CHAPTER 1 : INTRODUCTION

This chapter provides initially a brief description of how Internet usage in Malaysia grows rapidly through the Seventh and Eighth Malaysia Plans. It then addresses the purpose and significance of this study of Internet Data Centres in Malaysia. The objectives of this study and the research questions are listed, before going through the scope and limitations of the study. At the end of this chapter, the organisation of the study is presented.

The necessary infrastructure and environment for the development of information and communications technology (ICT) was in place during the Seventh Malaysia Plan period (1996 – 2000) to enable Malaysia to move rapidly into the Information Age. The National IT Agenda (NITA), formulated in 1996, provided the framework for the orderly development of the country into an information and knowledge-based society by 2020 (Eighth Malaysia Plan 2001).

ICT is an important enabling tool towards acquiring the ability to create, distribute and exploit knowledge and information, which is often regarded as the single most important factor underlying economic growth and improvements in the quality of life. Recognising this fact, the Malaysian Government undertook various initiatives during the Seventh Plan to facilitate the greater adoption and diffusion of ICT to improve capacities in every field of business, industry and life in general.

A rapid growth in ICT utilisation was observed during the Seventh Plan period as a result. Investments in ICT expanded at a rate of 9.2 per cent per annum from RM3.8 billion in 1995 to RM5.9 billion in 2000 (PIKOM 2001), as shown in Figure 1. This was largely attributed to the increasing awareness of Malaysians to the importance of production, diffusion and utilisation of knowledge and information for improving competitiveness and overall economic performance. On top of that, the increase in ICT usage was also assisted by the provision of special incentives such as the abolition of sales tax on computers and components, and the granting of accelerated capital

allowance for expenses on computers and other ICT equipment (Eighth Malaysia Plan 2001).

ICT EXPENDITURE BY SECTOR, 1995–2000
(RM million)

Sector	*1995*	*%*	*2000*	*%*	*1996-2000*	*%*	*Average Annual Growth Rate (%), 1996-2000*
Banking & Finance	1,026	*27.2*	827	*14.0*	3,723	*15.0*	*-4.2*
Manufacturing	494	*13.1*	1,182	*20.0*	4,041	*16.3*	*19.0*
Government	380	*10.1*	532	*9.0*	2,062	*8.3*	*6.9*
Telecommunications	-	-	473	*8.0*	2,323	*9.3*	-
Distribution	304	*8.1*	650	*11.0*	2,586	*10.4*	*16.4*
Oil & Gas	380	*10.1*	296	*5.0*	1,623	*6.5*	*-4.8*
Utilities	266	*7.0*	236	*4.0*	1,253	*5.0*	*-2.3*
Professional ICT & Other Services	125	*3.3*	236	*4.0*	236	*1.0*	*13.5*
Healthcare	-	-	59	*1.0*	59	*0.2*	-
Education & Research	114	*3.0*	236	*4.0*	1,008	*4.0*	*15.6*
Transportation	114	*3.0*	177	*3.0*	1,147	*4.6*	*9.1*
Home	76	*2.0*	473	*8.0*	2,004	*8.0*	*44.1*
Plantation & Mining	76	*2.0*	-	-	100	*0.4*	-
Others	418	*11.1*	532	*9.0*	2,736	*11.0*	*4.9*
Total	**3,773**	***100.0***	**5,909**	***100.0***	**24,901**	***100.0***	**9.2**

Source: Computer Industry Association of Malaysia (PIKOM)

Figure 1 : ICT Expenditure by Sector, 1995-2000

SELECTED ICT INDICATORS, 1995 AND 2000

Indicator	*1995*	*2000*
Newspaper Circulation Per 1,000 Population	162	159[1]
Telex Subscribers	6,578	3,105[2]
Personal Computers (units installed)	610,000	2,200,000
Personal Computers Per 1,000 Population	29.5	95.7
Telephone Lines Per 1,000 Population	161.07	204.76[2]
Telephone Subscribers	3,332,447	4,650,410[2]
Mobile Phones	700,000	2,265,000[2]
Number of Internet Subscribers	13,064[3]	1,157,384
Number of Internet Users	30,000	4,000,000

Sources: Ministry of Energy, Communications and Multimedia, PIKOM, World Development Report, 1999/2000 and World Competitiveness Yearbook, 2000

Notes:

[1] Refers to 1998.

[2] Refers to 1999.

[3] JARING only.

Figure 2 : Selected ICT Indicators, 1995 and 2000

The extent of ICT usage was also measured in terms of personal computers (PC) and Internet penetration rates. The number of PCs installed was found to rise dramatically from 610,000 in 1995 to 2.2 million in 2000, as shown in Figure 2. The number of PCs per 1,000 population also rose from 29.5 in 1995 to 95.7 in 2000. The number of Internet subscribers increased from 13,000 in 1995 to about 1.2 million in 2000, a phenomenal rate of growth of 145.2 per cent per annum. Figure 3 shows that Wilayah Persekutuan Kuala Lumpur and Selangor had the highest and second highest number of Internet subscribers per 1,000 population at 103.9 and 84.9 in 2000 respectively.

INTERNET SUBSCRIBERS BY STATE, 2000

State	*Total Subscribers*	*%*	*Subscribers Per 1,000 Population*
Johor	77,747	*8.8*	30.3
Kedah	28,494	*3.2*	18.1
Kelantan	16,101	*1.8*	12.5
Melaka	17,234	*2.0*	28.6
Negeri Sembilan	22,373	*2.6*	27.0
Pahang	21,682	*2.5*	18.0
Perak	55,345	*6.3*	27.3
Perlis	3,710	*0.4*	18.7
Pulau Pinang	63,648	*7.3*	51.9
Sabah	40,692	*4.6*	16.6
Sarawak	43,219	*5.0*	21.5
Selangor	335,262	*38.2*	84.9
Terengganu	15,041	*1.7*	17.1
Wilayah Persekutuan Kuala Lumpur	134,870	*15.4*	103.9
Wilayah Persekutuan Labuan	1,355	*0.2*	19.2
Malaysia	**876,773**[1]	***100.0***	**39.5**

Source: Ministry of Energy, Communications and Multimedia

Note: [1] Excluding Maxisnet.

Figure 3 : Internet Subscribers by State, 2000

The increasing ICT usage, especially among the corporations, would also spur the growth in the usage of Internet Data Centres (iDCs) as an outsourcing option as the complexity in the IT infrastructure of these organisations increases. This growth is also believed to be catalysed with the

National IT Agenda in place, the establishment and development of the Multimedia Super Corridor (MSC) and its seven flagship applications, substantial investments made in laying the communications infrastructure, the accelerated use of e-commerce globally and nationally, and easier access to venture capital among others.

Internet Data Centres are relatively a new business in Malaysia, compared to countries like the United States of America. There are far fewer iDCs in this country and the awareness of such business is expected to be low, even among corporations. It would be interesting to find out what iDCs are, services offered by iDCs, what iDC customers look for when they outsource to the iDCs and if these customers are satisfied with the service level provided by their outsourcers.

An exploratory study seems appropriate at this stage as availability of secondary data is expected to be extremely limited or none at all. The study will have to rely on primary data. Furthermore availability of literature pertaining to the industry in Malaysia is also anticipated to be limited and difficult to obtain. Nonetheless, a study like this could help put things into perspective for both the iDCs and their customers in this relatively new industry in Malaysia. It will be worthwhile to identify what iDCs can and need to offer to their customers so as to meet their customers' expectations and satisfy their needs. This will also serve as a reference to the iDCs and help them realise which services, what infrastructure and the pre-requisites they need to offer and be equipped with to better carry out their business.

Equally important will be to ascertain what these customers require and if they are satisfied with the service levels. It will also help create the awareness among the customers what to expect from their outsourcers and if they have chosen the right outsourcers for their IT outsourcing needs.

By understanding and addressing these two aspects, the iDC – customer relationship can be improved and consequently help realise or accelerate the realisation of the benefits for both parties.

1.1 Purpose and Significance of the Study

This study of exploratory nature aims to provide an insight into the Internet Data Centres (iDCs) in Malaysia. These iDCs offer co-location and hosting services to organisations which wish to outsource their IT infrastructure and/or services for various reasons. The objectives of this study are:

1. To identify the infrastructure owned and services provided by these iDCs

2. To identify the target markets of these iDCs

3. To examine these iDCs based on internal factors (security and availability) and external factors (environment, power and telco)

4. To identify the requirements of the iDC customers

5. To compare these requirements with the services offered by the iDCs

6. To identify any future expectations and requirements by these iDC customers

1.2 Research Questions

Based on the objectives stated in the previous section, this research aims to address the following questions:

1. Do the Internet Data Centres own the infrastructure and provide services required to carry out the business?

2. Who are these iDCs targeting as their customers?

3. What are the internal and external factors these iDCs have and how are these factors compared to a typical iDC?

4. What are the requirements of the customers of these iDCs?

5. How are the services offered by these iDCs compared to these requirements of their customers?

6. What are the future expectations and requirements of these iDC customers?

1.3 Scope of the Study

Due to time, logistics, geographical and financial constraints, this study covers only commercial Internet Data Centres in the Klang Valley and the customers of these iDCs. According to HSPstreet.com's website, which maintains a directory of iDCs in the world, most of the iDCs in Malaysia are concentrated in the Klang Valley. Incidentally, Klang Valley is within Selangor and covers Kuala Lumpur, where the combined number of Internet subscribers per 1,000 population at 188.8 (in 2000) was the highest amongst all the states as shown in Figure 3. The list of registered iDCs is included as Appendix A.

1.4 Limitations of the Study

The Internet Data Centre is a relatively new form of business in Malaysia. It could be considered to be still in its infant stage. According to sources from the Ministry of Energy, Communications and Multimedia, there is currently no governmental body or authority that regulates the iDCs operating in Malaysia. Hence the exact number of such iDCs cannot be ascertained. The list of 25 iDCs registered with HSPstreet.com was used as the reference. Incidentally this number is not too far off from the quantity of approximately 30 which was revealed by IDC AP through one of their market scans conducted in 2001.

Another limitation to this study is that the exact or even approximate number of iDC customers is also not available. This information could have been approximated by summing up all the customers of each and every iDCs in Malaysia. However, not only the total number of iDCs is unknown, not all of the iDCs obtained from the HSPstreet.com website participated in the study. As a result, this study could only involve the customers whose names were revealed by their respective iDCs.

The third limitation is that this study focussed only on commercial Internet Data Centres in this country. Therefore some of the findings specific to the iDCs may not give any accurate representation of the iDCs constructed for internal use by organisations in Malaysia.

1.5 Organisation of the Study

This study was fundamentally divided into two parts. The first part involved identifying the basic features, services and facilities the iDCs in Malaysia have and offer. The second part focused on the level of satisfaction and expectations of the customers of these iDCs.

In part one, the facilities, services and basic features of a typical iDC were listed down by referring to those of established iDCs in other parts of the world. The short-listed iDCs in Malaysia were interviewed and the services, facilities and features of these local iDCs were compared against those of a typical iDC. The findings were then tabulated to provide an overview of the features, services and facilities possessed by these iDCs.

In part two, organisations which purchase iDC services were interviewed to provide an insight into the reasons why they outsource their IT infrastructure. The study then tried to find out if these organisations are satisfied with the service quality of the iDCs for the investments they have made. The organisations' expectations and opinion on possible improvements on these iDCs were also sought, which were compiled to become recommendations on improvement for the iDCs.

It is worthwhile to combine and compare findings from part one and part two. The comparison of the services offered by the iDCs and the expectations of their customers would provide a broader picture of whether these iDCs have offered services required as well as expected by their customers.

The framework as shown in Figure 4 can provide a better illustration of the organisation of this study.

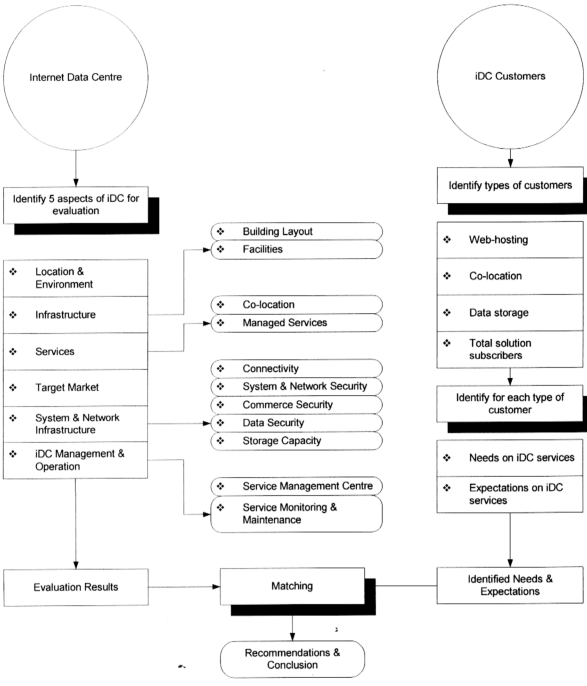

Figure 4 : The Framework of the Study of iDCs in Malaysia