be divided into two broad areas. Firstly, it involves investigating and examining the actual situation with regard to the way knowledge is managed in public organisations in Malaysia, particularly in the Ministry of Entrepreneur Development of Malaysia. Secondly, the study identifies the organisational elements that are important in the performance of knowledge transfer in an organisation. These issues were drawn from a survey of the literature (Chapter Three). In order to examine the issues in detail, a theoretical framework was developed to explain the relationship between the variables identified, and a list of research hypotheses was generated (Chapter Four).

To get more detailed empirical results, the researcher used a research methodology which combined a questionnaire survey with interviews of key informants in the Ministry of Entrepreneur Development of Malaysia (Chapter Five). The questionnaire responses provide quantitative data on the understanding of knowledge management in the Ministry (Chapter Six) The data gathered in the survey were analysed, using bivariate analysis (Chapter Seven). Interviews with key informants have been discussed in detail (Chapter Eight) in order to understand the views of top management on certain issues directly related to the study.
9.1 Major Findings

The study provides empirical findings to supplement research on the variables that were identified as important organisational elements relevant to the transfer of knowledge. However, the findings of this study have to be interpreted in light of those potential limitations as set out in section 9.3. As such, the limitations may have created some bias, and influenced the findings.

9.1.1 Focus of Study 1

What are the organisational elements that are important for the performance of knowledge transfer in public organisations in Malaysia?

The results provide quite strong support for the hypotheses outlined in Chapter Four (4). Out of 12, only three variables receive sufficient support to prevent their rejection. However, five variables were not tested due to low reliability. The major findings are summarised in Table 9.1.

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Knowledge Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Sharing Culture</td>
<td>Substantiated</td>
</tr>
<tr>
<td>H2: Individualism</td>
<td>Not Substantiated</td>
</tr>
<tr>
<td>H3: Document Confidentiality Status</td>
<td>Not Substantiated</td>
</tr>
<tr>
<td>H4: Communication Flows</td>
<td>Not Tested (low reliability)</td>
</tr>
<tr>
<td>H5: Training/Management Support</td>
<td>Not Substantiated</td>
</tr>
<tr>
<td>H6: Posting</td>
<td>Substantiated</td>
</tr>
<tr>
<td>H7: Staff Turnover</td>
<td>Not Substantiated</td>
</tr>
<tr>
<td>H8: ICT Tools (software)</td>
<td>Not Tested (low reliability)</td>
</tr>
<tr>
<td>H9: ICT Infrastructure</td>
<td>Not Tested (low reliability)</td>
</tr>
<tr>
<td>H10: ICT Know-how</td>
<td>Not Substantiated</td>
</tr>
<tr>
<td>H11: Knowledge Asset</td>
<td>Substantiated</td>
</tr>
<tr>
<td>H12: Cross Functional Teamwork</td>
<td>Not Tested (low reliability)</td>
</tr>
</tbody>
</table>

Table 9.1 – Summary of Empirical Results: Testing of Hypotheses

The study clearly revealed that tacit knowledge that resides in people's mind is fundamental to the performance of knowledge transfer. This study
Conclusions and Recommendations

supports previous studies by philosophers Polanyi (1966) and scholars [Nonaka and Takeuchi (1995) and Nonaka and Konno (1998)] which indicated that there are two types of knowledge that are very important in the context of knowledge transfer i.e. tacit and explicit knowledge. Most of the researchers believe that tacit knowledge is more difficult to be shared as compared to explicit knowledge. This is because, this kind of knowledge is kept in people's mind and very difficult to be transferred unless people are willing to share it. The result shown in Table 9.1 clearly indicates that the variables that correlate with the performance of knowledge transfer are centred in the people, i.e. sharing culture, training and ICT know-how. On the ontology and epistemological views, this study shows that knowledge are centred on the process-oriented epistemology (Christensen and Bang, 2003) where sharing of knowledge involves a continuous process between people and technology as well as tacit and explicit knowledge.

The study also supported previous empirical findings that technology is not a driver, but an enabler of knowledge creation and transfer. In a study done by Becera-Ferandez (2004, p.8) it was stated that effective knowledge management is 80 percent related to organisational culture and human factors, and 20 percent related to the technologies. Although technology platforms play an important role in developing, sharing and transferring knowledge, without the attention to the cultural and organisational context, in which people are encourage to share their knowledge, technology may not be able to facilitate the flow of knowledge.

**Sharing Culture**

In testing the hypotheses, the study indicates that there is a positive relationship between a knowledge sharing culture and knowledge transfer performance, with high levels of sharing culture correlating with high levels of knowledge transfer performance. This shows that a sharing culture is fundamental for any organisations that are wishing to implement a knowledge management strategy.
To ensure successful knowledge sharing and transfer, organisations need to encourage individuals in the organisation to share not only their explicit knowledge but also the tacit knowledge that they have. Every individual, especially the management, should provide time and resources to take part in learning and sharing exercises. Smith (2001, p.317) argues that if management does not make any clear statement, employees are likely to share only explicit knowledge, because it is easier to codify, document and transfer knowledge. Since the study provides evidence that sharing culture is the most important variable to the transfer of knowledge, the management should inculcate a positive sharing culture among the people in the organisation.

The survey results support the claims of many authors (e.g. Parker and Bradley 2000, Clarke 2001, Hall 2001, Levine 2001, Rubenstein-Montano et al. 2001a and 2001b, Stoddart 2001, Ahmed 2002, Kayworth and Leidner 2003, Liebowitz and Chen 2003) that sharing culture is essential in the success or failure of knowledge management initiatives. The results also support the report by the World Bank (World Development Report 1988/1999, p.38) which claims that sharing culture is very important in actually promoting the success of knowledge management programmes. It also reflects the views of the Secretary General (SG) of the Ministry, where she asserts that the most important aspect of managing knowledge is having officers share knowledge with one another, regardless of their divisions or positions. The study clearly shows most respondents either “agree” or “strongly agree” that:

- The culture of the Ministry encourages and provides opportunity for the communication of ideas, knowledge and experience among all employee (42.2 percent);

- Officers are ready and willing to give advice and help upon receiving requests (49.6 percent);
Conclusions and Recommendations

- Knowledge is disseminated to a wide range of people, rather than on a "need-to-know" basis (41.0 percent); and
- Interdisciplinary cross-functional teamwork is important in taking decision and solving problems (60.5 percent).

Inculcating a positive attitude towards sharing of knowledge is the key to the success of becoming a knowledgeable organisation. Resistance over this issue is very difficult to overcome, as individuals still view knowledge as a source of power, especially in gaining acknowledgement and personal recognition in an organisation. Hence, individuals tend not to disseminate the knowledge they acquire and are reluctant to share with others. This attitude gives employees a sense of security and political influence within the organisation (Ahmed et al. 2002, p.64). Such attitudes, that hinder knowledge management must be communicated and understood by managers and employees. Lack of attention to these issues will certainly restrict knowledge from being transferred from one person to another.

Training

Another key element that can ensure knowledge being shared and transferred in the organisation is providing training to the employee. However, the training provided should not only include lectures, seminars or symposia but should also include on-the-job training, mentoring, and practical training. By having a one-to-one and a close relationship between the employees, trust can be built and tacit knowledge can easily be transferred effectively. Apart from inculcating the culture of sharing, management should also instil and develop trust among the people in the organisation. With trust, people are more willing to share their knowledge and experience with others.

Descriptive analysis shows most respondents either "agree" or "strongly agree" the Ministry has provided them with adequate training. The results reveal that:
Conclusions and Recommendations

- The Ministry provides opportunities for its employees to attend training internally/externally in fields related to their tasks (56.5 percent);

- The Ministry provides opportunities for its employees to attend training internally/externally in those other fields which may enhance their knowledge (53.2 percent); and

- The management provides time and resources for its employees to take part in learning and sharing exercises (35 percent).

The results above may indicate the Ministry has successfully provided for enough officers to attend training internally/externally in various fields, and allows officers to gain and create knowledge. On the other hand, in terms of actually sharing knowledge between officers, the result is relatively low. The interview with the Under Secretary (Human Resources Division) shows the Ministry may be successful in gathering explicit knowledge (reports), but still does not provide enough of a platform for officers to share their tacit knowledge in an open forum or discussion. To overcome these issues there is clearly a need to develop effective and efficient methods of gathering information and knowledge, and to have systematic training for all employees, and develop a culture which can promote knowledge sharing (Syed-Ikhsan and Rowland, 2003a).

**ICT Know-how**

Apart from sharing culture and training/management support, the ICT know-how is equally important. The test shows there is a positive relationship between ICT know-how and the performance of knowledge transfer. The results indicate employees in the Ministry were given adequate internal training on using computers and software, which clearly contributes to the performance of knowledge transfer.
To enable knowledge to be transferred with ease, employees must be given adequate knowledge on how to use the ICT facilities to share and transfer knowledge across the organisation. Campos and Sanchez (2003) argue that in the epistemological dimension, tacit knowledge is divided into categories that are the cognitive tacit knowledge and technical tacit knowledge. Since knowledge is being stored using ICT technology, it is important for employees to have at least a basic knowledge on how to use ICT to access, evaluate, share and store them.

However, the study reveals only a minority of officers either “agree” or “strongly agree” that the Ministry has successfully given enough training in improving knowledge on ICT. The results show that:

- All employees are given adequate internal training to use computers (36.3 percent);

- All employees are given adequate internal training to use ICT tools (software) in the Ministry (36.3 percent); and

- Technological know-how within the Ministry is easily transferable (31.1 percent).

**Individualism**

With regard to individualism, the findings of the study was not consistent with the claim of other authors (e.g. Lim and Klobas 2000, Stenmark 2000-2001, McDermott and O’Dell 2001, Bogdanowicz and Bailey 2002, Goh 2002, Bennet and Bennet 2003) stating that individualism as one of the important elements which could affect the creation and transfer of knowledge in an organisation. The assumption that high levels of individualism are correlated with low levels of knowledge transfer performance is simply not supported by the evidence.
Concerns about individualism was also addressed by the Secretary General, where she states that the most difficult part in managing knowledge in the Ministry is when people regarded knowledge as a source of power, and consequently refused to share their knowledge with others.

A descriptive analysis, discussed in Chapter Six, shows that overcoming individualism is not a particularly big problem for the Ministry, where 40.3 percent respondents believe that it was an easy task. The study shows only a minority of respondents “agree” or “strongly agree” that:

- Individuals tend not to disseminate the knowledge they acquire, and are reluctant to share it with others (22.7 percent); and
- Individuals use knowledge as a source of power, rather than as an organisational resource (26.0 percent).

Communication Flow

Communication flow demonstrated no significant relationship with knowledge transfer performance. These results may be due to the setting of the survey or the selection of respondents involved in the survey. The results might be different if the organisation had restrictions on accessing information or knowledge, had more hierarchies, or if communication flows between divisions were not happening easily. The results might also be different if the research has been done in a private organisation.

Although descriptive analysis shows issues on communication flows between divisions/units in the Ministry have some influence on the flow of knowledge, the hypothesis testing does not support a significant relationship. The researcher believes the current organisational structure does not have much influence on the performance of knowledge transfer and the creation of knowledge assets, because in 1992 the Public Service Department of Malaysia brought about a major re-structuring of all government departments
through the New Remuneration System (NRS) (Service Circular No.9/1991, 1991). All public organisations are now flatter, with fewer hierarchies. For example, officers in grades ‘D’ and ‘E’ in the Cabinet Committee (CC) 1976 were grouped into Grade 1 in NNS, grades ‘F’ and ‘G’ in CC into Grade 2 in NNS, senior time scale and time scale in CC into Grade 3, etc. The re- structuring also included officers/staff at lower grades. Recently, a new remuneration system, known as the Malaysia Remuneration System (MRS) was introduced, effective from November 2002 (Service Circular No. 9/2002, 2002). Although MRS introduced a new remuneration scale, it still retains the hierarchies introduced in the NRS.

**ICT Infrastructure**

Although ICT is not the sole answer to the success of implementing knowledge management, ICT infrastructure seems to allow individuals in the organisation to create and share knowledge effectively, and hence contribute to the performance of knowledge transfer. Although the survey done by McAdam and Reid (2000) revealed the public and private organisations are still not satisfied with the use of technology to facilitate learning transfer, the findings of this particular research show there is no significant relationship between the variables identified. Thus, ICT infrastructure is capable of becoming one of the most important methods of disseminating knowledge in an organisation.

The Ministry’s ICT infrastructure seems to help individuals in the organisation to create and share knowledge effectively, and contribute to the performance of knowledge transfer. As discussed in chapter seven, the current ICT infrastructure also facilitates individuals in their daily work, especially in searching for information. The results also indicate most respondents either “agree” or “strongly agree” with the statement that:

- The Ministry has a very up-to-date infrastructure which helps knowledge creation and sharing (57.1 percent);
• ICT can speed up your work in searching for information (85.7 percent); and

• ICT facilitates employees in doing their daily work (87.0 percent).

• The Ministry uses groupware, such as Lotus Notes to encourage the sharing of ideas (79.2 percent);

• Computer-based information systems provide more up-to-date information than that available in manual files (79.0 percent); and

• Computer-based information systems make new information available in the Ministry (77.1 percent).

The study also shows that the younger generation is more inclined to use electronic means in the gathering and sharing of information and knowledge, compared to those who are older (Syed Ikhsan and Rowland, 2003a).

Posting/Placement

However, the study shows there are a majority of respondents who either “agree” or “strongly agree” that the posting or placement in the Ministry is appropriate for their qualifications, experiences and interests. The results revealed that:

• Posting to the Ministry is appropriate for their qualifications and enables them to create and share knowledge (70.8 percent); and

• Posting to the Ministry is appropriate for their interests and enables them to create and share knowledge (74.6 percent); and
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- Posting to the Ministry is appropriate for their experiences and enables them to create and share knowledge (70.7 percent).

All public and private organisations need to manage both tacit and explicit knowledge accordingly, especially in ensuring that the organisation can take full advantage of the organisational knowledge. The management should identify where knowledge resides in the organisation and design strategies that can promote the use of knowledge that they have. The management should also allow employees to get access to all kind of knowledge, regardless of whether the knowledge is available inside or outside the organisation (Syed-Ikhsan and Rowland, 2003b).

**Correlation between Variables**

The study also reveals that sharing culture, training/management support and ICT know-how do not only correlate with knowledge transfer performance but also with most of the independent variables. For example, knowledge sharing correlate with all the variables except with individualism. This shows that sharing culture involves not only the human aspect of knowledge management, but also the technological activities and the organisational structure of the organisation. Detailed results are shown in Table 9.2 below:

<table>
<thead>
<tr>
<th>Variables</th>
<th>$Y_1$</th>
<th>$X_1$</th>
<th>$X_2$</th>
<th>$X_3$</th>
<th>$X_4$</th>
<th>$X_5$</th>
<th>$X_6$</th>
<th>$X_7$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Y_1$: Knowledge Transfer Performance</td>
<td>1.00</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>$X_1$: Training/ Management Support</td>
<td>✓</td>
<td>✓</td>
<td>1.00</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>$X_2$: ICT Infrastructure</td>
<td>X</td>
<td>✓</td>
<td>1.00</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>$X_3$: ICT Know-how</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>1.00</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>$X_4$: Posting</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td>1.00</td>
<td>✓</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>$X_5$: Sharing Culture</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>1.00</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>$X_6$: Communication Flow</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>1.00</td>
<td>✓</td>
</tr>
<tr>
<td>$X_7$: Individualism</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Table 9.2 – Relationships between all the variables tested in the study
9.1.2 Focus of Study 2

*Do different lengths of working experiences and the number of years in the Ministry have an impact on the understanding of knowledge management?*

Different lengths of working experiences and the number of years in the Ministry seem to have some impact on the understanding of knowledge management. The majority of employees believed that the Ministry should have a well-defined knowledge management strategy right across the organisation.

This study shows most of them agree that the Ministry could gain a lot of benefits from managing knowledge. In addition to improving work quality, and improving decision making, it was believed that by managing knowledge the Ministry could be able to respond to customer needs. The study reveals that, these three elements have significant differences in the responses. In an organisation aligned far more to social benefits than making profits, it is very important for the employees to be more knowledgeable, and be able to facilitate the needs of the public. However, there is a need for the Ministry to have a comprehensive programme that involves the whole organisation, as the study shows there were some employees who have working experience of more than 20 years, but were still less confident on how knowledge could be managed effectively and efficiently (Syed-Ikhsan and Rowland, 2004a).

With regard to the difficulties of managing issues in the Ministry, the study discloses that there is no significant difference between the responses. This shows that, the issues involve every officers of different length of services or years in the ministry. Pertaining to barriers of knowledge generation and knowledge sharing, the study shows that 'command and control procedures' and 'communication channel between officers' show significant differences in the responses particularly from those who have different working experiences.
Other pertinent issues needed to be addressed are:

- Respondents with less working experience, who have been with the Ministry for fewer years, felt it was difficult to change employees' behaviour.

- The more experienced people are, then the less difficult it is for them to maintain data available in the Ministry.

- Sharing of knowledge/information between officers is not a big problem to the Ministry, regardless of their length of work experiences and the number of years in the Ministry.

- The more experienced respondents felt that making knowledge/information accessible to everyone to be much easier, as compared with those who have less work experience.

- Most respondents felt that it was much easier to access and exchange knowledge/information within their own divisions/units as compared with other divisions/units.

- Most respondents, regardless of their length of working experiences, felt that knowledge/information in the Ministry is generally very reliable and up-to-date, and makes them confident in making decisions.

- The majority of respondents, regardless of their experiences, believe that developing an organisational database of information and knowledge is vital in developing a successful knowledge management system.

These results, highlighted above should be tackled seriously. The study reveals that respondents' length of working experiences has significant difference to several issues highlighted in the study. However, with regards to the number of years in the Ministry, the study does not show any significant
differences in the response. Planning a comprehensive programme for different groups of employees is also a necessity for the Ministry, especially in narrowing the information and knowledge gaps which exist between different groups. In a public organisation, all employees should have adequate knowledge of the core business of the Ministry so as to enable them to provide services more effectively to the public.

9.1.3 Other Findings

As discussed in Chapter 2, the Government of Malaysia has taken lots of initiatives in improving the socio-economic structure of the country in order to ensure that Malaysia could leap frog into a developed country by the year 2020. The seven thrusts that were spelt out in the K-based Economy Master Plan were the main strategies that need to be worked-out. The Master Plan focused not only on the technology (ICT) aspect but also more on the human resources. In this study it was revealed that sharing culture, ICT know-how and training/management support are the fundamental areas that need to be taken seriously. These are in fact in tandem with the initiatives taken by the Government. The researcher believe that by having concrete strategies, Malaysia could definitely become better in strengthening the country through the k-based economy.

9.2 Recommendations

Lately the awareness of knowledge within and across organisations has become the key competitive issue. Scarbrough and Carter (2000, p.2) argue that an earlier report that surveyed the literature on knowledge management shows that most knowledge management initiatives were centred on tools and systems, ignoring the human intervention. However, the approaches have changed. Apart from concentrating on the organisation's technology, many organisations have started to look into the strengths of their workers as one of the most important assets that need to be managed. Scarbrough and Carter claims “the demand that KM initiatives should place people at their heart is
beginning to be reflected not only in managerial opinion but also in research studies of the implementation of KM" (Scarborough and Carter 2001, p.2).

The findings of this study suggest that Malaysian public service organisations should start taking actions on how to manage knowledge within the organisation, especially how to improve efficiency and effectiveness of service delivery. Having a new Knowledge-based Economic Strategic Master Plan means that all government bodies must concentrate more on making the most out of people (government servants). However, as knowledge resides in multiple repositories of (a) individual members, (b) technology, (c) structure, and (d) culture, a more fully comprehensive strategy needs to be established. KM should not be seen to be separate. All elements need to be balanced.

The best strategy that the researcher would suggest is by having a “people/personnel centred strategy”. The strategy, which the researcher names as PERCENTS (PEople/pERsonnel CENTred Strategy), focuses on the people as the main element that needs to be managed effectively.

All the elements are complementary to each other. For example, people need technology to store more information/knowledge (explicit). People need a proper structure too, to enable them to work faster and more accurately, etc. Further details are discussed individually below. The connections between the elements are shown in Figure 9.1.
9.2.1 People/Personnel

Why people? It is a known fact that there is more knowledge stored in people's heads than in other forms of documentation. To be successful, particularly in providing services to the public, all employees should be responsible in managing all kinds of knowledge that are available in the organisations (Syed-Ikhsan and Rowland 2004b, p.107).

Liebowitz and Chen (2003, p.409) argue that within the knowledge management communities, it is believed that 80 percent of knowledge management is on people and culture compare to only 20 percent on technology. Knowledge is an individual asset created at the individual level. People are now becoming the most important asset to bring about changes to an organisation. In fact, all tangible assets or products are the results of humans' contributions.

Apart from being intelligent agents, that make organisations function, people are able to create and perceive new opportunities and act on them (Wiig and Jooste 2003, p.307). In the knowledge-based world, people are becoming more knowledgeable. Therefore, they are expected to know more, to be able
to learn more quickly, be more mobile, and to manage to cope with ever more frequent changes. However, knowledge is too tacit. It is very difficult for the processor to communicate, and hard for the receiver to absorb the knowledge being transferred. As Polanyi puts it: “We can know more than we can tell” (1966, p.4).

The most critical part in managing knowledge is to convert individual assets into organisational assets, and to capture tacit knowledge. Knowledge management depends on people, and how they can contribute their tacit knowledge freely, safely and accurately to others. Apart from providing a means for people to transmit their knowledge/information, the Secretary General of the Ministry of Entrepreneur Development of Malaysia has stressed that the Ministry needs to better manage the development of the people within the Ministry. She believes that if the Ministry is unable to change people's attitudes, the Ministry will be failing to serve the clients better, even with the best facilities or infrastructure. Changing people's attitudes is very important, because if employees feel they have not been treated with trust, and promises and commitments have not been kept, then they are less likely to feel disposed to share knowledge at work.

In managing people, the researcher believes that all government agencies need to work together. A framework suggested is as shown in Figure 9.3.
Figure 9.2 - Strategy in Managing People

Figure 9.2 above shows how public organisations in Malaysia can make full use of the current government set-up to become more knowledge-based. Central agencies, such as the Public Service Department of Malaysia (PSD), have to be responsible for managing all the civil servants. The Human Resources Management Information System (HRMIS), which is still under development, should become the main system that will identify potential employees before they are posted to the related Ministries/Agencies based on their qualifications, experiences and interests.

At the Ministry or other federal department level, the Human Resources Division, which has just been upgraded by the Public Service Department, has to become more energetic and more responsive to the needs of the government. This division needs to work closely with the Public Service Department to enable them to function well. There are five main areas that need more concentration. These are training, posting/placement, sharing of
knowledge, documentation of procedures and current approaches in managing knowledge.

The first aspect to be managed is training. Training should not be concentrated only on enhancing knowledge of the employees' tasks, but must also include training in building teamwork, trust and leadership. People need to know how to work together, and to communicate with each other. In the survey, the number of employees who were not satisfied with current training was really quite high. A total of 23.4 percent said they were not given opportunities to attend training in their related fields, and 29.2 percent said they were not given the opportunities to attend training in any other fields. Training is essential for employees to enhance their personal knowledge. Employees will then become more knowledgeable, especially when giving advice to clients. All civil servants, regardless of their levels, should be given equal opportunities to attend part-time, full-time and distance-learning courses with paid (or partly paid) leave.

Secondly, a Ministry must identify employees' strengths when they are posted to that Ministry by the Public Service Department, and place them in various divisions/units suitable for their qualifications, experiences and interests. Currently, more than 10 percent of employees said their placement in the Ministry as unsuited to their qualifications (11.7 percent), interests (10.3 percent) and experiences (12.3 percent). Most of these have less than ten years working experience, and many have been in the Ministry for less than three years. The Human Resources Division should communicate and discuss with the PSD more often, in order to get the right candidates for the Ministry. Discussions with the head of divisions/units pertaining to the employees' suitability in their divisions/units should take place, and there should also be discussions with the respective employee when needed. The management should consider moving people around when needed, as it will broaden the employees' experience and provide them with new challenges. This will certainly help increase individual and organisational learning, and allow employees to contribute effectively.
Thirdly, there should be a platform where employees can share their experiences, beliefs and knowledge. Most organisational dilemmas are on how to maximise the efficiency of knowledge transfer among a large group of individual members. The Ministry must devise methods to motivate members to participate, and openly share valuable tacit and explicit knowledge. This can be done through discussions, talks, dialogues, seminars, brainstorming, team building, etc. Tacit and explicit knowledge complement each other. Furthermore, tacit knowledge cannot be created and maintained without the help of existing documented knowledge. On the other hand, if the organisation concentrates only on managing explicit knowledge, it will only be exploiting the essential raw materials for the creation, storage and re-use of information.

Fourthly, documentation of policies and procedures is very important. According to the Under Secretary of the Human Resources Development, all the information pertaining to the Ministry’s policies and procedures is kept either on paper or in databases. It was also observed that the Ministry has very well documented policies and procedures kept at the respective divisions. Procedures such as the Service Circulars, Treasury Instructions, Development Administrative Circulars, etc., can also be accessed online at the respective web pages. However, the Ministry should strengthen the current strategy in providing knowledge/information to everyone in the Ministry. All officers must be made responsible to update all the policies and procedures related to their work, and make it accessible to others throughout the organisation. This will allow any officers to be able to give the right advice, especially when they are approached by clients. The study shows that 70.8 percent of respondents felt current policies and procedures to be very effective in generating and sharing knowledge. The Human Resources Division should ensure all new policies and procedures are disseminated and discussed with employees when necessary.

The last strategy that needs to be considered is to strengthen the current approaches in managing knowledge. Desk File, Job Manual Procedures, ISO
9002, handing-over notes, etc., need to be up-dated and documented regularly, whenever necessary. Most respondents felt that these approaches have great potentials in generating and sharing knowledge in the Ministry. Other approaches, such as the Quality Control Circle, need to be strengthened too. Regular meetings and discussions, especially for improving the Ministry's work, should be encouraged. When employees solve complex unstructured problems they bring knowledge and experience to the situation, and as they interact in the process of problem solving, they create, use and share knowledge with others.

9.2.2 Technology

Technological practices focus on how an organisation equips its members to communicate easily with one another, as well as on systems to collect, store, and disseminate information. Technology is the enabler of all forms of knowledge management. According to O'Dell et al. (2003, p.238), although technology is not sufficient, it is still necessary to make knowledge transfer happens. It allows us to include the widest possible corporate base regardless of geography and situation. Figure 9.3 shows a strategy for public organisations in Malaysia to fully utilise existing and future technology that can enhance the knowledge base of the public services.
This current study shows most public organisations have been equipped with the latest ICT infrastructure. However, certain problems do seem to arise. In the Ministry of Entrepreneur Development, the main problem that the researcher observed was that the databases in the Ministry were run on different platforms. An interview with the Under Secretary, Information Management Division (USIMD) shows that the current ICT infrastructure poses some problems for the Ministry. Certain data could not be accessed from certain divisions simply because data was stored on different platforms. The government should look into these matters seriously, as these issues could become the main threat to the development of knowledge management systems (KMS) that are proposed under the Knowledge-based Economic Master Plan.
Central agencies and the Treasury, both of which give approval for all
government agencies to obtain new ICT infrastructure, should put emphasis
on these matters. The agencies involved should provide guidelines to enable
the setting-up and upgrading of ICT facilities that complies with the national
policy and the e-government projects. Without proper guidelines,
communications within and between government agencies will be difficult.
The current technology that brought us into the electronic knowledge era
could offer a better solution for making the sharing of data and information
easier and faster. KMS is capable of storing and retrieving huge amounts of
data, information and knowledge. This system could also offer tools that
make presentation, search, collaboration, and the transformation of data and
information into knowledge easier.

Technology certainly enables the distribution of knowledge. However, the
distribution method will depend on the organisation's structure and work
processes and the workers' needs. A knowledge management system that is
going to be developed should incorporate all these issues. In the Ministry of
Entrepreneur Development, the Under Secretary to the Information
Management Division mentions that the only groupware or collaborative
working tool available is e-mail. Yet, it was not fully utilised by all users. The
Secretary General was also not satisfied with the current usage of e-mail in
disseminating information within the Ministry. However, the Secretary General
believes that e-mail is the fastest way to get information from all officers in the
state or regional offices. With the information she could make decisions and
respond to any complaints much more easily.

In developing an effective KMS, central agencies should monitor the set-up of
any KMS in the public organisations. There are several characteristics which
should be considered and fulfilled. These are as follows:

- An organisation should have all ICT infrastructure on the same platform.
  However, different platforms can still be considered as long as they are
  compatible with one another and allow communication without difficulty.
Management should provide adequate training for the employees to use the ICT infrastructure and encourage them to use it effectively. If employees are reluctant to use the available facilities, transfer of knowledge will not happen.

All employees must be allowed to gain access to the system, as long as it is not "confidential", "secret" or "top secret".

Access to the system should be available within and outside the Ministry. It must also be available from any location and at all times.

It should be user friendly, so that users can easily login and access the information/knowledge without difficulty.

Employees should be encouraged to contribute to the knowledge database.

A database that contains data, information and knowledge should be compiled, so that officers with the particular expertise can be identified.

Data and information in the database can be updated automatically by authorised employees.

Other infrastructure in enhancing the KMS, such as audio-visual aids, video conferencing, etc., should be fully utilised.

Policies, procedures, Desk Files, Job Manual Procedures and handling-over notes should be kept in the databases. This will allow officers to access data or information related to their work and mistakes could be overcome.
• Expertise “yellow pages” should be developed, where users can easily locate people with particular knowledge or experience.

9.2.3 Structure

As discussed in chapter four, “organisational structure” refers to the way people and jobs in an organisation are organised. O’Dell et al. (2003, p.264) argue that organisations are unable to manage or transfer knowledge in the organisation unless they have an explicit and institutionalised infrastructure in place. Four main elements that are important in managing organisational structure are the actual structure, communication flows, communities of practice and the status of documents. Figure 9.4 shows a strategy to manage the structure.

9.4 – Strategy for Structure
Conclusions and Recommendations

The Public Service Department (PSD) is the agency that is responsible for determining the set up of government organisational structure. In all organisations, the organisational structures are normally divided into three main sectors namely the multi-user sections (finance, administration, human resources, legal and internal audit departments) that support the whole organisation, and two other main sections that are based on the business function. For example, the Ministry of Entrepreneur Development is divided into two sections – the entrepreneur and development sections. The survey reveals that 44.1 percent of respondents cited that the current organisational structure creates barriers in knowledge generation and knowledge sharing.

The rigid division of the sections sometimes poses problems, especially in sharing information/knowledge between the sections. Meetings and discussions are only conducted within the same sections. This leads to problems where certain divisions do not know about the tasks of the other divisions in different sections. Communications mostly happened at the top level, and most desk officers do not know what really happens. To overcome the problem, the PSD should take the initiative to review the existing structure of all government bodies. A more flexible and less hierarchical organisation may be more appropriate. At the Ministry/agency/department level, all the heads should try to 'break the walls' between the divisions/sections and allow information/knowledge to flow more freely.

The hierarchical structure should always be born in mind, together with the communication channels existing between divisions. A less rigid structure and flexible command and control would enable information/knowledge to be transferred across organisations with greater ease. It was discussed in Chapter Six that 53.6 percent of respondents said communication channels between officers create barriers in knowledge generation and knowledge sharing. Multiple-way communication channels between officers in different divisions/units should be introduced. These would allow the flow of information/knowledge to become much faster and decisions can easily be made.
Another approach which needs to be considered is to have communities of practice (CoP). CoP is defined as "collections of individuals bound by informal relationships who share a similar work role in a common context" (Gamble and Blackwell 2001, p.80). CoP is essential to knowledge-centric organisations, as it involves the integration of people, processes, and structures. To be successful, all CoPs should include every respective employee in the organisation, from the private sector, and also include the clients. This will certainly help the organisations deal with any business with more ease, and the information/knowledge gained in the discussion will be more accurate and reliable. However, all discussions in CoPs need to be documented and disseminated throughout the organisation. This will allow information/knowledge to be shared by all.

Although in the results of this study the status of documents do not have any significant relationship to the creation of knowledge assets and knowledge transfer, the researcher believes it still need to be considered when managing knowledge in an organisation. The status of the document sometimes restricts the flow of information/knowledge to many officers in the organisation. To overcome this problem, all "top secret", "secret" and "confidential" documents should be reviewed regularly by the officers in charge (the head of the administrative unit), and documents that no longer pose any threat to the government should be re-graded. This will allow information/knowledge that was previously confidential to be shared among the officers.

Process is another key element in developing a strategy on knowledge. There are six main areas that an organisation needs to concentrate on when managing information/knowledge. These involve creating or acquiring, validating, organising, storing, accessing or sharing, and applying or using knowledge. Several questions need to be asked in each steps, which are "how", "what", "who", "when" and "why". Once these are answered, the researcher believes that all information/knowledge could be managed effectively.
The first step is to acquire or create knowledge. In the case of public organisations in Malaysia, information/knowledge could be acquired from many sources, depending on the core business of the organisation. It could be acquired from central agencies, the private sectors, international agencies/companies, the internet, officers in the organisation, clients, etc. Other than acquiring information/knowledge from the respective sources, new information/knowledge could also be created internally/externally.

Once information/knowledge is acquired or created, officers in the organisation should validate it. This is to ensure that only knowledge related to the core business of the organisation should be kept in the organisation's "knowledge bank". However, before it is stored, all the particular information/knowledge should be organised. Information/knowledge can be stored either in databases or as printed materials, depending on the requirements of the task. Well organised and properly stored information/knowledge will allow it to be accessed and shared easily by all levels of officers. This will certainly enable officers to use and apply the information/knowledge for the benefit of the organisation and its clients.

9.2.4 Organisational Culture

One of the critical aspects in managing knowledge is to have a well-defined and established organisational culture. To be successful, KM strategy should be integrated in the existing culture. McDermott and O'Dell (2001, p.77) believe that most successful organisations implementing knowledge management do not change the existing culture but build the knowledge management approach that fits their own culture. Organisations that are successful in managing and sharing knowledge normally link their activities to a pre-existing core value (O'Dell et al. 2003, p.261). However, several issues still need to be managed accordingly. These include:

- The organisation should establish a clear vision and strategies. If possible, all commands, policies, procedures or strategies should be
documented and made known to all employees. Unwritten policies and procedures should be kept to the minimum. This will allow employees to understand the actual culture of the organisation, and enable them to blend in easily.

- Employees should be encouraged to share their knowledge and make their knowledge available to others. How much knowledge is shared basically depends on the organisation's culture. If the organisation values individual excellence over team excellence, there may be less motivation to actually share information and knowledge. However, to have a successful strategy, the organisation must make it something that people desire.

- Any reward scheme introduced needs to include team awards rather than just individual awards. If an organisation's awards to employees are based only on the individual's performance, it will certainly make employees become more individualistic. If this is not properly addressed, employees will regard knowledge as a source of power, and the idea of sharing knowledge will not materialise. However, if the organisation still wants to reward individuals, rewards, recognitions and promotions should be awarded to those who share knowledge rather to those with private knowledge.

- The organisation should promote an organisational culture that facilitates tacit and explicit knowledge sharing and organisational learning. This will allow more knowledge to be created and transferred across the organisation.

Stronger leadership particularly at the executive level is necessary for determining the success of managing and leveraging knowledge in an organisation. One of the crucial reasons why an organisation fails is lack of leadership. Leadership is important to an organisation as it "sets the tone (i.e., shape the culture) for coordination, control, and measurement that manifest"
Conclusions and Recommendations

(Holsapple and Singh 2003, p.244), “can overcome the structural barriers that often impede progress” (Storck and Henderson 2003, p.512) and “provide direction, build an organisation’s culture and shape its evolution” (Bennet and Bennet 2003, p.446). Holsapple and Joshi argue that leadership act as a catalyst “inspiring, mentoring, setting examples, engendering trust and respect, instilling a cohesive and creative culture, listening, learning, teaching and knowledge sharing” (Holsapple and Joshi 2003, p.114) to employees in an organisation.

In the public organisations in Malaysia, the researcher found that one of the problems in sharing, creating and transferring knowledge in an organisation is the fact that employees do not know how to share knowledge or who to share it with. To overcome these issues, the organisation should manage the organisational knowledge assets similar to that of managing the physical assets. In doing so, the organisation needs to have a leader or a knowledge co-ordinator to guide employees on how and what to share, create and transfer. The co-ordinator needs to spearhead all knowledge management projects, and could be as high as the Chief Knowledge Officer (CKO) or just a senior officer. The main responsibilities are:

- To involve all senior managers as part of the KM interest group. This involvement is very important as much information/knowledge resides in their heads. All tacit knowledge that they have could be shared with their juniors, and this will certainly helps the organisation have a continuous knowledge about all business aspects.

- To convey the idea of having a knowledge management strategy to all the employees. By conveying the idea, it would enable employees to understand the need to manage knowledge in the organisation.

- To ensure that management supports the whole knowledge management programme. This is a very critical issue which needs to be addressed,
because developing a knowledge management strategy is a long-term process.

- To ensure knowledge is managed with the most appropriate technology. Although technology is just an enabler to the knowledge management programme, it is still the best method in storing and distributing knowledge across the organisation.

- To identify information/knowledge that is important to the organisation.

- To lead by example. Those who are appointed as knowledge managers should show their commitment to learning through actions, and allow feedback from all levels in the organisation.

- Any barriers to the creation and transfer of knowledge across the organisation should be minimised, and if possible be removed.

In a public organisation, politicians play an important role in the implementation of all government policies. New knowledge is sometimes created by them, especially when they intend to introduce new developments for the people. However, to enable information/knowledge to be managed successfully, all directives should be written down. This will allow government officers to take action much easier and faster. Furthermore, by having a proper documentation of directives, any mistakes could be minimised and government servants could avoid being the only ones to receive blame.

9.3 Possible Limitations of the Study

It should be acknowledged that this study may be limited in the following ways:

1. One main limitation in the research will be on the selection of the sample. Clearly the study is limited to only one government
office. Questions could arise on why only the Ministry of Entrepreneur Development of Malaysia has been selected, and how representative it can be of the entire Government's offices.

2. This study is also subjected to the limitations implicit in employing questionnaires, the main instrument used for the research. The data that will be collected will be based purely on the response by each respondent. This may produce some biased or slightly unreliable information because of the under-reporting or over-reporting of the actual value inherent in the respondent's perception of the questions posed in the questionnaire.

9.4 Suggestions for Future Research

There are opportunities for future work, building on this present research, particularly in identifying other organisational elements important in the creation and transfer of knowledge in an organisation. It is hoped the following suggestions may help other researchers.

1. The results associated with these variables found not to have a significant relationship with knowledge assets and knowledge transfer should not be viewed as constituting a total rejection. Variables that were rejected, such as individualism, communication flows, and document confidentiality status should be tested in different settings. The results might be at variance, if research is done to public organisations in developed countries, or in successful private organisations.

2. There is a need to replicate this study in the same sector in other cultural settings, especially in developed regions such as in Europe, the North America and East Asia. This will enable us to examine cross-cultural differences and similarities. The results might also help us
understand the influence of geographical region, and socio-political culture on relationships between the organisational elements and performance of knowledge transfer in an organisation.

3. The present research could serve as a starting point for a more in-depth study, encompassing a larger sample in multiple organisations. Such a study should also involve agencies under the Ministry, as the core businesses (particularly in developing entrepreneurs) are the same. How knowledge is created and transferred between these organisations should provide clear evidence on the effectiveness of the current strategy.

4. The study was only limited to a single public organisation. In order to have a complete picture on how knowledge is managed, further empirical work in the private sector should be explored. Findings from the study will help to further explain the involvement of the private sector in achieving the government's goals, which is intended to transform Malaysia into a knowledge-based economy.

5. The study has successfully used Spearman's test to determine the relationships between several organisational elements on the creation of knowledge and the performance of knowledge transfer. However, it does not explore other areas, such as whether there are any differences in response, whether length of working experience and number of years in the Ministry have any impact on the variables, etc. Future study could test these elements using different statistical tests.

6. The performance of knowledge transfer was only based on the perception of respondents on the speed, reliability and accuracy of knowledge being transferred in the Ministry. Future research could try to develop a method that can measure the performance of knowledge transfer quantitatively.
7. The present study shows that political directives have a significant relationship with the creation of knowledge and the performance of knowledge transfer in a public organisation. More research on the political aspect should be undertaken in depth. The results might give us a clearer understanding on how political aspects could either enhance or restrict knowledge transfer within and between organisations.

9.5 Conclusion

This study has revealed a variety of potent relationships between knowledge assets and organisational elements with knowledge transfer performance. To have a successful knowledge management strategy, organisations should always see it as a whole. All these elements have to be analysed and considered when implementing any knowledge management strategy. Therefore, all organisational elements – organisational culture, organisational structure, technology, and people/human resources – should always be considered together. In addition, public organisations should never neglect issues on political directives when implementing knowledge management.

In conclusion, this study shows knowledge management as a practice could be the most influential strategy in managing knowledge in public organisations in Malaysia in the near future. Although there is no specific term used in managing knowledge in the organisation, it is believed that the current approach such as implementing ISO 9002, workflow, Job Manual Procedure, and Desk Files could help public organisations in Malaysia to become knowledge-based organisations. The main reasons why public organisations in Malaysia will be successful in managing knowledge is the government's commitment in moving toward a K-economy. The K-based Economic Master Plan (KEMP), introduced at the end of the year 2002, proved that the government is very serious in transforming Malaysia from a Production-based economy (P-economy) to a Knowledge-based economy (K-economy) (Syed-Ikhsan and Rowland, 2004a)


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Appendix A

QUESTIONNAIRE
For the purpose of this survey, respondents will be asked to apply the following definition.

**Knowledge**

The knowledge in the organisation includes encoded knowledge, habitual knowledge, scientific knowledge, collaboration knowledge, process knowledge and communal knowledge (Whitehill, 1997). The knowledge can be located in people's heads, electronic form or a physical document.

**Note:**

- Encoded knowledge (know what?) which includes written policies and procedures;
- Habitual knowledge (know how?) which includes everyday routine activity;
- Scientific knowledge (know why?) which includes technological and technical knowledge;
- Collaboration knowledge (know who?) which includes interaction and problem solving;
- Process knowledge (know when and where?) which is the cross-functional team; and
- Communal knowledge (care why?) which is the organisational culture.

**Knowledge Management**

The systematic and organised attempt to use knowledge within the organisation to provide services to the public and to improve performance.

**Direction:** Please tick your answer in the respective boxes.

### A. PERSONAL BACKGROUND

1. **Sex**
   - □ Male
   - □ Female

2. **Age**
   - □ less than 26 years
   - □ 26 – 30 years
   - □ 31 – 35 years
   - □ 36 – 40 years
   - □ 41 – 45 years
   - □ 46 – 50 years
   - □ above 50 years

3. **Highest Qualification**
   - □ Doctor of Philosophy
   - □ First Degree/Equivalent
   - □ Master's Degree
   - □ Others: ____________________
4. Current Position

☐ Under Secretary/Director
☐ Principal Assistant Secretary/Principal Assistant Director
☐ Assistant Secretary/Assistant Director
☐ Others: ______________________

5. Division/Unit

☐ Commercial Vehicle Licensing Board
☐ Contractor Services Center
☐ Project & Program Development
☐ Information Management
☐ Franchise & Vendors
☐ Business Development
☐ Entrepreneurship Training
☐ Planning and Evaluation
☐ Administration
☐ Human Resources (Services)
☐ Internal Audit
☐ Public Relation
☐ Legal

6. Working Experience

☐ less than 6 years
☐ 6 – 10 years
☐ 11 – 15 years
☐ 16 – 20 years
☐ more than 20 years

7. Number of Years in the Ministry

☐ less than 1 year
☐ 1 – 3 years
☐ 4 – 6 years
☐ 7 – 9 years
☐ more than 10 years

8. Number of Years in the Division/Unit

☐ less than 1 year
☐ 1 – 3 years
☐ 4 – 6 years
☐ 7 – 9 years
☐ more than 10 years

9. Based on the definitions, does your Ministry have a written Knowledge Management strategy?

☐ Yes
☐ No
☐ Don't Know

Knowledge Management Questionnaire
Ministry of Entrepreneur Development, Malaysia
10. Do you think it is important to have a Knowledge Management strategy in your Ministry?

- [ ] Yes
- [ ] No
- [ ] Don't Know

11. What benefits do you think your Ministry could gain in managing knowledge in your Ministry? (tick all that apply)

- [ ] To improve efficiency
- [ ] To be more effective
- [ ] To be up-to-date with new information
- [ ] To respond to other organisations' need
- [ ] To respond to customers' need
- [ ] To instigate changes
- [ ] To improve decision making
- [ ] To improve quality
- [ ] Others: (Please Specify) ________________________________

12. Who do you think are most responsible for managing knowledge in your Ministry? (tick only one)

- [ ] Secretary General
- [ ] Principal Assistant Secretary/Principal Assistant Director
- [ ] Deputy Secretary General
- [ ] Assistant Secretary/Assistant Director
- [ ] Under Secretary/Director
- [ ] It's everybody job

13. Do you think it is necessary to have a Chief Knowledge Officer to be responsible to manage knowledge in your Ministry?

- [ ] Yes
- [ ] No
- [ ] Doesn't matter

14. What do you think of the difficulties in managing the following issues in your Ministry?

(Rank your answer according to the given ranking) 1 – very easy 2 – easy 3 – neutral 4 – difficult 5 – very difficult

Changing employees' behaviours

Making knowledge/information accessible to everyone in the organisation

Identifying knowledge/information internally

Identifying knowledge/information externally

Sharing knowledge/information among officers of different divisions/units

Making knowledge/information available to everyone in the Ministry

Dealing with confidential documents (files)

Overcoming technological limitations

Problem in maintaining data

Others. Please specify ________________________________
15. Which of the following do you believe has potential in developing a successful Knowledge Management System within your organisation?
(Rank your answer according to the given ranking)
1 – no potential  2 – some potential  3 – potential  4 – lots of potential  5 – most potential

1 2 3 4 5

- Improve information technology infrastructure
- Provide support from the senior officer in the Ministry
- Develop systematic training for all the employees
- Develop an organisation database of information and knowledge
- Develop effective and efficient methods of gathering information and knowledge
- Develop a culture to promote sharing of knowledge
- Provide incentives to employees who contribute knowledge
- Have knowledgeable officers in all divisions/units
- Have a place where officers can discuss their tacit knowledge (personal knowledge)
- Allocate resources to generating knowledge
- Encourage officers to be innovative and creative
- Others. Please specify __________________________

16. Do you think the following issues encourage knowledge generation and knowledge sharing in the Ministry?
(Rank your answer according to the given ranking)
1 – no potential  2 – some potential  3 – potential  4 – lots of potential  5 – most potential

1 2 3 4 5

- Current procedures and policies
- Unwritten policies
- Job Manual Procedure
- ISO 9002
- Desk File
- Filing system
- Workflow
17. Do you think the following issues create barriers in knowledge generation and knowledge sharing? (Rank your answer according to the given ranking) 1 – strongly disagree 2 – disagree 3 – neutral 4 – agree 5 – strongly agree

- Organisational structure
- Political interference
- Communication channels between officers
- Command and control procedures
- Others (please specify) ________________________________

18. Do you think that technology is the most important element to develop and gain knowledge?

☐ Yes ☐ No ☐ Don’t know

19. How important are these technologies to develop and gain knowledge? (Rank your answer according to the given ranking) 1 - not important 2 – quite important 3 – important 4 – very important 5 - most important

- Intranet
- Internet
- Video Conferencing
- Document Management
- File Management
- CD-ROMs
- Online Information Sources
- GroupWare (a class of software that helps groups of colleagues attached to a local area network organise their activities)
- E-mail
- Data Warehouse (a collection of data designed to support management decision making)
- Others (Please specify) ________________________________
<table>
<thead>
<tr>
<th>20. Speed of Knowledge Transfer</th>
<th>1 2 3 4 5</th>
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</thead>
<tbody>
<tr>
<td>Knowledge/Information is accessed very fast within the divisions/units</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Knowledge/Information is accessed very fast with other divisions/units</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Knowledge/information is exchanged very fast within the divisions/units</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Knowledge/information is exchanged very fast with other divisions/units</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>21. Reliability of Knowledge Transfer</th>
<th>1 2 3 4 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/Information that is transferred is generally very reliable</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Knowledge/Information that is transferred is generally very up-to-date</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Decisions can be made confidently using the available knowledge/information</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>22. Accuracy of Knowledge Transfer</th>
<th>1 2 3 4 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/Information can be transferred to the respective person within the divisions/units without difficulties.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Knowledge/Information can be transferred to the respective person in other divisions/units without difficulties</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>23. Explicit Knowledge</th>
<th>1 2 3 4 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/Information that is created and stored in paper documentation can be easily accessed, shared and transferred.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Knowledge/Information that is created and stored in electronic documentation can be easily accessed, shared and transferred.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>24. Tacit Knowledge</th>
<th>1 2 3 4 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/Information from individuals can be shared and transferred through formal discussions/meetings without difficulties.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>Knowledge/Information from individuals can be shared and transferred through informal discussion without difficulties</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
</tbody>
</table>
25. Sharing Culture

The culture of the Ministry encourages and provides opportunity for the communication of ideas, knowledge and experiences among all employees throughout the organisation.

All officers are ready and willing to give advice and help upon request.

Within the Ministry knowledge is disseminated to a wide range of people rather than to "need-to-know" basis.

In the Ministry interdisciplinary cross-functional teamwork is extremely important in taking decisions and solving problems.

26. Individualism

Individuals within the Ministry tend to use knowledge as a source of power to be used for personal advantage rather than as organisational resources to share with others in the organisation.

Within the Ministry people tend not to disseminate the knowledge they acquire and are reluctant to share it with others.

27. Document Confidentiality Status

The confidentiality status of the document leads to problems in acquiring information and creating knowledge.

Procedures, routines and policies that restrict officers to access certain knowledge/information give problems to create and shared knowledge.

28. Communication Flow

The nature of the organisational structure restricts communication flow between divisions/units.

The organisation is very bureaucratic and makes it difficult to share knowledge.

Officers from different divisions/units always interact to discuss the Ministry strategies and future plan.
29. ICT Infrastructure

The Ministry has a very up-to-date ICT infrastructure which helps knowledge creation and sharing.

ICT can speed up your work in searching for information.

ICT facilitates employees in doing their daily work.

30. ICT Tools (software)

The Ministry uses GroupWare, such as Lotus Notes, to encourage the sharing of ideas.

Email is used to share information between officers.

Computer-based information systems provide you with more up-to-date information than that available in manual files.

Computer-based information systems make new information available to the Ministry that was not previously available.

32. ICT Know-how

All employees are given adequate training internally to use computers in the Ministry.

All employees are given adequate training internally to use ICT tools (software) in the Ministry.

The technology know-how in the Ministry is easily transferable.

32. Posting to the Ministry

Posting to the Ministry is suitable with your qualifications and enable you to create and share knowledge.

Posting to the Ministry is suitable with your interests and enable you to create and share knowledge.

Posting to the Ministry is suitable with your experience and enable you to create and share knowledge.
33. Training Programme

The Ministry provides opportunities for the employees to attend training internally/externally in the fields related to their tasks.

The Ministry provides opportunities for the employees to attend training internally/externally in other fields which can enhance their knowledge.

The management provides the time and resources to take part in learning and sharing exercises.

34. Staff Turnover

The Ministry has procedures to retain the knowledge and know-how of officers who leave the Ministry.

35. Directives from politicians

Ideas from the politicians in the Ministry help officers to create and share knowledge/information.

Officers are encouraged to contribute knowledge/information to politicians.

Thank you for taking your time to fill the questionnaire. Please return the questionnaire to Syed Omar Sharifuddin Syed Ikhsan, 8, Jalan 25/10, Taman Karak Utama, 68100 Kuala Lumpur, Malaysia before ___________ or 48, Rendell Street, Loughborough, Leicestershire, LE11 1LL, United Kingdom after ____________

Email: sossi2@lycos.com

Telephone: 03 – 61858413 (Malaysia) or 01509 569067 (United Kingdom)
SOAL SELIDIK

Bagi tujuan kaji selidik ini, responden dikehendaki menggunakan definisi berikut.

Ilmu

Ilmu di dalam organisasi adalah termasuk ilmu terkod, ilmu habitual, ilmu saintifik, ilmu kolaborasi, ilmu proses dan ilmu komunal (Whitehill, 1997). Ilmu ini boleh diperolehi daripada minda seseorang, dalam bentuk elektronik atau dokumen secara fizikal.

Nota:
- Ilmu terkod, termasuk semua polisi dan prosedur bertulis;
- Ilmu habitual, termasuk segala aktiviti rutin harian;
- Ilmu saintifik, termasuk pengetahuan mengenai teknologi dan teknikal;
- Ilmu kolaborasi, termasuk interaksi dan penyelesaian masalah;
- Ilmu mengenai proses iaitu hubungan silang kumpulan; dan
- Ilmu komunal iaitu budaya organisasi.

Pengurusan Ilmu

Pendekatan secara sistematik dan terancang untuk menggunakan ilmu di dalam organisasi bagi menyediakan perkhidmatan kepada orang awan dan untuk memperbaiki prestasi.

Arahan: Sila tandakan (✓) jawaban anda di dalam kotak yang berkaitan.

<table>
<thead>
<tr>
<th>A. LATAR BELAKANG PERSONEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jantina</td>
</tr>
<tr>
<td>□ Lelaki</td>
</tr>
<tr>
<td>2. Umur</td>
</tr>
<tr>
<td>□ kurang daripada 26 tahun</td>
</tr>
<tr>
<td>□ 26 – 30 tahun</td>
</tr>
<tr>
<td>□ 31 – 35 tahun</td>
</tr>
<tr>
<td>□ 36 – 40 tahun</td>
</tr>
<tr>
<td>3. Kelayakan Tertinggi</td>
</tr>
<tr>
<td>□ Ijazah Kedoktoran</td>
</tr>
<tr>
<td>□ Ijazah Sarjana</td>
</tr>
</tbody>
</table>

Soalselidik Pengurusan Ilmu
Kementerian Pembangunan Usahawan, Malaysia

Muka Surat 1
4. Jawatan Sekarang

- Setiausaha Bahagian/Pengarah
- Ketua Penolong Pengarah/ Ketua Penolong Setiausaha
- Penolong Pengarah/Penolong Setiausaha
- Lain-lain: ____________________

5. Bahagian/Unit

- Latihan Keusahawanan
- Perancangan dan Penilaian
- Pusat Khidmat Kontraktor
- Pentadbiran
- Projek dan Program Pembangunan
- Perkhidmatan
- Pengurusan Maklumat
- Audit Dalam
- Francais dan Vendor
- Perhubungan Awam
- Pembangunan Perniagaan
- Undang-Undang
- Lembaga Pelesenan Kenderaan Perdagangan

6. Pengalaman Kerja

- kurang daripada 6 tahun
- 6 - 10 tahun
- 11 - 15 tahun
- 16 - 20 tahun
- lebih daripada 20 tahun

7. Tempuh Berkhidmat di Kementerian

- kurang daripada 1 tahun
- 1 - 3 tahun
- 4 - 6 tahun
- 7 - 9 tahun
- lebih daripada 10 tahun

8. Tempuh Berkhidmat di Bahagian/Unit

- kurang daripada 1 tahun
- 1 - 3 tahun
- 4 - 6 tahun
- 7 - 9 tahun
- lebih daripada 10 tahun

9. Berdasarkan kepada definisi yang diberi, adakah Kementerian anda mempunyai strategi bertulis mengenai Pengurusan Ilmu?

- Ya
- Tidak
- Tidak Pasti

PENGURUSAN ILMU

Berdasarkan kepada definisi yang diberi, adakah Kementerian anda mempunyai strategi bertulis mengenai Pengurusan Ilmu?
10. Adakah anda fikirkan penting untuk mempunyai strategi mengenai Pengurusan Ilmu di Kementerian anda?

☐ Ya  ☐ Tidak  ☐ Tidak Pasti

11. Apakah faedah yang boleh diperolehi oleh Kementerian anda dalam menguruskan ilmu?

(pilih mana-mana yang berkaitan)

☐ Untuk memperbaiki efisensi  ☐ Untuk lebih efektif

☐ Untuk sentiasa kemasikini dengan maklumat terbaharu  ☐ Untuk respon kepada kehendak organisasi lain

☐ To respon kepada kehendak pelanggan  ☐ Untuk mempengaruhi perubahan

☐ Untuk memperbaiki dalam membuat keputusan  ☐ Untuk mempertingkatkan kualiti

☐ Lain-lain: (Sila nyatakan)

12. Siapakah yang anda fikirkan bertanggungjawab dalam menguruskan ilmu di Kementerian anda?

☐ Ketua Setiausaha  ☐ Ketua Penolong Setiausaha/
Ketua Penolong Pengarah

☐ Timbalan Ketua Setiausaha  ☐ Penolong Setiausaha/Penolong Pengarah

☐ Setiausaha Bahagian/Pengarah  ☐ Tanggungjawab semua.

13. Adakah anda fikirkan perlu untuk mempunyai Ketua Pegawai Ilmu yang akan bertanggungjawab menguruskan ilmu di Kementerian anda?

☐ Ya  ☐ Tidak  ☐ Tidak Kisah

14. Apakah kesukaran yang anda fikir dalam menguruskan isu-isu berikut di Kementerian anda?

(Pilih jawapan anda berdasarkan susunan berikut)

1 – mudah  2 – agak mudah  3 – sukar  4 – agak sukar  5 – sangat sukar

Mengubah perlakuan kakitangan  ☐ ☐ ☐ ☐ ☐

Menjadikan ilmu/maklumat boleh diperolehi oleh semua kakitangan  ☐ ☐ ☐ ☐ ☐

Mengenalpasti ilmu/maklumat dalaman  ☐ ☐ ☐ ☐ ☐

Mengenalpasti ilmu/maklumat luaran  ☐ ☐ ☐ ☐ ☐

Berkongsi ilmu/maklumat antara pegawai dari lain-lain Bahagian/Unit  ☐ ☐ ☐ ☐ ☐

Menjadikan ilmu/maklumat tersedia untuk kakitangan di Kementerian  ☐ ☐ ☐ ☐ ☐

Menguruskan dokumen (fail) terperingkat  ☐ ☐ ☐ ☐ ☐

Mengatasi kekurangan teknologi  ☐ ☐ ☐ ☐ ☐

Lain-lain. (sila nyatakan) ☐ ☐ ☐ ☐ ☐
15. Manakah antara berikut yang anda fikir mempunyai potensi untuk merekabentuk Sistem Pengurusan Ilmu yang baik di Kementerian anda? (Berikan jawaban anda berdasarkan kepada ranking berikut)
1 – tidak berpotensi 2 – sedikit berpotensi 3 – berpotensi 4 – lebih berpotensi 5 – amat berpotensi

<table>
<thead>
<tr>
<th>Jawapan</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memperbaiki infrastruktur teknologi maklumat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memberi bantuan daripada pegawai kanan di Kementerian</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merekabentuk sistem latihan yang sistematik untuk semua kakitangan</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Merekabentuk pangkalan data organisasi mengenai maklumat dan ilmu</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merekabentuk kaedah yang efektif dan efisyen dalam mengumpul maklumat dan pengetahuan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Membentuk budaya bagi menggalakkan pengkogsian ilmu</td>
<td></td>
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</tr>
<tr>
<td>Menyediakan insentif kepada kakitangan yang menyumbang kepada ilmu</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Mempunyai pegawai yang berilmu dalam semua bahagian/unit</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Menyediakan tempat untuk pegawai membincangkan ilmu “tacit” mereka (ilmu pengetahuan persendirian)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memperuntukkan sumber untuk menjana ilmu</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Menggalakkan pegawai untuk menjadi inovatif dan kreatif</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lain-lain. Sila nyatakan</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

16. Adakah anda fikir isu-isu berikut menggalakkan penjanaan dan pengkongsian ilmu di Kementerian anda? (Berikan jawaban anda berdasarkan kepada ranking berikut)
1 – tidak berpotensi 2 – sedikit berpotensi 3 – berpotensi 4 – lebih berpotensi 5 – amat berpotensi

<table>
<thead>
<tr>
<th>Jawapan</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prosedur dan polisi terkini</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polisi tersirat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual Prosedur Kerja</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISO 9002</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>File Meja</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sistem Fail</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Alirankerja</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
17. Adakah anda fikir isu-isu berikut menjadi penghalang kepada penjanaan dan pengkongsian ilmu? 
(Berikan jawaban anda mengikut ranking yang disediakan)
1 - amat tidak bersetuju 2 - kurang bersetuju 3 - berkecuali 4 - agak bersetuju 5 - amat bersetuju

| Struktur organisasi | ✧ ✧ ✧ ✧ ✧ |
| Gangguan politik    | ✧ ✧ ✧ ✧ ✧ |
| Saluran komunikasi antara pegawai | ✧ ✧ ✧ ✧ ✧ |
| Prosedur arahan dan kekangan | ✧ ✧ ✧ ✧ ✧ |
| Lain-lain (Sila nyatakan) | ✧ ✧ ✧ ✧ ✧ |

18. Adakah anda fikir teknologi merupakan elemen utama dalam membentuk dan menjana ilmu?

<table>
<thead>
<tr>
<th></th>
<th>Ya</th>
<th>Tidak</th>
<th>Tidak tahu</th>
</tr>
</thead>
</table>

19. Sejauh manakah pentingnya teknologi-teknologi berikut dalam membentuk dan menjana ilmu pengetahuan.
(Berikan jawaban anda mengikut ranking yang disediakan)
1 - tidak penting 2 - agak penting 3 - penting 4 - sangat penting 5 - teramat penting

| Intranet   | ✧ ✧ ✧ ✧ ✧ |
| Internet   | ✧ ✧ ✧ ✧ ✧ |
| Sidang Video | ✧ ✧ ✧ ✧ ✧ |
| Pengurusan Dokumen | ✧ ✧ ✧ ✧ ✧ |
| Pengurusan Fail | ✧ ✧ ✧ ✧ ✧ |
| CD-ROM     | ✧ ✧ ✧ ✧ ✧ |
| Sumber Dalam Talian | ✧ ✧ ✧ ✧ ✧ |
| GroupWare (sekumpulan perisian komputer yang membantu rakan sekerja menyelaras segala aktiviti melalui Local Area Network) | ✧ ✧ ✧ ✧ ✧ |
| E-mel      | ✧ ✧ ✧ ✧ ✧ |
| Gudang Data (sekumpulan data yang direkabentuk untuk membantu pihak Pengurusan membuat keputusan) | ✧ ✧ ✧ ✧ ✧ |
| Lain-lain (sila nyatakan) | ✧ ✧ ✧ ✧ ✧ |
Arahan:
Sila tandakan (√) kepada soalan 20 hingga 36 mengikut skala berikut.
1 - sangat tidak bersetuju  2 - kurang bersetuju  3 - bersetuju
4 - agak bersetuju  5 - sangat bersetuju

<table>
<thead>
<tr>
<th>C. PERPINDAHAN ILMU</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. Pergerakan Perpindahan Ilmu</td>
</tr>
<tr>
<td>Ilmu/maklumat boleh dicapai dengan cepat di dalam bahagian/unit</td>
</tr>
<tr>
<td>Ilmu/maklumat boleh dicapai dengan cepat dari bahagian/unit lain</td>
</tr>
<tr>
<td>Ilmu/maklumat boleh ditukar dengan cepat di dalam bahagian/unit</td>
</tr>
<tr>
<td>Ilmu/maklumat boleh ditukar dengan cepat dari bahagian/unit lain</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>21. Kebolehpercayaan Terhadap Perpindahan Ilmu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ilmu/maklumat yang dipindah pada umumnya sangat dipercayai</td>
</tr>
<tr>
<td>Ilmu/maklumat yang dipindah pada umumnya sangat kemaskini</td>
</tr>
<tr>
<td>Keputusan boleh dibuat dengan lebih yakin melalui ilmu/maklumat sediaada</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>22. Ketepatan Perpindahan Ilmu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ilmu/maklumat boleh dipindah kepada orang berkaitan dalam bahagian/unit yang sama tanpa sebarang masalah.</td>
</tr>
<tr>
<td>Ilmu/maklumat boleh dipindah kepada orang berkaitan di bahagian/unit yang lain tanpa sebarang masalah.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. ASSET ILMU</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. Ilmu Eksplisit</td>
</tr>
<tr>
<td>Ilmu/maklumat yang diwujudkan dan disimpan dalam bentuk dokumentasi boleh dicapai, dikongsi dan dipindah dengan mudah.</td>
</tr>
<tr>
<td>Ilmu/maklumat yang diwujudkan dan disimpan dalam bentuk elektronik boleh dicapai, dikongsi dan dipindah dengan mudah.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>24. Ilmu Tacit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ilmu/maklumat daripada individu boleh dikongsi dan dipindahkan melalui perbincangan/mesyuarat formal tanpa masalah.</td>
</tr>
<tr>
<td>Ilmu/maklumat daripada individu boleh dikongsi dan dipindahkan melalui</td>
</tr>
</tbody>
</table>
perbincangan tak formal tanpa sebarang masalah.

E. BUDAYA ORGANISASI

25. Budaya Perkongsian

Budaya di Kementerian menggalak dan menyediakan kemudahan untuk penyaluran ide, ilmu dan pengalaman di kalangan semua kakitangan dalam Kementerian

Semua pegawai bersedia dan rela memberi nasihat apabila diperlukan

Di dalam Kementerian, ilmu disebarkan kepada semua tidak setakat "perlu tahu" sahaja

Di dalam Kementerian hubungan silang pelbagai disiplin kumpulan adalah sangat penting dalam membuat keputusan dan penyelesaian masalah

26. Individualisma

Individu di dalam Kementerian cenderung menggunakan ilmu sebagai sumber kuasa untuk kepentingan persendirian daripada menjadikannya sumber organisasi untuk dikongsi dengan orang lain.

Di dalam Kementerian, individu cenderung untuk tidak menyebarkan ilmu yang diperolehi dan enggan berkongsi dengan orang lain.

F. STRUKTUR ORGANISASI

27. Status Kerahsiaan Dokumen

Status kerahsiaan dokumen membawa kepada masalah di dalam memperolehi maklumat dan mewujudkan ilmu.

Prosedur, rutin dan polisi yang menghadkan pegawai untuk mendapatkan sesetengah ilmu/maklumat memberi masalah untuk mewujud dan berkongsi ilmu

28. Aliran Komunikasi

Bentuk stuktur organisasi sedia ada menghalang aliran komunikasi antara bahagian/unit.

Organisasi ini tertalu birokratik dan menyebabkan sukar untuk berkongsi ilmu.

Pegawai daripada bahagian/unit sering berinteraksi dalam membincangkan strategi dan perancangan masa depan Kementerian.
29. Infrastruktur Informasi dan Komunikasi Teknologi (ICT)

Kementerian mempunyai infrastruktur ICT yang kemaskini dan membantu pewujudan dan perkongsian ilmu.

ICT mampu mempercepatkan kerja untuk mendapatkan maklumat

ICT membantu kakitangan dalam kerja harian.

30. Perkakasan (perisian) Informasi dan Komunikasi Teknologi (ICT)

Kementerian menggunakan GroupWare, seperti Lotus Notes, dalam menggalakkan perkongsian ide.

E-mel digunakan untuk berkongsi maklumat antara pegawai

Sistem Maklumat Berasaskan Komputer menyediakan maklumat yang lebih kemaskini daripada yang terdapat dalam fail manual.

Sistem Maklumat Berasaskan Komputer menjadikan maklumat baru mudah diperolehi di Kementerian yang sebelumnya tidak ada.

31. Tahubuat (Know-how) Informasi dan Komunikasi Teknologi (ICT)

Semua kakitangan Kementerian diberi latihan dalaman yang mencukupi untuk menggunakan komputer.

Semua kakitangan Kementerian diberi latihan dalaman yang mencukupiy untuk menggunakan perkakasan ICT (software)

Tahubuat teknologi di Kementerian mudah dipindahkan.

32. Penempatan di Kementerian

Penempatan di Kementerian adalah sesuai dengan kelulusan yang dimiliki dan membolehkan saya untuk mewujudkan dan berkongsi ilmu.

Penempatan di Kementerian adalah sesuai dengan minat yang ada dan membolehkan saya untuk mewujudkan dan berkongsi ilmu.

Penempatan di Kementerian adalah sesuai dengan pengalaman yang ada
dan membolehkan saya untuk mewujudkan dan berkongsi ilmu.

33. Program Latihan

Kementerian menyediakan peluang kepada kakitangan untuk menghadiri latihan secara dalaman/luaran yang berkaitan dengan tugas.

Kementerian menyediakan peluang kepada kakitangan untuk menghadiri latihan secara dalaman/luaran dalam bidang lain bagi meningkatkan ilmu mereka.

Pihak Pengurusan menyediakan masa dan sumber untuk mengambil bahagian dalam aktiviti pembelajaran dan perkongsian.

35. Perletakan Jawatan/Pertukaran Kakitangan

Kementerian mempunyai prosedur untuk mengekalkan ilmu dan Kebolehan pegawai yang meninggalkan Kementerian.

J. PENGARUH POLITIK

36. Arahan daripada ahli politik

Ide daripada ahli politik di Kementerian membantu pegawai mewujudkan dan berkongsi ilmu/maklumat.

Pegawai digalakkan untuk menyumbang ilmu/maklumat kepada ahli politik.


Email: sossi2@lycos.com atau syedomar61@hotmail.com

Telefon: 03 – 61858413 (Malaysia) atau 01509 569067 (United Kingdom)
Appendix B

LETTER
Dear Sir/Madam,

SURVEY ON THE CREATION OF KNOWLEDGE AND THE PERFORMANCE OF KNOWLEDGE TRANSFER IN THE MINISTRY OF ENTREPRENEUR DEVELOPMENT OF MALAYSIA

I am currently a Ph.D. student at the Loughborough University and am conducting a survey at the Ministry of Entrepreneur Development of Malaysia from 8 September 2001 to mid of December 2001. The purpose of the survey is to obtain data and information with regard to the above-mentioned survey.

2. The questionnaire enclosed contains 10 printed pages (including this page) with 35 questions. I would be pleased if you could provide me with your fullest co-operation in answering all the questions. All information given will strictly be confidential and will be used purposely for the study.

3. I would like to thank you for taking your precious time to fill the questionnaire. Your co-operation is really appreciated.

Thank you,

Yours sincerely,

(SYED OMAR SHARIFUDDIN SYED IKHSAN)
Appendix C
INTERVIEW’S QUESTIONS
Questions for the Secretary General, Ministry of Entrepreneur Development of Malaysia.

1. In the 2001 Budget Speech, the Finance Minister urged Malaysian citizens to be well prepared to the emergence of the k-economy so how does your Ministry react to it? What are the key areas to focus your initial efforts on?

2. Do you think that it is necessary to have a Knowledge Management strategy in your Ministry in preparing for the knowledge economy?

3. What information/knowledge is currently readily accessible by employees?

4. Where can this information/knowledge be found and in what format?

5. Between people, information technology and process, which one do you think is most important to be managed? Why?

6. Do divisions talk to each other to improve processes and help each other or is there competition between different divisions?

7. Do employees have a good understanding of what is happening in the Ministry?

8. What and where is the most valuable knowledge in the Ministry?

9. What technology is available in the organisation to obtain information/knowledge (if any)?

10. How do you encourage officers to share their knowledge?

11. Do you have a platform for the officers to share their knowledge in the Ministry?

12. What are the biggest current impediments to knowledge transfer in the Ministry and how could they be overcome?

13. In terms of knowledge transfer, what do you think of the quality of information/knowledge being transferred in the Ministry, especially in terms of reliability, accuracy and the speed?

14. If members in your division left the Ministry, what would be lost and what impact that have on your Ministry's performance?

15. If you were to track the knowledge performance of your organisation over time, what do you believe would be useful to measure?
Questions for the Deputy Secretary General (Development) and Deputy Secretary General (Business), Ministry of Entrepreneur Development of Malaysia.

1. In the 2001 Budget Speech, the Finance Minister urged Malaysian citizens to be well prepared to the emergence of the k-economy so how does your Ministry react to it? What are the key areas to focus your initial efforts on?

2. Do you think that it is necessary to have a Knowledge Management strategy in your Ministry in preparing for the knowledge economy?

3. How do you manage information/knowledge in your section?

4. Predominately what type of information/knowledge are you dealing with?

5. How do you encourage officers under your supervision to share their knowledge?

6. Does your division have any problem in obtaining knowledge especially via networks, training, other departments, manuals and so on?

7. If members in your division left the Ministry, what would be lost and what impact that have on your division's performance?

8. What are the biggest current impediments to knowledge transfer in the Ministry and how could they be overcome?

9. What do you think would be the biggest difficulties in managing knowledge in the Ministry?

10. If you were to track the knowledge performance of your organisation over time, what do you believe would be useful to measure?
Questions for the Under Secretary, Information Management Division, Ministry of Entrepreneur Development of Malaysia

1. Do you think that information technology is the answer to Knowledge Management?

2. What technology tools do you believe offer the greatest potential for enhancing your organisation's knowledge base?

3. What are your main database management systems?

4. What volume of knowledge can be stored in the database?

5. Do all officers have access to the Internet and do they use it to seek information/knowledge outside the organisation?

6. Does every officer have email – internal and external? How effective is the usage?

7. What technology do you have that supports document imaging, document management and document storage? Is it fully utilised by everyone in the Ministry?

8. What operating systems are in use?

9. Do you have any GroupWare or collaborative working tools?

10. What management information, decision support and statistical analysis systems are used?
Questions for the Head of Human Resources Division, Ministry of Entrepreneur Development of Malaysia

1. Does the Ministry have an education and training programme to encourage continuous learning? How are training needs identified?
2. Is it easy for employees to get the training they need in a timely way?
3. Do senior officers encourage employees to discuss mistakes and learning points or do people look for scapegoats when something goes wrong?
4. Who are employees that hold the knowledge most critical to the organisation's success?
5. Are the Ministry's procedures written down and regularly updated?
6. What are the main places (or who are the people) where employees can access or gain knowledge?
7. What opportunities are there for employees to develop their knowledge and skills (within their current role and for use beyond their current role)?
8. If members in your Ministry’s left the Ministry, what would be lost and what impact that have on your division performance?
Appendix D

INTERVIEW’S TRANSCRIPTS
Interview with Y. Bhg. Datuk Zakiah Hashim  
Secretary General  
Ministry of Entrepreneur Development  
Date: 26 October 2001  
Time: 9.00 am to 10.00 am

In the 2001 Budget Speech, the Finance Minister urged Malaysian citizens to be well prepared to the emergence of the k-economy, so how does your Ministry react to it? What are the key areas to focus your initial efforts on?

Certainly I agree that the Malaysian citizen, and especially the Ministry which is supporting the Government in implementing all the relevant policies, must be well knowledgeable. As far as this Ministry is concerned, my initial intention is, of course, to focus on the development of the people within my Ministry. I have already instructed my relevant Division especially the Service Division (Human Resources Division,) to look into these matters and create a learning Ministry within the Ministry. This is one of the important elements which make this Ministry a success, and able to use our facilities and enable our clients, who come to the Ministry in order to seek our support in the course of developing entrepreneurs.

Do you think that it is necessary to have a Knowledge Management strategy in your Ministry in preparing for the knowledge economy?

Certainly I agree that there is a need to develop a strategy for imparting knowledge to our officers. Then the knowledge relevant for the Ministry is well structured, well distributed, well managed and well received for by the officers and also related staff. In the course of imparting knowledge to our clients, we need to know the up to date information regarding the skill and ability of our entrepreneur in order to become a successful entrepreneur and participate in the global market.

What information/knowledge is currently readily accessible by employees?

At the moment, as far as the Ministry is concern, I think the information that is available to all our employees certainly relates to the core function of this Ministry, the development of entrepreneurs. As you are aware, we have five windows that we are trying to focus in developing entrepreneurship. Firstly, to provide a conducive environments for business people to do business. We have information on training programmes, related schemes and funds to help the entrepreneur, and certain programmes to promote and marketing of the entrepreneur's products. It is important to relate the information to our key personnel and
staff in the Ministry, so that they are able to give advice and the information required by our clients, without which, we would be failing our duty to disseminate information of the product or services.

Are you satisfied with the current situation?

I am not very satisfied. As far as the Ministry is concern, it is a moving and changing Ministry, and sometimes we have new offices and new staff. Sometimes there is a gap. We have to keep them inform and provide them information. Probably they need a little bit of time before they are ready to give and to impart knowledge to our client.

Where can this information/knowledge be found and in what format?

Of course, in the initial stage, the information is only available in the files, brochures, annual reports, and also through the forums and seminars that we have. As we have developed, we have now stored this information in our web site. We have developed a very well designed and very informative web site and databases, especially information on entrepreneurs. We also have Windows for our clients to submit their views and information, and so they can register their company with the Ministry.

Between people, information technology and process, which one of these do you think is most important to be managed? Why?

In my opinion, the most important element that needs to be managed is the people. Sometime you have the best of the facilities or infrastructure. But if you have people who do not want to change their attitude, who are not committed, who couldn't care less about what happening around the world, and not committed to help people or the client, I think we will be failing in whatever we want to do. Our objective may not be met. As far as the management is concerned, we feel we shouldn't stop talking and advising people and must tell them to read the latest report, read about the budget, etc.. With this knowledge, they can develop ideas, be innovative, and improve whatever they are planning to do. Hopefully, the planning of their Division and the programmes will improve as they increase their knowledge. Without this, we would be stagnant and we would be doing the same thing year in and year out. There would be no innovation at all, no progress.
You mentioned about the people management. Do you agree with the upgrading of the Services Unit to Human Resources Division?

Certainly. I agree there is a need to support the particular Division which is very much focused on human development and human resources. If we do not have well supported Divisions, I think they too will be unable to develop programmes that will benefit the Ministry as a whole. The world is moving very fast. We are now interacting with people in a global market. We need our Division concerned to be involved not just on human development in a particular skill, but to be able to know what is happening in the outside world. They can then look into and draw out programmes aimed at helping our officers sharpen their skills in entrepreneurial development. Of course, we also need to know and interact with our clients and people in that industry. So in that sense, we need our related Division to be able to secure good knowledge and good programmes locally and internally. For that matter, we need officers and a sufficient number of supporting services to be able to draw out and structure a well designed development programmes for our Human Resources. We are not just looking for aspect of quality in officers as well, but also quality programmes that relate to our entrepreneurial development.

Do divisions talk to each other to improve processes and help each other or is there competition between different divisions?

I think this is an area, which certainly the Ministry needs to improve further. I think there are times, I believe that there are divisions, who probably keep information to themselves, and do not share this with others. I believe there are some divisions who do not see that the information that they have is also relevant to the needs of other divisions. Sometimes they thought what they have is sufficient to be disseminated within their division, their own staff only. They do not see that their information is actually supporting, and required by all other divisions as well. This is where I have been trying to promote a mechanism, whereby all our programmes and information must be channelled towards achieving the objectives of the Ministry. To this end, I have set up what we call the co-ordinating committee, to integrate the information and the programmes within the Ministry. I believe that from our past experience, we do not integrate very well. So much so, that there are divisions who do not know that there are programmes. Take for instance, one division will probably have data on premises, especially availability of premises for an entrepreneur, which have not as yet been rented out. However, the divisions that are developing entrepreneurship do not know we do have these rented premises available to be acquired or secured by entrepreneurs. I believe they should exchange information. The entrepreneurs could also been given all information about the availability of premises, funds, and training programmes, so that we can match the people/entrepreneur with funds, premises and the training programmes. In so doing, it would
be a faster way of giving information to entrepreneurs, rather than keeping it for themselves. This is what I feel must be integrated and it must be co-ordinated. Information must be shared between divisions, agencies, and also between Ministries.

How about the weekly meeting that you have with the Heads of Divisions? Do you think it is the best platform?

There is already an instruction to all Ministries, that we need to have a regular prayer, a regular meeting. In this Ministry, we have it on every Monday morning and this is where the latest policies relating to national development, the latest amendment to the new policies, and certainly the latest budget would be informed to all the heads of divisions. We also examine current cabinet decisions, where specific instruction is given to so by the Ministry. And certainly, we also look into feedback that we received from the public, through whatever channel that we have, such as the newspapers and the web site. This is where lots of information is being disseminated to our officers. From there, each division will respond, and in so doing, other divisions will keep abreast with what is happening in the Ministry. This is also the forum where all divisions will know the latest programmes for our clients, especially the promotional programme, exhibition, and etc.

Other than the officer, do employees have a good understanding of what is happening in the Ministry?

I want to believe so, because each of the division is expected to have regular meeting with their own officers and staff, and to inform them of the latest government policies related to the Ministry's programmes. This is also done through forums. Through the sessions we have, we receive feedback from our own staff, especially on seminar or training programmes required by them. At the same time, the management, that is in my case and my Deputies, we try to have informal session directly with the staff, not just with the officers. Sometime when we have a formal meeting, and their bosses are around, their staff are not willing to share the information with us. So we have an informal gathering over lunch, and through this we manage to get substantial information from the staff themselves. I believe these information sessions are very relevant, because these are the people who actually doing the work. They know the real problems and whether or not they get enough information from their bosses.

What and where is the most valuable knowledge in the Ministry?

We could gather the knowledge and information from all the divisions, because all the divisions have their own quite specific roles and functions. We have two sectors: the entrepreneur sector and the development sector. These two sectors are very important in
supporting the Ministry's programmes. So, the knowledge is actually based here. We also have a division, the Planning and Evaluation Division, which is responsible for co-ordination and gathering all the information, analysing the information and to seeing the impact of our programme. This division is the think tank in our Ministry. They co-ordinate and analyse the information, and disseminate it to other division and officers, using the latest technology. We also have our web site, where information is stored.

What technology is available in the organisation to obtain information/knowledge (if any)?

At the moment, I strongly urge our officers, and those who like to know the role and function of the Ministry, to surf our well designed and well structured web site. All the information relating to the core business of this Ministry is stored there. At the same time, we also have specific systems on the processing of licensing of commercial vehicles, as well as the information on the profile and the status of contractors registered by the Ministry (Contractor Service Centre). This information, as far as the contractors are concern, is very much needed by all the other Ministries implementing the development project. Through this system, they would be able to obtain information as to the performance and ability of the contractors to undertake project within the Ministry. This information will give them both the good and the bad performance of the company, and whether the related agencies that do the tendering process would be able to determine the potential for the contractor to deliver the project. So, certainly we have a lot of information within our system.

At the moment do other ministries have direct access to the information especially from PKK (Contractor Services Centre)?

At the moment all this information is stored by PKK, and this information is also obtainable from other relevant agencies. And we are in the process of giving accessibility to all other agencies. This is to be launched by January this year (2002).

How do you encourage officers to share their knowledge?

As far as this Ministry is concern, we try to organise forums or platforms where the officers could share their information and experience with other officers. I am encouraging all those officers who were given opportunity to attend courses overseas, and when they come back, they are expected to prepare a report. This is circulated to all other officers who do not have a chance to attend such courses overseas. At the same time, we organise a regular forum, and we have chosen every Saturday as the platform for officers to be able to share experience and knowledge or whatever information they have gathered with their fellow officers. We
have done it, and we have had positive opinions back from officers, to the effect that we should carry on. But there are times, where we have to rearrange for some other date, when officers are busy. Without question, this kind of forum will be continued.

So you do have a platform for the officers to share their knowledge in the Ministry. How about other staff?

Well, this includes the staff. In fact every month we have organise a talk by prominent and successful entrepreneur to share their information with our officers and staff. This kind of forum is not limited to just officers - the staffs are also invited. Besides specific topics that have been chosen, we also have talks on motivation, and programmes develop by other ministries that are related to economics, knowledge, and etc. We believe that in order to be able to get all the officers and staff to be able to see the need to be successful and to deliver our programme, all level of officers and staff need to be well informed.

What are the biggest current impediments to knowledge transfer in the Ministry and how could they be overcome?

This issue is very important that we need to address in order to create a conducive environment for our officers to exchanged information. I believe that sometimes officers do take thing very easy, lightly and they have an attitude of "wait and see". And I believe that some of them could not to see the urgency. So this is where top level management will have to continue, give them encouragement and opportunity, and also to recognise their contribution. Their knowledge is important in order to assist the programmes of the Ministry. I believe that we need to give lot of encouragement and support to our officers and staff, so that they feel that there are an important part of all the changes in the current knowledge based world.

In terms of knowledge transfer, what do you think of the quality of information/knowledge being transferred in the Ministry, especially in terms of reliability, accuracy and the speed?

In term of the reliability of the information, I can doubt that as far as the Ministry is concerned, we ensure that the information is up to date. All division was directed to appoint a liaison officer in their division to update the databases, particularly of latest polices or changes. I believe that this has been followed. I think, as far as information on various activities and the programmes of this ministry, they are up to date and are also accurate at that point of time. The only thing is, I will agree, that sometimes there would probably be a gap in some of the information and maybe some information is not updated. Simply because sometimes the
changes happen very fast. If this is not been transmitted to the particular division to update the information, maybe it happens sometime later.

At the moment are you satisfied with the information that you have especially in making decision?

I am still not very satisfied, even though this has been highlighted at every Monday prayer that the division must make sure that the latest information is being entered in the website. But there are times it happens that the latest information is not stored in the website. There are times where people call us and reminded us. So I believe that we need to create some kind of programmes to ensure that the officers, who are being entrusted with this information, are all the time motivated to help the users and client. If this latest information is not in the system, that will definitely not help the client. I believe that we should have some related programmes to encourage our officers to see that information needs to be updated and must be fast enough in order to help our clients. And if our clients are knowledgeable, they get all the information required even by this Ministry. I think when they come to the Ministry we would be able to give the service they want immediately, without having to ask for all the details, as we have already got what we want. Whatever they require is all there in the system, and they can obtain this, so when they submit any application the information is already sufficient for you to process. Certainly, it will help us to help us to make quick decision. If we delay making decision, it will affect our client. They may miss a lot of opportunities because, in the current world, speed is so very important. If you don't take this seriously, you may lose so many opportunities. People are now communicating through Internet, and if they failed to respond back quickly, the opportunity could be given elsewhere. They may go to some other countries, or maybe some other companies. So you are not helping your client in that sense.

Back to knowledge transfer, do you believe that email can be used to distribute the knowledge to other officers in the Ministry?

I fully agree that email is one tool that all officers within the Ministry, and even the staffs, should use, because it is so very easy. You just need to press the alphabet and put all the words together and then just send in and it will be received by all officers within the Ministry. It is the fastest way to disseminate information and also the fastest way of getting the response back. I can communicate not only between Ministries, but I've been communicating my officers at the branches. If I got complaints today, so I'd send them all over the branches. I sent one this morning and I got back responses by afternoon. With that information, I could easily respond to the complainant. It is so very fast - if you know how to use it. If it is just that you do not know how to use it, then it is your failure for not learning. I believe it is a tool
that should be used, and also reduces paper work. In fact, I already encourage my officers. Notices calling for meetings are through email, and so is the sending of minutes of meetings. We actually save a lot of paper. People get the information faster, and they also respond and take action faster. I believe that everyone down the line from the senior officers down should has access to use email. I fully support it.

Do you feel that the level of usage is satisfactory?

I am not very satisfied, as I do know that there are certain senior level officers who do not use the email as often as they should. The excuses given that, "I don't have time to use the email", is not acceptable anymore. If you do not make any attempt, you will never use it. In fact I have already told the Human Resources division to come out with some kind of an innovative programme to test out how many officers are using the email and the computer. If they don't use it, maybe we could move the computer to some other divisions, officers or even the staff for that matter. There are other people who like to learn and use the email and the computer. I think it is for one's own improvement that you use all these tools to help you in your management. So I believe I need to do a lot more encouragement seeing all the officers in the Ministry use it. I think some sectors are still under utilised.

If members in your Ministry left the Ministry, what would be lost and what impact that have on your Ministry's performance?

Any well-trained officer is of course an asset to the Ministry and the division, because these are the officers who are able to contribute to the organisation. When this trained personnel leave this Ministry, it is without doubt the Ministry and division will be affected because there are sometimes knowledge and experiences which is gained over the years and that actually develop one's skill in managing, cannot be written down or documented. It is stored within one's self. That I think in a way is a lost to the organisation. However, with a latest and modern technology of transferring information, I believe it only takes a little bit of time. I always give my officers time, say a month, to study about the division/Ministry. We have all the information, reports stored and we learn how the previous officers have done their work. I see no problem. They are able to do their work. There are certain things that the previous officers acquired, which are not documented. This is a skill. People have got their own skill in managing and doing things. New personnel that come from another Ministry bring in their own managerial skill, which also contributes to the organisation. We also benefited with what the new officers acquired in the previous Ministry. So, in that sense, it is a win-win situation. New officers, I believe, bring in new ideas and style, which also in the end benefits the Ministry.
Do you think that it is important to encourage the knowledgeable officers to document their knowledge?

I believe it is very useful to document one's experience and to share with the others because these are matters you cannot get in any management book. And some skills acquired by these personnel are based on certain experiences of specific practical issues and should be shared with others. Certainly I agree.

If you were to track the knowledge performance of your organisation over time, what do you believe would be useful to measure?

If I were to measure the knowledge performance of my ministry, whether it is successful or not, I believe that in the information and the programmes that we have developed over the years, we have been successful, to a certain extent, in imparting the technology, the information and facilitating our client. I probably relate this to the programme that we have already developed in promoting the entrepreneur and the successful entrepreneur. In that sense, if we look at the number of entrepreneurs that we have developed, I believe the information is relevant. The information on our programme is very well disseminated to each of our entrepreneurs.

Do you have anything to add?

In the new millennium, knowledge economy is important, and we are also encouraging our officers to know more about what it means and what it means to the entrepreneur. They need to acquire expertise in the global world, so that they could be able to assist the client face the challenges of the global market. We know that as this Ministry is concern we are trying to develop more Bumiputera entrepreneurs. We have certain success rate. In order to participate in the Global Market, our officers and entrepreneurs need to prepare themselves, and they must have complete knowledge in ICT, multimedia, and etc. What is important is that you must be in the networking with partners all over the world. Only then they would be a global Bumiputera entrepreneurs.
Interview with Y.Bhg. Dato' Abdul Rahman Hussain
Deputy Secretary General (Entrepreneur)
Ministry of Entrepreneur Development of Malaysia
Date: 24 October 2001
Time: 4.00 pm – 4.45 pm

In the 2001 Budget Speech, the Finance Minister urged Malaysian citizens to be well prepared for the emergence of the k-economy, so how does your Ministry react to it? What are the key areas to focus your initial efforts on?

I think the 2001 Budget Speech is an important speech which all Malaysians have to look forward too. I think one message is very clear. The need to move forward in the context of the present economic scenario which is that the world economy is going towards k-economy - knowledge-based economy. As you know, the economy of Malaysia has been based at one time on agriculture, and it has also been industrial based. We were the production economy. Right now the context has been in the mode of a k-economy. Therefore, in order for us to move ahead with changing times, the Ministry must do something. Firstly, we have to educate our own people, as well as entrepreneurs, about what is the meaning of k-economy. You have to be very knowledge-based. You must know what is happening currently in the world in terms of production, product, in terms of how you manage doing things. Therefore there is a paradigmatic shift in what you are doing. As far as the Ministry is concerned, since we are firstly the personnel with the Ministry, we have to make our staff do their work as professionally as they can. Therefore in the k-economy they must be computer literate. What we have now, is that each of officer has a PC (Personal Computer) of their own. If they have the PC, therefore it follows that they have access to the Internet. If they have access to the Internet, that means they know a great deal of information on entrepreneurship, which is our focus on the world’s economy, and a lot of information which can help them expedite their daily work. Secondly, we have built up certain systems to expedite the process of work. For example, the Commercial Vehicle Licensing Board (CVLB), which is doing processing. There are developments directed towards computerised processing of forms and procedures. We also have various systems, like answering Parliamentary questions. These have all been done through the PC. Officers are also encouraged to use email amongst themselves. We are now also emailing those people who visit the Ministry from foreign universities. They give talks to officers. On the other side of the coin are the entrepreneurs. We have to tell them what the k-economy is all about, and they must therefore now change their ways of doing things, from manual to computer, and they must go toward e-commerce. Therefore, we have organised lots of seminars, talks on how to get themselves into e-commerce.
Apart from the computer that you mentioned, do you have any plan for the officers themselves, as managing knowledge is not only based on computer or technology?

We have many clinical sessions or consultation groups. We have talks by leading entrepreneurs, who are successful in their field and gurus in management. We have also plans to bring experts from overseas, and recently we had a Dale Carnage course. That really is a 'mind opener' on how you see things with a better perspective, how you interact and what not. So that is one aspect. The other one is that we are also trying to increase networking between officers in the Ministry, as well as officers outside and also within private sectors. By doing that, therefore, people are able to mix and get ideas on how to enhance their knowledge. We also have a special programme to get the officers to read books. During our Quality Day, we also present awards to the officers who have borrowed most books from the library. That, in one sense, shows that we want our officers not only to be literate with computers, but also to be well informed about information from outside.

Do you think that it is necessary to have a Knowledge Management Strategy in your Ministry in preparing for the knowledge economy?

Yes. I think there must be a plan of action and strategy, whereby we can move forward in the k-economy, in terms of upgrading the knowledge of officers and preparing the entrepreneur in the k-economy context. We are planning towards that. In fact, we have a five-year plan, up to 2005. We are revising it. We will create strategies to ensure we get our staff to be knowledgeable and conversant in the k-economy. JPA has set-up in each ministry an outfit which they call the Human Resources Development Division. This is a new division, set-up in all Ministries. In this Ministry we have 4 officers, and they have to come up with a plan of action on knowledge management strategy.

How do you manage information/knowledge in your section?

As I said earlier, each of the officers has a personal computer. We also have web site of the Ministry, whereby, through that web site, we try to show a case profile of the Ministry, various information on entrepreneurs, what the Ministry does, the various programmes that we undertake, profiles of officers, and what not. We also have various mechanisms of committees, which we have established, and during these committee meetings we will try to exchange ideas and knowledge. One good example is the committee that is between the employer and the employee, chaired by the Secretary General. At this meeting we will know what are the problems faced by the employees, and the employer will listen to these problems and observations, and then we try to solve it. We also have a good Pusat Sumber Maklumat (Resource Centre), which is well stock with books and documents on the policies of the
government, profiles of business, and articles/books on entrepreneurs. Therefore, we encourage people to go to the Resource Centre. We have also gone at one stage now to prepare our Annual Report of the Ministry, not only in a book form, but we are also converting it into CDs. That is another way. We have also move forward now; when we organise meetings, we have asked the committee members to store their papers in CD form, and send the CD to us. We have yet to go one step further, to actually put PCs in the meeting rooms. I think that one will be in the future.

Predominately, what type of information/knowledge are you dealing with?

If you look at the activities of the Ministry, we are the Ministry that promotes and develops the entrepreneur. Therefore, the types of information or knowledge are solely on entrepreneurship. The other function of the Ministry relates to the contractors. We have guidance to contractors, knowledge on the construction sectors and project base kind of information. Apart from that, we also have information and knowledge on public transport. These are basically the core matters which we would like to deal with.

How do you encourage officers under your supervision to share their knowledge?

We have to motivate our officers. Firstly, if you have information you should not keep it to yourself. You should share your information with others. By sharing information, people will know what you’re doing, people will upgrade their knowledge, and therefore this is one way where we can encourage people to share their knowledge. But if you talk about supervision, as a government department, our supervision is through the daily meeting. We have also a floats file, whereby we would want to see what they do with the knowledge, and whether or not they share knowledge with others.

Do you have any specific programme at the moment for them to share the knowledge with others?

What we do is this. We have sent officers abroad for training. Upon return, they have to write a report, and we have also plans whereby they also have to talk to their fellow officers on their experience, and how they can relate the experiences to improve the things that they are doing in the Ministry.
Does your division have any problem in obtaining knowledge especially via networks, training, other departments, manuals and so on?

I don't think we have any problems of obtaining knowledge via networks because we are quite well equipped with the Internet, and we are online with other Ministries. For training, we have good contact with various training institutions in Malaysia. We network very well with them. With other departments, we have access to their documentation, as well as manuals. In fact, I think in Malaysia there is no problem for us in gaining access to information from other departments, as long as this information is for public domain. We have the beautiful national library. They stock thousand books and documents. Unless an item is confidential or secret - that is another thing: you cannot gain access to those documents.

If members in your division left the Ministry, what would be lost and what impact would that have on your division's performance?

Well, this question relates in general to the Administrative and Diplomatic Services. Under this service, officers are transferable to whichever place. In my case, for example, I've been to the Ministry of International Trade, Economic Planning Unit (EPU), and now I find myself here. So when I left EPU, maybe EPU says, "Well it is a lost to us but it is a gain to other Ministries in term of expertise." But it is not a lost even to the last Ministry, because we have various procedures for you to follow. For example, if I move to another Ministry, it is mandatory for me to prepare 'handing-over notes' as detailed as I can. Therefore, when the other officer takes over, it doesn't pose any difficulties for him to carry on with the work functions. Because, in that 'handing-over notes', it contains all process of work, the contents, procedures and what not. I think it is a 'win-win' situation.

What are the biggest current impediments to knowledge transfer in the Ministry and how could they be overcome?

I don't see any big impediments. The only impediment I could see lies in the individual. You may have computers, lots of information, knowledge and what not, but if the individuals do not want to use all these, then I think it is a 'no go'. That means he must be in his knowledge that an officer must have the right sense of initiative, the right attitude to improve himself in how to use computers and to facilitate and enhance. If he does not do that, nothing will happen. But if he does not have an appetite to read, he may not improve himself in terms of knowledge, the style of doing things, and the style of writing. The government can provide the infrastructure, PC, environment, books, documents and training, but in the end of the day, it must be the individual that makes full use of the services the government provided. To overcome this big impediment, we encourage the people. We make them read, and to
interact among themselves. They must be able to speak, and do not frightened with the superior. This is how we strengthen the capacity of the individuals.

So at the moment, how do you think the officers are?

As far as the ministry is concern, the officers are of very high standard. As far as I know, the confidence levels are very high. You can also judge from the things that they deliver in terms speeches they prepare for the Minster, the things they organise, the Expo and the standard that they have protayed when they give briefings to foreigners. That is the benchmark that we look to. My biggest hope is that, at the end of the day, when we train all these people, when they leave this Ministry, there is a clear sign of recognition that this officer is from the Ministry of Entrepreneur Development. That means you have created certain quality in each of our officers which can be associated with the Ministry. I can tell you that the Ministry of International Trade and Industry (MITI) have been successful in doing that. Any MITI officers going to other Ministries, it is more than evident that they are the products from MITI. So my hope is that, we can do. If we are successful in getting these officers from this Ministry to be productive, to be very cultured, able to perform, and, when they leave this Ministry, they take that quality with them, and people know the officer is a product of the Ministry of Entrepreneur Development. *Alhamdulillah*, we have done something. The management is working towards such goals, but it takes quite a while to achieve. But we keep pushing hard, so that our officers will meet certain criteria. Right now I am very satisfied with their performance. However, that does not mean you do not allow those people to be train and re-train. That is important. They must be given opportunities to go overseas and expose themselves, both locally and in foreign environment.

What do you think would be the biggest difficulties in managing knowledge in the Ministry?

I don't see much of a problem, because we have a forum with the Secretary General every Monday, where everyone will tell what is happening, and what is the week’s programme, and how this programme can fit with the Minister's programme. Everybody knows the way ahead, everything is explicit and transparent. We know what each of us is doing. Then, under the two Deputy Secretary General, we have meeting with our own sectors. Both of us will also meet and exchange information. So I don't think there are any big difficulties in managing the knowledge.
If you were to track the knowledge performance of your organisation over time, what do you believe would be useful to measure?

I think that in whatever you do, you have to access and consider the effectiveness of what you do. In this case, if you talk about Knowledge management, some people think in terms of giving everyone a computer. One of the measures that we can employ is to see how many of us communicate in terms of email. If all of us communicate with emails, you reduce your paper circulation. Are people are using email or they are still using the traditional way of circulating notes? I think we need to minimise the use of paper. We must go more to email. The other issue relates to the system. We have to recognise that the storage of knowledge is one performance that we can measure. Right now, for example, there is a great deal of data that we have to collect and collate. One such would be the profiles of entrepreneurs. How successful are we as a one-stop centre. That could be one benchmark. I think, when you talk about performance, you need to benchmark yourselves, what we do and compare this with other Ministries, especially in term of professionalism, and in terms of whether or not officers are knowledgeable. If I am an entrepreneur, do I know the latest about entrepreneur development? If I am doing a certain project, do I know what is the latest tool for doing the work? So, I think we do need to benchmark. We must have some indicators as to whether or not what we are doing has met the objectives. So you have therefore to monitor on a regular basis.
Interview with Cik Hajjah Halimah Sulaiman  
Deputy Secretary General (Development)  
Ministry of Entrepreneur Development  
Date: 24 October 2001  
Time: 5.00 p.m. – 5.45 pm

In the 2001 Budget Speech, the Finance Minister urged Malaysian citizens to be well prepared to the emergence of the k-economy, so how does your Ministry react to it? What are the key areas to focus your initial efforts on?

This is related to the Ministry's main function, that is in developing entrepreneurs who are resilient, entrepreneurs who are able to withstand the rigours, the economic down-turn, the competitiveness in the market, creativity, innovative and keep up with the time. So our focus is in training and advice. With the advent of the k-economy, we would like to create k-entrepreneurs. And the focus is first of all on awareness, because entrepreneurs who are to be developed, cover all sections of the masses, ranging from school drop-outs, pensioners, the support groups and the professionals, the handicapped, the single parent and youth. Moreover, the education levels are different, right from the bottom up to University level. And this being the coverage, because of the different level of education, the Ministry's main task, with regards to k-economy, has to be on awareness - awareness on how valuable knowledge is to an entrepreneur. Knowledge that encompasses the use of IT, for example, or what information can be got from the Internet, how to employ e-commerce to trade or sell products, establishing contacts, create networks with the relevant people in other parts of the globe. Our aim after that awareness programme, is to offer the new entrepreneur and then the small entrepreneur, and eventually everyone - so they all have their own personal PC. So from that, they will all know what is going on. We plan to have a database on entrepreneurs and for this we may out-source it. We received a number of proposals to do this project, whereby data on entrepreneurs is to be created and then entrepreneurs can have access to such data. For this we may have to educate this entrepreneur on how to use the facilities, maybe through the use of seminars or their equivalent. We will subsidise the fees or maybe even offer them free of charge at first and later ask the Company which runs the seminar programme to subscribe to the data list. We will encourage entrepreneurs to subscribe to the facilities. By having such facilities, they can make contact with each other, because we give training. This is what we are going to do in the future.
Do you think that it is necessary to have a Knowledge Management strategy in your Ministry in preparing for the knowledge economy?

Of course, creating a k-organisation, an 'information and experience' ability in order to interpret and use information for the good of the organisation. This involves the structure of the organisation, where enabling information to be transferred easily is essential from the top-down, and this will also foster cooperation. When we say top-down, we have a weekly top management meeting, where the heads of division are members of the meeting. This is the session where information is transferred. The Chairman will pass on new information about policy, about whatever pertains to the running of the government which issues affect our ministry, those which have implications for the Ministry. We have a directive that each head of division has to transmit such information to relevant officers. Normally the head in turn will have a meeting with officers. To ensure such meetings are held, the management will monitor through the minutes and so we receive minutes from each division.

Is there a possibility of down-top opinion or something?

Yes, we have committees which comprise different levels of the staff, and whatever information or needs they want will be brought out during the meeting. These again will be transmitted to the top management during the top management meeting. However the regularity is at the top level.

How do you manage information/knowledge in your section?

In my sectors, I cover four divisions. I have meetings with the relevant heads. Once in a while I have meeting with each division, then I have meeting with the head of the four divisions. So, there are two levels: I meet the heads and I also meet the division members individually. This is where I gather information and transmits information to them.

Predominately what type of information/knowledge are you dealing with?

The four sectors concerned are public transport vehicles, projects, contractors and also information technology. So, what is important is the project. Program and Project development is important, especially the implementation of it. If there are any delays, it will effect development. For the moment we have about RM4.41 billion to spend. Of course there are so many problems in implementation. The central government regularly monitors and with implementation taking place, it issue directives, circulars as to what is to follow and what not to follow. All these are being transmitted to the division concerned, so that in their monitoring of a project, they know what to find out, should there be any delay, what must be
improved on, what are the issues and the problem to be resolved. Recently, we conducted a course, and all the officers involve attended the course. This is the forum where all the new policies were transmitted to them.

For the project, is the information been updated regularly?

Yes, in fact every time the top management received new information we transmit it to the head, and we expect the head to cascade it to the lower level staff.

So has the information been shared by other agencies?

Yes. Normally we monitor the project. The Secretary General will chair, and call the agencies concerned. This is the forum where the agencies get the information.

How do you encourage officers under your supervision to share their knowledge?

When I have meeting, I expect everyone to speak on what they are doing or new things they discover. I used to have before a session where each officer takes turn to share their knowledge, so the rest of the division know, especially those who have been sent for training, and came back and tell what they had learned from their training.

Is it documented?

Normally they documented it themselves and reported what they have learned for everybody to read. That is things that pertained to training, but other information - for example, articles which are relevant to their work will also be distributed. And if they are interested, they can photocopy this information. We send them either through hard copy or by emails.

Does your division have any problem in obtaining knowledge, especially via networks, training, other departments, manuals and so on?

Sometimes our system suffers from breakdown and sometimes information is lost. Maintenance is a problem because not everybody is familiar with the system. When the system is down or when there is any virus (I am talking about the PC) it is difficult because the division concerned is short of staff. They can’t correct the problem in the short time. What we are trying to do is to organise courses for staff from each division for minor repairs. So they know how to do minor repairs and how to solve problem with the system.
If members in your division left the Ministry, what would be lost and what impact that have on your division's performance?

This is another problem whereby officers can be transferred to other department. We cannot stop this and it would be unfair to stop them if they got promotion elsewhere. We can't provide them with a new post, so they have to be transferred to other department in cases of promotion. With that, we lose whatever knowledge the officer has. Nevertheless, before he goes, he is directed to prepare a handing over notes, but at the same time we have Manual Job Procedure. Each officer has to prepare manuals of their work, so that the person who takes over will know what to do. Of course we can always call these officers for reference. In each division there is another officer who can take over, because not one individual knows everything. Normally we sort of have an understudy, so the new officer can take over. Of course one person has more knowledge than others but this can be learnt through experience.

What are the biggest current impediments to knowledge transfer in the Ministry and how could they be overcome?

This is another problem, but maybe not actually a real problem, because I think, through our regular meeting, officers do share information. Once we did have officers who did like to keep the knowledge to themselves, but this is not encouraged now. Through our regular meetings, they have to tell what is going on.

What do you think would be the biggest difficulties in managing knowledge in the Ministry?

Keeping officers within the ministry and avoiding transfers. We would be prefer he/she be with the Ministry and get promoted within the Ministry. As you know, posts are not easily available. The promotion may be elsewhere. We cannot cater for such promotion. So if we were to stop him/her, it would be unfair on our part. So we let him/her go.

If you were to track the knowledge performance of your organisation over time, what do you believe would be useful to measure?

I would say, measurement for this Ministry is by the number of successful entrepreneurs we creat in business. In the beginning, I did mentioned we want k-entrepreneurs, who have both knowledge and also know how to use the knowledge for the benefit of the company. So with knowledge, if he knows how to handle it, use it, he may well be successful. This is the type of entrepreneur who is resilient, who can go global, and who can create new products with this
knowledge. And I would say, the number of successful entrepreneurs would be the measurement. In the case of physical projects, it would be the number of projects implemented on schedule. Although we are a 'generalist', our officers are able to monitor the implementation of the project which involves any technical expect. Our officers must know about buildings, etc. When they go to the site meeting, they must know what to do and must know what must be pointed out if there are defects, etc. I would say, in the case of physical projects, if it is implemented on schedule can be another measurement.

Do you have any facts and figures regarding successful businessman or businesswoman?

This is what we are trying to do in gathering of such information.

Do you have any other comments?

With k-economy the government as a whol tried to keep up with the times. Every department also wants to keep ahead, to upgrade their infrastructure, especially with the IT, but I think not a every officer is really used to the system/computers. Some find difficulty in just the skills of typing. This is one area where we need to place an emphasis. All officers must have a knowledge, must be capable and must have the IT knowledge. So when we go for lectures, etc, we need to have up-to date ways of presentation. We need to use the lap top, etc. to do the presentations, so that the entrepreneurs we're going to develop will have first hand knowledge.
Do you think information technology is the answer to Knowledge Management?

Information technology (IT) and knowledge management (KM) are two different things. IT is just a supportive tool to KM. KM is another area. It is how you want to use the knowledge. IT is only a tool. Without IT, KM can still be done. With the latest IT technology, Knowledge Management is not necessary the best. We can make a comparison between government and non-government organisations. If we look in a bank's operation, some banks are still using Windows 95, but most government offices use Windows 2000. However, in term of productivity, the private sector is much higher. The most important aspect is the usage of knowledge.

What technology tools do you believe offer the greatest potential for enhancing your organisation knowledge base?

For the time being, Internet and the web search are the best technology tools. However, it is not the greatest potential because the current search is only a one way search. It is not a knowledge base search. For example, if we ask for entrepreneur in the web, it displays not only on entrepreneur but other related things as well. However, it cannot make a link between an entrepreneur and other things. If we want a knowledge technology, a query about an entrepreneur should link to other things related to that entrepreneur. However, it is very difficult to get. We still don't have this kind of search. In the Ministry, the most important search is the application. However, the application is not the best search, because it is ready made. For example, if we go to CVLB (Commercial Vehicle Licensing Board) databases, we can ask for a list of taxis in Malaysia, a list of taxis in Kuala Lumpur, a list of taxis by the owner's gender, etc. But sooner or later, we might, for example, need to have a list of taxi drivers by race. It is not available. You need to add the features. If these technology tools can develop intelligent searches which have all possibilities, then that would be okay.

What are your main database management systems in the Ministry?

We have two databases. One is for Commercial Vehicle Licensing Board (CVLB) and the other one is for Contractor Services Centre (CSC). However, the problem in this Ministry is that one database runs on SQL server and the other runs on another platform. The
architecture and data items are also different. The Ministry will launch a new main database which is known as "PANDAK" (Pangkalan Data Usahawan – Entrepreneur Database). This is a new project. It will be launched next year (2002). If we discuss issues about database, this database is at the very top level. CVLB and CSC are at the lower level. Currently we develop up from the lower level. If you ask me a very simple question: "Given one Identity Card number, can you list me all the courses attended or is this person a contractor or he does he own a taxi?" then we cannot do it. This is because it runs in different platform.

Does the new system (PANDAK) that you're going to launch, incorporate both?

It will incorporate both, as management wants it that way. However, at the ground level CVLB is more to operational. We are not representing the management. If you go to CSC, they will say: "Why bother CVLB? I am from CSC. I do not have to link to CVLB." On this IT project we should bring this up. Then you can see the relationship between a data item from one division to another division. That is why PANDAK operates at high level. Furthermore, if you want to start an IT project, you must have a sponsor. In CVLB, the Deputy Secretary General (DSG) is not involved. It is between the Information Management Division and CVLB. Now this PANDAK, we will bring DSG in both to supervise and also as owner to the project. We lack a business owner overall. We do have a business owner, but only at operational level. We want the owner to sponsor at high level. Then we can see the global picture.

Do you need to bring both the Deputy Secretaries General together?

This happens everywhere. Not only in this Ministry, but also in another ministry. Normally, IT division is placed under the Management section. Under the Management side, we have Human Resources, Information Technology and other support divisions. The other site, we have the Operational section. That is the real Ministry. IT tries to help the other side with the sponsor. In IT division, the head will be the Deputy Secretary General (Development).

Do you think it should be the Secretary General herself?

That would be too high. However, it depends on the Secretary General. The Deputy Secretary General (Entrepreneur) is very aggressive. He says this is my product. He says functional analysis is yours but business ownership is mine. Dato' Rahman says PANDAK is mine. I am not sure either the Deputy Secretary General (Entrepreneur) or the Deputy Secretary General (Development) should chair.
Maybe one could chair for both sides?

It doesn't matter. But somebody must be the owner/sponsor. If we are able do this, then it will be no problem. Then we can relate IT and the knowledge management. Secondly, IT technology tools have the potential to enhance knowledge base because the query is at top level. It is not from operational level anymore. Thirdly, main database operation will be much easier. Previously, the Deputy Secretary General was not aware of this. That is why for Commercial Vehicle Licensing Board's (CVLB) project we brought in Cik Halimah. It is because CVLB is under Cik Halimah.

At the moment, what volume of knowledge can be stored in the Ministry?

It is too early to say. In CVLB we have 200,000 records. We have less than 100,000 records in Contractor Services Centre (CSC). Again, it is an operational system, similar to CVLB. If management wants to use the system, it is impossible. Management does not want to click many times before the information comes out. After a few times trying, they will get fed-up. That is why Internet is very powerful. With one click you can get everything. That is why it is important to have data grid. In our project we have a master database. It can link all training available such as franchise, vendor, etc. If we can bring Registrar of Company (ROC) and Registrar of Business (ROB) database to here, we can have complete picture of what you mean by entrepreneur. Again if you have SMI (Small and Medium Industry), we can search Malays and non-Malays. Currently, we still don't have knowledge. We are concentrating on data. Our system now is based more on operational in day to day operation. The management, they want some statistics about this.

Do all officers have access to the Internet and do they use it to seek information/knowledge outside the organisation?

In this Ministry we have access to the Internet. Last month, when I attended the Grade One courses in INTAN (National Institute of Public Administration, Malaysia), I found out the level of knowledge of the Internet is great. Access is very good. However, how to manipulate the maximum potential of Internet may not be zero, but it is very low. Again, maybe the Internet does not have such features. Or maybe, sometimes when we search the Internet, we cannot transfer data, etc. All officers have access to the Internet, but knowledge on how to use it is low. In the Ministry, it is also the same.
Is there any reason why sometimes people are not using the Internet to get information?

There are few reasons. Firstly, they don’t know how to do it. Secondly, in Malaysia, usage of Internet is high at certain period of time. However, how to acquire knowledge is little. Maybe they don’t know the features. They don’t know that there are features using "&" etc. Normally they will ask the URL. People prefer to zoom direct to URL.

Do you have training for officers on how to use the Internet effectively?

Next year I will try to relate on how to surf the Internet and how to bring the information to Word or Powerpoint. Currently, what they found in the Internet, they just printed it. What I gathered in the Grade One courses was that the lower grades search different things. Knowledge is not with Internet alone, but also with e-mail. E-mail is very effective.

Does every officer have e-mail – internal and external? How effective is the usage? Is there any problem in using Lotus Notes in the Ministry?

There are a few problems with e-mail. Firstly, if you are not an active e-mail user, then you will not be a regular e-mail user. For example, if you logon and you don’t have any e-mail, the next day, you will not bother to logon again. Secondly, people still don’t believe in e-mail. The reason is that, when you send e-mail, you will follow up by letter. So people will not read your e-mail, as they will decide to wait for your letter. Sometimes we have problem with e-mails. For example, last month we were hacked into. Thirdly, the e-mail is only confined in the ministry. If you ask me, who are the top users, I would say the Secretary General is one of the top ten e-mail user in the Ministry. The reason is because e-mail is for internal only. Outside the Ministry you can’t use the e-mail. Mostly people prefer to use hotmail, etc. It can be accessed from outside. There are a few approaches on how we can push this matter. Firstly, we encourage everyone to use e-mail. That’s why in this Ministry, we start making announcements using e-mail. We try to communicate through e-mail. The Human Resources is very effective. All training offers are sent through e-mail. However, the problem arises in the Top Management meeting, where senior officers say that they do not know of any courses offered. Secondly, we can force all divisions to use e-mail instead of letters, especially internally. Thirdly, the Secretary General and the Deputies must use e-mail. The Secretary General likes e-mail very much. Sometimes you yourself feel bored with long e-mail, especially with attachments. Fourthly, what we want to do next is to upgrade to Lotus Notes 5. By February next year (2002) we will use web base e-mail. Using web base, you can access e-mail at the office and at home. Just login to the Internet http://www.kpun.gov.my, than click e-mail. We hope that we can increase our e-mail usage. Fifthly, we will try “Small Office Home Office”. However, many officers still do not agree with this idea. We can work
from home. I will convey the idea next month. I will start with Grade Two and above. Everyone will have a laptop. We can do our work from home.

Do you think it has a potential to be used?

This is still uncertain. Some argue that they will have more work. Especially when the laptop down. PC (personal computer) is seldom down. We will give option either desktop or laptop. We will give only one. However, many of them want both. The reason being is that the probability of the laptop not working is high. We plan not to give laptop alone but together with the application. You can access knowledge-based like PANDAK, etc. If we give laptop alone, it will not be fully utilised. If we have web internet, we can install something for management. However, we haven't tested it yet. Back now to e-mail - next year we will start on entrepreneurship data. Maybe we will have an entrepreneur mailing list. Another thing, in Commercial Vehicle Licensing Board, you can submit an application form through Internet by February next year (2002). However, at the moment we will still use both (manually or electronically), running in Parallel. We still need the parallel run because we need to change la large number of Acts. For e-submission, maybe we could give green lane. Give them priority. The most important part about that is that we don't have to key in again. The scanner is not in use anymore. We are moving toward e-submission. In the next few years scanners will be obsolete. They call it OMR (Optical Machine Reader). Now we are moving to e-submission. It is much faster to fill in the form and send. Data already exists. This is some sort of data verification. When users key-in through the Internet, they will make sure all the data is accurate. If we do it ourselves, they might be some more errors. If we key-in ourselves, it takes 50 minutes. However, we have to give them some rewards. If we don't give them priority, they will say that it will be same with mail. At the time of submission we can decide on the interview date. Then bring the form during the interview. However, this matter is still under discussion.

If you look at the Internet, e-mail is a culture. However, if you promote e-mail, but the system is down, people won't like it. If we promote it but it can be used in the office only, then people won't like it either. We have to promote this together with the infrastructure. This Ministry seems to be okay. We will replace 200 PCs to Pentium 4 next week (November 2001). We hope that, with the speed upgraded, the performance will also increase. We have upgraded the server last month. Now we go to client. Everybody is asking for office 2000 etc.
What technology do you have that supports document imaging, document management and document storage? Is it fully utilised by everyone in the Ministry?

It is in the Ministry's 8th Malaysian plan. We propose to MAMPU (Malaysian Administrative Modernisation and Planning Unit) but at the moment MAMPU say - no. This is because it is under e-government project. MAMPU says that we have to wait until the e-government is completed, than use the government's application. Until now it is still not ready yet. However, we still need to proceed. Even though we have the budget, MAMPU still do not approve it. We will re-apply to MAMPU. It will be more on application, not on general purpose.

What operating systems are in use?

Previously we have a few operating systems and databases. If you go to CVLB there are a few. Now we have standardised it. All are using the same database and same operating systems. However we still use 'Bill' product. SQL (Sequential Query Language) Server data based and Window NT. We don't have enough staff for Visual Basic. Government officers are transferable. With regard to expertise, there are very few people who are expert in Power Builder in the market compare to Visual Basic. It will be difficult if we have problem. If someone moves out of the department, we have to train the new staff. Anyway, now the Public Service Department has many officers, we have to think through what is offered in terms of technical support.

Do you have any GroupWare or collaborative working tools?

For GroupWare, we only have e-mail. No others. Our e-mail has group for Senior Management, "Warga KPUn" and so on. There are requests, for "Warga KPUn" to include staff from MARA (Majlis Amanah Rakyat), PKKM (Perbadanan Kemajuan Kraftangan Malaysia) etc. The "Warga KPUn" has to be extended. This might be something internal. We can broadcast and the whole Ministry will receive it. It is very easy. We can include it in the group. In the future, if the Secretary General wants to deliver a message to everyone in the Ministry, it will be much easier. Maybe weekly message, or monthly message.

Do you have any internal training for officers?

With regard to internal training, we have to arrange with the Human Resources Division for the next three months. However, response is very bad. Example, for Powerpoint, no one signed in. Last year, there was no response at all. I understand, in this Ministry, maybe everyone has become expert in using Word and Powerpoint. That's why, when we offer a course, very little response. Maybe the training needs to be more advanced, such as on how
to prepare a bulletin using Powerpoint. We need to change the topic and approaches. Another example: if using the Internet - how to maximise use of Internet and Word. Last month, we launched a course on PC maintenance. Fantastic, so many applied. We offered the office boys. Spent almost RM10,000. We hope they can help us, but there is still problem because the one that attended the course knows nothing. Next year we will be far more specific. How to install words in PC, etc. One more thing is on training. We make a project, and we will call Microsoft, to talk about the future trend. Recently, I make a visit to Microsoft laboratory centre. Not many are interested. I don't understand why!

Maybe there is a need to change the culture. Do you think it is the way to make them aware of the knowledge?

Some of the employees are very cautious about change, very busy and have lots of work. I have spoke to the Human Resources Division. We want the Human Resource Division to conduct it. We include it in the Service Book. We make it formal. At one time, we collaborate with INTAN and the response was very good. Maybe the culture in INTAN offers an attraction such as a certificate. So we have to do it outside. Next year we will arrange more workshops and training on applications. How to use and how to apply. In this case we will make a GroupWare.

What Management Information, decision support and statistical analysis systems are used?

Not yet!. Back to my discussion with the RN (Planning and Evaluation Division). We want to develop Decision Support System or Executive Information System. First question they ask: "What do you have?" I asked them: "What do you want?" If they ask me what I have, I don't have anything. I only keep what they want! If you want to develop what you want, you need to develop what you have. Whatever we plan to do in PANDAK, we won't ask what they want. We will try to simulate what we have. When it is mature, then you can ask this and that!. For the PP (Project and Programme Division) premises online, we ask them what they want. They gave a report and said that they wanted this! They wanted results. Later on, it will mature. So it will generate knowledge. This is because they know what they want now! Same thing with monitoring. When we develop one, then they ask for more after they see it. Recently, when I made a project, I did not ask what they wanted, but what they could have. We manipulated it ourselves. After six month they asked for more. At the initial stage, it will be like that, but it will develop, once it has matured. Then we can support it. Now they are asking a lot more. We want to promote how to use and how to manipulate. This is the most important thing. Most PCs are only used for Words and e-mail. We want to go beyond.
Is there any other thing to say?

I will send to MAMPU for approval. I will also present it to the Entrepreneur Development Programme Committee (JPPU). We want to make e-kpun. It is a new product. Currently we only have a homepage at http://www.kpun.gov.my. It is not interactive. In e-kpun, it will have premises online, entrepreneur directory online, etc. We will launch it next year (2002). Next year it will be a new URL. We will have electronic submission. Only on application. The first will be premise online. Logon to http://www.kpun.gov.my then go to e-kpun. If you go to "usahawan" you can see a lot, transportation, license, etc. What we want to do is to develop PANDAK system, whereby we want to be the information resources. Our aims are to provide information on forecasting, analysis, information need etc. This is EIS. If you go to EIS, you can go to forecasting, training opportunity etc.

In this Ministry we want to zoom in only three application. Firstly "CVLB", secondly, "CSC" and the rest, "Entrepreneur". No more franchise, vendor, etc. All will be in "Entrepreneur". It will be easier to maintain. Only three databases. PANDAK is a link to CVLB, CSC, JPA (Public Service Department), MARA, Registrar of Business (ROB) and Registrar of Company (ROC). It is a very big system. If we define company, we also want to see the operation, and you can have the product. From here we can then look into training. The data can be a CSC's or CVLB's company. Given one IC (Identity Card) number, I can display training that they have attended, type of company they have and what product they produce. Same thing with the company owner. We can distinguish his owner, what training and product they have. Query will be much easier. Currently we don't have this kind of concept. Query can be made anywhere. We can ask: "This product - who produced it? What company is it? Who is the owner?" It will link everything. However, we need to have a smart query. The option is either we link it to the particular agencies or we as the depository. I think this is very big. The target might be more than 1 million records. We must have complete databases. The first phase is on infrastructure, starting in year 2003. We have a little budget but I think it will be no problem with Economic Planning Unit (EPU). But we must concentrate on programme. If MAMPU support us, it will not be a problem. Now we need to talk to MAMPU concerning to the 2001-2003 ICT plan, and what we want to achieve. We will distribute it electronically. Then the Ministry will have a good name, especially in national databases on entrepreneurs. We need the best and reliable computer system. We want to prepare the best infrastructure. We want to develop ICT expertise. It will save time. We must plan for five years on entrepreneurship databases. We targeted 2003 to be completed. This is simply support systems. By middle of next year, we will launch the online entrepreneurship directory. Then on CVLB. Our current task is to clean up databases. In KL (Kuala Lumpur) it is almost completed, in regional office by 2002. At the same time, we will launch single window to CVLB. We can see everything in the single window.
Interview with Mr. Md. Zakaria Basimin  
Under Secretary, Human Resources Division  
Ministry of Entrepreneur Development of Malaysia  
Date: 25 October 2001  
Time 11.30 a.m. – 12.15 p.m.

Does the Ministry have an education and training programme to encourage continuous learning? How are training needs identified?

Basically being a Government servant, everybody has to attend formal training in order for them to comprehend the basic of Government structure, and how Government works. This applies to everybody. After being appointed a Government servant, one has to undergo basic training, together with any other training done by the Ministry. Once posted to the Ministry, one has to attend a course, known as the Induction Course, which is tailored to the function and needs of the Ministry. Therefore, regardless of what categories the appointee is in, attendance at some kind of training is mandatory.

Apart from the Induction Course, do you give any training to the officers and the staff?

Yes. Once posted to the Ministry, one will be posted to a particular division of the Ministry. So with the diverse nature of work in that Ministry, they must undergo training relevant to the function of the specific Division. So basically the Ministry is providing some kind of training in order that staff know precisely what is expected of them. This training may be done by the Ministry itself, or it can be farmed out to other agencies which can provide it. We do send the Officers overseas to Higher Education Institutions that offer similar training.

Do the officers and staff identify their own needs or does the Human Resources Division identify it?

Basically we have training for everybody, regardless of what Division he or she is in. They will attend the same training. It is the responsibility of the Head to ensure staff know about administration, finance, and services, even if they are not dealing directly with any specific one of these. Take for example PKK or LPKP: they deal directly with Licensing, but apart from that, they must know the role of the whole Division. We also allow a staff member to identify any particular course that they might wish to attend. We believe that any other knowledge gained can only benefit the whole service.
Is it easy for employees to get the training they need in a timely way?

Sometime we are constrained by budgets. If the training is budgeted for, then it is very easy for them to go. If some officer needs some other knowledge for which no financial allocation has been approved, then we will need to get some further funding and be required to wait. If they cannot go for training in the current year, they can go in the following year, after we provide them some funding.

At the end of the year do Divisions suggest their own training needs? Or does the Human Resource Division prepare the budget?

We have a Training Committee to which every Division in the Ministry sends a representative. Each Division must identify the training needs for its Officers. In this case we are going to bid for the budget for next year, and we are going to choose which officers are to attend the training.

When officers return from training, do you ask them to share the knowledge they have gained with others?

Of course. That is part and parcel of training. When they come back, they have to disseminate whatever knowledge they have gained to others in the Ministry.

Do you have it documented?

Yes. They have to write a report, and they are also requested to give lectures/talks to the other officers.

Do you have any forum where officers have a place for a discussion?

We are planning to do that. We will have a session whereby all officers who come back from training disseminate whatever knowledge they have gained. We are planning to have it twice every month, every Saturday. That is our target.

Do senior officers encourage employees to discuss mistakes and learning points or do people look for scapegoats when something goes wrong?

Yes. Whatever mistakes they have made, they will discuss them to solve the problem as a whole team and not seek to blame others. In the Ministry we have a weekly meeting with the
Secretary General, where every Head of Division attends to discuss whatever problems have arisen for that particular period.

Who are employees that hold the knowledge most critical to the organisation’s success?

Every individual is of equal importance in the Ministry. There is nobody cleverer than the others. Their duties are to carry out the mission of the Ministry. Their duties are to carry out the mission of the Ministry. Everybody has their important role for the Ministry.

Are the Ministry’s procedures written down and regularly updated?

Yes. Regularly. The actual detailed work may need some changes, and it must be updated every time this happens. Additional work is always being given to the Ministry, so everybody has to be alert to change.

Are the procedures written in reports or in databases?

Yes. They are all recorded, especially matters of policy. We also have a data bank here. All are kept on the databases. Information pertaining to entrepreneurs is captured in databases. Everybody has their Manual Job Procedure, Desk File, together with ‘handing-over notes’ for those who are being transferred from the Ministry to Ministry or from Division to Division. This ensures that any new officer taking over the job won’t face any difficulties. Continuity is therefore ensured easily. Apart from this, they have Standard Procedures from the Public Services Department, Treasury and Malaysian Administration and Modernisation Planning Unit (MAMPU).

How about the Standard Procedures from the Public Service Department, Treasury and MAMPU - how do you distribute these to others?

With regard to the Standard Procedures form the Public Service Department, Treasury and Malaysian Administration and Modernisation Planning Unit (MAMPU), we always distribute the circular to other Divisions. They access the information from the web site from the particular agencies. We also provide a hard copy for each Division.

Do you have any regular discussion on the implementation of the circular?

If there have any difficulties in understanding the circular, they can get clarification from us. This is because the procedure is straightforward.
What are the main places (or who are the people) where employees can access or gain knowledge?

*If the officers have any difficulties, they can discuss them with the officers or in the meeting. We have an allocation to buy books, magazine, report etc for the Library. All officers can borrow from it.*

What opportunities are there for employees to develop their knowledge and skills (within their current role and for use beyond their current role)?

*We encourage our officers to attend seminar and workshop either with their own resources or with the Ministry’s budget allocation and this is either locally or overseas. We also have Exchange programme for officers between various Agencies under the Ministry, and the officers will gain first hand knowledge of what they are supposed to do. If they have the knowledge, then they can easily advise people/entrepreneurs. They need to know how to give advice to other people. They need to have knowledge before they can give that advice.*

Do you have any attachment for the officer in other ministry, agencies or company?

*Yes. That is done by Public Service Department. They were attached to British and German companies who have subsidiaries in this country. This kind of programme has been done quite sometime, and the duration of the programme is about 6 months. Those selected will definitely gain knowledge for the Ministry.*

If members in your Ministries left, what would be lost and what impact this have on your Division's performance?

*This is a problem the Ministry has to face. Knowledge workers replace the officers, so therefore we are always developing. We may be losing a good officer, but on the other hand our loss here will be some gain to other Ministry. Hopefully, the replacement officers will have other knowledge that we don’t have before. Continuous learning will be on. We also have back-up officers within the Ministry who can take over. We also have another arrangement with Public Service Department to retain knowledge workers in the Ministry. If they get promotion, we request that the Public Service Department to retain them in the Ministry.*