CHAPTER 1
INTRODUCTION

1.1 Background

Malaysia is one of the most economically dynamic countries of the world and one that has significant potential for integrating the Information and Communications Technology (ICT) in ways that will revolutionize production and distribution of goods and services. Contemporary ICT, especially when connected to the Internet, changes the way people work, play and conduct their lives. These changes are creating an impact on the way people communicate, do business transactions, learn and live their lives.

Furthermore, the implementation of Information Technology (IT) is articulated in the Vision 2020, which envisions Malaysia as a fully industrialized nation. Many experts have agreed that information will provide a nation’s competitive edge, where information will be a strategic tool for national development. One of the developments and utilizations of ICT is the Internet usage. The tremendous growth of the Internet, together with the creation of World Wide Web, has led to a critical mass of consumers and firms participating in a global online marketplace (Hoffman et. al, 1996). Rosniwati and Norbaini (1999) mentioned that there are currently 170 million Internet users worldwide and is expected to reach 350 millions in year 2003, whereby the bulk of the Internet users are from America. Malaysia currently has approximately 570,000 Internet users, which is about 3% of the total Internet population (Rosniwati and Norbaini, 1999). The increase in Internet users also brought about increase in Internet revenues. A study by Active Media showed that the Internet revenues have been increasing exponentially since its
introduction. Table 1.1 below is the results of a study conducted by Active Media on the Internet revenues:

<table>
<thead>
<tr>
<th>Year</th>
<th>Internet revenues (US$ billions)</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>$1</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>$2.7</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>$21.8</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>$73.9</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>$180</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>$377</td>
<td></td>
</tr>
</tbody>
</table>

Estimated

<table>
<thead>
<tr>
<th>Year</th>
<th>Internet revenues (US$ billions)</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>$717</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>$1,234</td>
<td></td>
</tr>
</tbody>
</table>

Source: (www.activemedia.com)

The increase in Internet users is not only happening in the developed countries such as the US and Europe but it is also happening in Malaysia. A survey conducted by the International Data Corporation, indicated that Malaysia’s Internet revenues was US$4 million in 1997. This figure is expected to increase to US$1 billion or RM3.8 billion by the end of year 2001 (Diagram 1.1). It is unquestionable that the ICT field, including the Internet is very important especially at this time when more and more organizations are employing electronic technologies in order to be competitive and efficient.
The increase in revenue is due to several factors. One of the contributing factors is because the usage of Internet has expanded and is no longer restricted to advertising and marketing purposes only. It is evident from the statistics that the Internet is becoming an important medium for commercial activities. The rapid adoption of the Internet as a commercial medium has led to many new innovations of Internet applications. Nowadays, ordering of products and services, support services and payment are also carried out over the Internet with a technology called “electronic commerce”. The importance cannot be ignored and Malaysia like other country has embarked on this new way of doing business.
Like elsewhere in the world today, Malaysians are opening up to the idea of Electronic commerce as it is commonly referred to, is still in its infancy, but it is widely believed to be the next big thing that will revolutionize the way business is transacted globally. With over 50 million potential customers accessible through the Internet, the stage is set for a digital economy. It is estimated that by early 21st century, Electronic commerce will amount to around 150 billion US dollars. Realizing this enormous opportunity to compete in global market scenario, Malaysia is preparing for the expansion of electronic commerce by developing a proper system to manage the movement of information and knowledge-based resources.

The rapid diffusion of the Internet throughout the world has accelerated the introduction of electronic commerce, whereby economic activities are based on digital information. Essentially, electronic commerce refers to business transactions over computer networks including both the private and public networks. There are two types of electronic commerce:

- One-to-one borderless marketing, where products and services are sold to individuals; and
- Business-to-business electronic commerce, where the transactions are between businesses

Electronic commerce is a manifestation of the digital economy, which is characterized by the following:

- Economic activities will become possible without the physical movement of people, things and money and there will be rapid development in the globalization of economic activities
• Contracts, the transfer of value and accumulation of assets will be conducted by electronic means. To facilitate these new forms of economic activities, it will become necessary to ensure security and trust in these activities.

• Information Technology, which is the foundation of the "new economy", will develop at a rapid pace and will continue to influence economic activities. So, as not to be left behind in such technological development, it is necessary to formulate economic rules swiftly and flexibly.

The widespread dissemination of electronic commerce will encompass into all aspects of lives. Issues such as privacy, security and access of information and intellectual property rights will become important. Other equal important issues are on educating and training the people to fulfill the demand in this field. Public education and awareness of Information Technology (IT) and multimedia technologies and the increasing concern for IT literacy will be the core agenda for progress into the Information age. The objective of such initiatives is to prepare Malaysians for the opportunities and challenges of the information society so that Malaysia will become a leading nation in the IT field. The economy can only be successfully restructured if the people are educated and equipped with skills and knowledge demanded in the IT field.

1.2 Electronic commerce and human resource development

Electronic-commerce fundamentally changes the overall aspects of life from business, social, political, economic and so on. It leads to different intermediaries, new products, new markets and new business consumer relationships as well as new channels for diffusing knowledge and for interaction in the workplace. One of the areas that is affected and will continue to be affected by the electronic-commerce is the manpower or
human resource development. This includes the skills and technical know-how in this field. For the purpose of this study, the impact of electronic-commerce and its implications in manpower requirement in Malaysia will be looked into closely.

Malaysia’s capability and capacity in acquiring and utilizing new knowledge and technologies will depend on the quality of its human resource. A competent, disciplined and highly skilled labor force with strong ethical and moral values and commitment to excellence must be developed. To face the challenges of globalization, Malaysians will have to be equipped with a strong base in education and training and possess a range of generic skills, including communication and language abilities.

To meet the requirements of the knowledge-based economy, there will have to be a paradigm shift in the policies and strategies of human resource development. The education and training system will have to be reoriented to be more effective in conveying skills as well as focus on areas required by the economy. The government will give priority to improving facilities and infrastructure and intensifying the use of ICT in all schools and institutions.

Manpower training is another critical factor for the development of Electronic-commerce. According to the Third Outline Perspective Plan (OPP3) 2001-2010, in terms of professional training, the Malaysian local tertiary institutions are offering around 19,000 full-time degree-level places in IT-related fields annually. Over 30 new programs at the diploma, graduate or post-graduate levels on Electronic-commerce and related subjects have been offered or are planned to be introduced shortly. In terms of vocational training and retraining, the Vocational Training Council is offering around 17,000 sub-degree level IT places annually, while the Employees Retraining Board is providing over 44,000 IT related training places each year (OPP3, 2001).
The widespread application and diffusion of ICT in all sectors will require workers with different levels of computer skills such as computer design, complex data management systems, data communications and networking as well as multimedia and Internet development. Low skilled and routine jobs will be reduced through automation. New jobs created will require workers with higher education and technical skills in new technologies. Computer literacy and numerically are therefore essential skills and will have to be acquired by everyone in the workforce. In addition, workers with core ICT skills will be required in all sectors in the economy, particularly in ICT industries. The demand for key ICT personnel comprising systems engineers, software developers, systems analysts, computer programmers and technical support is expected to be 306, 600 by 2010, as shown in table 1.2. The projected supply of graduates in ICT will be adequate to meet the demand for ICT personnel as a result of the enormous expansion in ICT education by both the public and private sectors.

Table 1.2
Employment of IT workers, 2000 – 2010 (Persons)

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

(Source: The Third Outline Perspective Plan, 2001).
1.3 Definition

In order to explore the impacts of electronic commerce, it is essential to define it. Electronic commerce can be defined as "a process whereby organizations/business share and exchange information, maintain relationships and conduct business transactions using technologies" (NPC & UM, 2000). Detailed review of the literature will be presented in Chapter two.

Electronic commerce can also be usefully defined as:
“The conduct of commerce in goods and services, with the assistance of telecommunications and telecommunications-based tools”

Some people use the term 'electronic trading' to mean much the same thing. Others use 'electronic procurement', 'electronic purchasing' or 'electronic marketing'. It is important to note, however, that 'EC' is often used in a much broader sense, to mean essentially the same as 'electronic business', as defined above. Examples of EB that are not EC include registration and licensing processes, student enrolment, and court administration. It is also important to note that EC comprises many segments, some of which have their own names. For example:

- Electronic catalogues' refers to means whereby sellers can communicate their offerings to potential buyers;
- Electronic data interchange (EDI) refers to a particular family of standards for expressing the structured data that represent EC transactions; and
- Electronic auctions' for a particular set of mechanisms for setting prices
Electronic commerce is new way of doing business. It is different than the traditional way of doing business where there is a direct interaction between the seller and the buyer. Electronic-commerce is an interchangeable of goods, services or property of any kind through an electronic medium. This definition is a general one, as it does not confine itself simply to the Internet. This is because even though the Internet is of huge importance in electronic-commerce, it is not the only method of facilitating it. Electronic-commerce can also be conducted over intranets, using interactive kiosks or telephone even interactive television, nor is Electronic commerce confined to shopping for compact discs or books as it also covers activities such as technical support, software distribution, package tracking, advertising and business to business collaboration.

Another definition, a more specific one is as follows: communication perspective where Electronic commerce is the delivery of information, products, services, or payments via telephone lines, computer networks or any other electronic means; business process perspective, Electronic commerce is the application of technology toward the automation of business transactions and workforce; from a service perspective, Electronic commerce is a tool that addresses the desire of firms, consumers and management to cut service costs while improving the quality of goods and increasing the speed of service delivery; from an online perspective, Electronic commerce provides the capability of buying and selling products and information on the internet and other online services.

Electronic commerce is a generic term to describe the way organization trade electronically. It uses a group of technologies to communicate with customers or other companies, to carry out information gathering, or to conduct business transactions. Although the Internet is the best known of these, others include Intranet, Electronic Data Interchange (EDI), and smart cards. Electronic commerce can also be defined as
computer-to-computer, individual-to-computer, or computer-to-individual business relationships enabling an exchange of information or value. However, the first widely available technologies supporting consumer-oriented electronic commerce are those linked to the Internet (principally the World-Wide-Web).

Electronic commerce is an integral part of a much broader social and economic change, characterized by the globalization of markets, the shift towards an economy based on knowledge and information and the growing prominence of all forms of technology in everyday life. This change has been called the Digital economy, the Information age or the E-economy. As Malaysia is moving towards K-economy or Knowledge economy, the introduction of electronic commerce is imperative. In Malaysia, people are already feeling the effects of the emerging Information age. Malaysia has changed and will keep on changing from being an economy dependent on agriculture to an economy based on manufacturing and industries to a Knowledge intensive economy.

For the purpose of this study, electronic commerce is more than the buying and selling of goods and services electronically; it also includes the technology and the technical know-how of doing business electronically.

1.4 Vision 2020 and Information Technology

Malaysia is a nation whose growth has been carefully shaped and guided by strategic five-year development master plans. Providing the ultimate backdrop to these programs is Vision 2020, a national agenda that sets out specific goals and objectives for long-term development. Vision 2020 is an optimistic, yet realistic, aspiration, which
draws upon past achievements and embodies the collective hopes of the Malaysian people.

The chief architect of this vision is Malaysia's Prime Minister of 20 years, Dato' Seri Dr. Mahathir Mohamad. Malaysians have responded robustly to his challenge to become a fully developed, matured and knowledge-rich society by year 2020. As a strategy to achieve the vision, Malaysia has embarked on an ambitious plan to leapfrog into the Information age by providing intellectual and strategic leadership. This means investing in an environment that encourages innovation, helping companies, both Malaysian and international, to reach new technology frontiers, partnering global IT players and providing the opportunities for mutual enrichment and success. It is imperative that Malaysia develops and sustains national initiatives with a focus on capability building in order to participate meaningfully in the international digital economy. Electronic commerce has been included as one of the essential components of the development package in the implementation strategies of the Multimedia Super Corridor (MSC).

1.5 The Role of MSC in electronic commerce

As a first step, Malaysia has created the Multimedia Super Corridor (MSC) - a world-first, world-class act - to help companies of the world test the limits of technology and prepare themselves for the future. The MSC will also accelerate Malaysia's entry into the Information age, and through it, help actualize Vision 2020. The MSC will bring together, for the first time ever, an integrated environment with all the unique elements and attributes necessary to create the perfect global multimedia climate. Set to deliver a
number of sophisticated investment, business, research and development (R&D) and lifestyle options, the MSC will be:

- A vehicle for attracting world-class technology-led companies to Malaysia, and developing local industries
- A Multimedia Utopia offering a productive, intelligent environment within which a multimedia value chain of goods and services will be produced and delivered across the globe
- An island of excellence with multimedia-specific capabilities, technologies, infrastructure, legislation, policies, and systems for competitive advantage
- A test bed for invention, research, and other ground-breaking multimedia developments spearheaded by seven multimedia applications
- A global community living on the leading-edge of the Information Society
- A world of Smart Homes, Smart Cities, Smart Schools, Smart Cards and Smart Partnerships

The Multimedia Development Corporation (MDC) as one of the one stop centers for promoting and conferring MSC status also acts as a catalyst for the growth of multimedia industry in the country. MDC envisions a 20-year time frame for the full implementation and execution of the MSC, when Malaysia will have achieved leadership in the Information age.

1.6 Problem Statement

The world electronic commerce’s transaction is said to have touched $500 billion this year according to one estimate (including goods sold and purchased over the
Internet). There are over 2 million people whose jobs are now dependent on it. And this is just the beginning. However, despite many efforts to increase skills and knowledge in ICT, talent vacuum continues to exist in the electronic commerce world, as there is a shortage of experienced manpower due to the newness of the industry and rapidly advancing technology. Furthermore, at the moment, there is still a need to improve our physical infrastructures for electronic commerce to be effectively implemented nationwide. According to a survey by an international organization that measures Internet users globally, the personal computer (PC) penetration rate of 3.2 per 100 persons in Malaysia are still low by international standards. In addition, there are only about 140,000 Internet subscribers in Malaysia compared to 175,000 in Singapore and 165,000 in Taiwan (http://www.ec.com.my)

1.7 Significance of the study

According to research conducted by IDC (International Data Corporation), findings indicated that in 1997, Malaysia chalked up an impressive RM 12.54 million in online sales. Projections indicated that by 2002, the total amount of online sales would increase to RM 646.9 million. But such projections would depend on the acceptance of the mass market. Currently, customers are still hesitant to shop online due to fears of fraud. Nonetheless, with the implementation of new technologies such as SET, these fears will be addressed.

This research is significant because it focuses on electronic commerce and human resource in Malaysia. Most studies concerning Electronic commerce generally focus on the success of Electronic commerce or how Electronic commerce can benefit the economy of a country or the applications of Electronic commerce and so on. This
research also is important to open a door for other researches to conduct more research on electronic commerce. Furthermore, the findings of this research will be useful to understand the issues involving electronic-commerce and human resource development and management in Malaysia.

1.8 Objectives of the study

This is an exploratory research because not much research has been conducted on the subject of electronic commerce and human resource development in Malaysia, as it is considered as a fairly new phenomenon. Among the objectives of this study are as follows:

- To find out about the level of knowledge concerning Electronic commerce among the workers (human resource) in Malaysia;
- To investigate the impacts of Electronic commerce on man power requirements in Malaysia;
- To examine the implications of Electronic commerce on human resource development in Malaysia; and
- To find out what kind of training is needed in human resource for Electronic commerce

1.9 Scope of the study

The scope of the study is limited to the impacts and implications of the manpower requirements in electronic commerce. It is quite exhausting to focus on every aspects of electronic commerce because it reaches out to almost every aspect of human lives. The
main objective involved an attempt to determine the current awareness of, usage levels, and initiatives undertaken in the area of electronic commerce. All of these will have tremendous implications on human resource development. Furthermore, if Malaysia wants to compete in global market, we have to be ready to adapt to a rapidly changing technology in the world of electronic.

1.10 Limitations of the study

Like any other studies, the present study also faces a few obstacles. As electronic commerce is a relatively new subject, not many references can be cited, especially a Malaysian reference. Furthermore, there are few studies on electronic commerce that relates to human resource development in Malaysia. Another limitation is that, the methodology and questionnaire for the study had to be developed very quickly because of the time constraint imposed on the study. Due to time and monetary limitation, the respondents are selected from the Klang Valley area only. It is impossible to administer the questionnaires to all the IT related employees in the nation. Because of this, the results gather is only representing the workforce in the Klang Valley area not of the whole nation. There is also language barrier while conducting the research since the researcher is a foreigner and cannot understand Bahasa Malaysia.

1.11 Methodology of the study

Besides secondary data from various books, journals, articles and Internet search, primary data will be collected from survey questionnaires that will be administered to employees from various companies in Klang Valley.
The questionnaire (See Appendix 1) asks questions as such to test the level of awareness and understanding of these employees on the topic of electronic-commerce and whether they possess the skills required.

The first part of the questionnaire consists of demographic data of the respondents. This is to generate the profile of labor force in Malaysia. Section two of the questionnaire constitutes the skill profile of the respondents. Five general occupational categories were identified to define the scope of IT occupations on the skills required. The occupational categories are based on the literature review and the third outline perspective plan pertaining to IT and human resource. The occupational categories are as follows:

- System/Hardware Engineer
- Software Developer/Engineer
- Business/Systems Analyst
- Computer Programmer
- Technical Support

A review of a list of job vacancies collected from Malaysian newspapers provided by the Department of Manpower supported the choice of these occupational groupings. The most common categories that appeared in the newspapers are as follows:

- Systems Engineer/ Business Analyst/Consultant 35 times
- Analyst programmer 21 times
- Systems Engineer 19 times
- Programmer 17 times
- Software Engineer 16 times
1.12 **Research Questions**

The research will attempt to answer the following questions:

- What is the current development of Electronic-commerce in Malaysia?
- What is the level of awareness and understanding of employees regarding Electronic-commerce in Malaysia?
- What is the skill and what kind of training is needed for Electronic-commerce?
- Does Malaysia have enough manpower and skill to sustain Electronic-commerce?
- What is the future of Electronic commerce in Malaysian work force?

1.13 **Organization of the remaining chapters**

Besides **Chapter one** that provides an introductory section, this research report also consists of four more chapters.

**Chapter two** presents the review of the literature on electronic commerce. The findings from various books, journals, magazines, newspapers and Internet search regarding electronic commerce will be discussed here. The discussion also focuses on why Malaysia needs electronic commerce now and on the difference of traditional commerce and electronic commerce. This chapter also discusses the potential of electronic commerce and its future in Malaysia.
Chapter three focuses on the methodology of the study. This includes the discussion on the questionnaires and data collection method. Part of the discussion also includes the population and the sample of the research.

Chapter four concentrates on the research findings such as the profile of the respondents and the answers from the questionnaires. Discussion also includes the data analysis gathered from the survey.

Chapter five provides the summary of the objectives and the empirical findings and conclusion of the research and a few recommendations to be considered.

1.14 Conclusion

Like elsewhere in the world today, Malaysians are opening up to the idea of electronic commerce. Malaysian citizens have begun to experience the reality of the Information age, whether they realize it or not. However, the main problem Asian companies in general and Malaysian companies in particular will face is the shortage of manpower in deploying electronic commerce. This is because internetworking and electronic commerce technology keeps changing, companies in Asia will have problems finding skilled IT staffs. However, Malaysia is fortunate because of the strong support and commitment of the government towards electronic commerce. Furthermore, the government through MSC provides the infrastructure to facilitate the growth of electronic commerce and it is up to the people to do the rest to live up to the expectation.