

# **ICT UTILIZATION AND THE INFORMATION ECONOMY: THE CASE OF MALAYSIA**

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## **ABSTRACT**

Malaysia is taking steps to transform the economy from being production-based to being knowledge driven (K-economy). In line with this objective, information and communication technologies (ICT) have been identified as the strategic enabling tools that will support the growth of the Malaysian economy as well as enhance the living standard of the population. Hence, in the past decade various initiatives have been taken by the government to promote the use and development of ICT. However, there are many issues and challenges that need to be addressed by the country before a successful transformation to a K-economy can be made. One of the issues is ICT utilization for the development of an information society and economy in the country. The paper assesses the current state of ICT utilization in Malaysia based on secondary data. The result indicates that the level of ICT utilization in the country is still low compared to selected countries and there exist wide disparities among states in Malaysia in terms of accessibility to ICT.

**Key words:** ICT utilization, Information economy, Information society, K-economy.

## **1.0 INTRODUCTION**

**T**he Information Age is upon us. It was brought about by the advancement in ICT and the information revolution. In parallel with this development emerges the so called K-economy. Already many countries around the

world are preparing themselves for the emerging economy. The move is inevitable as the global phenomenon will affect everyone and the pressure to change is tremendous. Survival and prosperity in this new environment dictate that all countries must have major agenda of structural adjustment. Hence, in 1996 the government established the Multimedia Super Corridor (MSC) to accelerate Malaysia's entry into the Information Age, and help realize Vision 2020. In line with this objective ICT has been identified as the strategic enabling tools that will support the growth of the Malaysian economy as well as enhance the living standard of the population (Malaysia, 1996, 1999). Since 1995, efforts to promote the use and development of ICT have become increasingly important in generating economic growth as well as facilitating the country's transition to the information economy. Consequently, investment in ICT expanded at a rate of 9.2 per cent per annum between 1995 to 2000, from RM3.8 billion in 1995 to RM5.9 billion in 2000 (Malaysia 2001). Now, Malaysia is taking steps to transform the economy from being production-based to being knowledge driven. However, before an orderly and successful transition into a k-economy can be made there are many issues and challenges that need to be addressed by the country. One of the issues is ICT utilization for the development of an information society. The objective of this paper is to assess the current state of ICT utilization in Malaysia in comparison with selected countries based on secondary data.

## **2.0 LITERATURE REVIEW**

Though there are writings and studies on information economy and k-economy, almost all are on the developed countries and mostly in the form of conceptual papers and reports (OECD, 1996; Canada, 1997). In the case of Malaysia, there have been far fewer empirical investigations on this subject, except for some government reports. Based on the existing literature, an important finding emerged: the infrastructure of an information economy and k-economy is ICT. ICT is the enabler of change and facilitator of knowledge creation in innovative societies (OECD, 1996). In terms of ICT utilization, according to Bank Negara Malaysia (p. 65, 1999), Malaysia:

“While...[having] relatively strong economic fundamentals, ...needs to develop the information infrastructure and increase the use of technology.”

So, in the Eighth Malaysia Plan (2001), one of the strategic thrusts for the development of ICT will be upgrading and expanding the communications infrastructure to increase accessibility throughout the country as a means of bridging the digital divide.

## **2.1 Information Economy and K-economy**

### *2.1.1 Information Society and Economy*

The concept of information economy and society emerged in the 1970s onwards, and it rapidly gained widespread currency among scholars, academics, authors and later the medias (Martin, 1995). Among those who discussed the concept and evolution of the information society were Bell (1973), Naisbitt (1982) and Masuda (1981). According to Bell (1973), an information society is a post-industrial society. In this society the crucial variables are information and knowledge (Bell, 1973, Masuda, 1981). Using the United States as an example, Naisbitt argued that the United States made the transition from an industrial to an information society as early as the 1960s and 1970s and that in this process the computer played the role of liberator (Naisbitt, 1982; Martin, 1995). According to Martin (1995) an information society is :

“...a society in which the quality of life, as well as prospect for social change and economic development, depend increasingly upon information and its exploitation. In such a society, living standards, patterns of work and leisure, the education system and the marketplace are all influenced markedly by advances in information and knowledge. This is evidenced by an increasing array of information-intensive products and services, communicated through a wide range of media, many of them electronic in nature.”

### *2.1.2 Information and K-Economy*

There is no one standard definition of the K-economy. But the concept of the ‘knowledge-based economy’, ‘knowledge-driven economy’ or K-economy is used to describe an economy in which the generation and exploitation of knowledge play the predominant part in the creation of wealth (United Kingdom Department of Trade and Industry, 1998). According to OECD (1996), a ‘knowledge-based economy is an economy that is directly based on the production, distribution and use of knowledge and information’.

An important prerequisite for knowledge creation is information. Knowledge creation is made possible only by the availability, diffusion and productive use of information most prominently in the form of information technology (IT) (Botkin, 1999). Based on this definition, and drawing from the experiences of OECD countries, it is apparent that a k-economy is firstly an information economy: an economy where a majority of workers will be producing, handling, distributing and using information or codified knowledge (OECD, 1996). In such an economy, one of the essential elements is a high degree of ICT utilization.

### **3.0 ICT UTILIZATION IN MALAYSIA**

Information is basic to human beings. Information activities include direct conversation with other people, consultation by means of telephones, watching television news, reading newspapers or books, and many others. In the context of contemporary technology, according to Shapiro and Varian (Shapiro and Varian, 1999), very broadly, anything that can be digitized – encoded as a stream of bits – is information. As is widely recognized, information is instrumental to productivity and modernization of society. In fact the development of human society parallels with the development of information activities. Following earlier studies (Kuo, 1991; Ernst and Young, 1999), this paper attempts to assess ICT utilization in Malaysia based on accessibility to communication infrastructure such as mass media and telecommunications.

There are a few indicators of ICT that we will be using to assess the extent of ICT utilization in the country. Firstly, we will look at the two widely used media of mass communication, i.e., newspapers and televisions. The operation of these media involves the production and distribution of a massive amount of information which is publicly available to a large number of the population. Hence the statistics on the availability and use of these mass media serve as important indicators of the extent of ICT utilization in a country. Secondly, we will look at the utilization of telecommunication facilities in the country, based on telephones and mobile telephones density. Finally, we will look at the degree of computerization in Malaysia. This will be based on the number of internet hosts and personal computers.

In terms of accessibility to ICT infrastructure, Malaysia rates well compared to other developing countries. But we still lag behind the advanced countries in all the measures (Table 1). For example, in 1996 the number of newspaper readership in Malaysia was only 124 per one thousand compared to 580/1000 in Japan and 332/1000 in the United Kingdom. In terms of telephone lines we only had 183 telephone lines per one thousand inhabitants in 1996 compared to 640/1000 and 528/1000 respectively for the US and UK. In comparison with developing countries in this region, the newly industrializing countries (NIC) fare better than Malaysia.

**Table 1: Indicators of Information and Communication Utilization in Selected Countries in 1996 (Per 1,000 population)**

Country	TV	NW	Tel.	MP	IH	PC
The United States	806	212	640	165	442	362
United Kingdom	612	332	528	122	149	193
Korea	326	404 <sup>+</sup>	430	70	29	132
Malaysia	228	124 <sup>+</sup>	183	74	19	43
Singapore	361	364	513	141	196	217
Indonesia	232	20 <sup>+</sup>	21	3	1	5
Thailand	167	48 <sup>+</sup>	70	28	2	17
Philippines	125	65 <sup>+</sup>	25	13	1	90
Japan	700	580	489	214	76	128
Middle Income Countries	252	62 <sup>+</sup>	78	8	2	12
Lower Middle Income Countries	246	54 <sup>+</sup>	62	5	1	8
Upper Middle Income Countries	255	96 <sup>+</sup>	140	19	8	28
High Income Countries	611	303 <sup>+</sup>	540	131	203	224

**Notes:**

<sup>+</sup> 1994 figures

TV=television sets

NW= newspaper circulation

Tel.=No. of telephone lines

MP=No. of Mobile phones

IH= No. of Internet Hosts (per 10 000 population)

PC=No. of personal computers

Source : World Bank 1998, 1999; UNESCO 1999

Our performance is worse in terms of the newest form of infrastructure as measured by the number of personal computers and internet hosts. In 1996 the number of personal computers per one thousand inhabitants for Malaysia was 43. This is very low when compared to 362/1000 for the US and 193/1000 for UK. Malaysia also ranks lower than Singapore and Korea. All these indicate that we still have a long way to match advanced countries in terms of their achievement in ICT utilization<sup>1</sup>.

The main factor that contributes to the low level of ICT utilization in Malaysia compared to these countries is the income level. As compared to the advanced countries and the newly industrializing countries (NICs) (e.g., Korea and Singapore) our per capita income is lower, which means lower affordability and

<sup>1</sup> The number of personal computers per 1,000 population in 2000 was 95.7 and internet users was 17 percent of the population (Malaysia 2001).

accessibility to ICT. As argued by Chang (2000), income level is still one of the main factors determining accessibility to ICT. Hence, the high cost of computers and computer peripherals was the main deterrent for non-users (Goh, 1997). In addition, ICT is also relatively new in Malaysia which means less exposure, literacy, level of skills about computer use and utilization by the masses.

#### **4.0 CHALLENGES**

What has transpired from the statistics is that the extent of ICT utilization in Malaysia is still relatively low compared to the level that we would want to achieve, and compared to the developed countries. The infrastructure of an information economy and k-economy is ICT. So access to this technology is of great necessity. We already have a good and a well-developed ICT infrastructure. Ideally what we need is universal access, or if that is not possible at least accessibility to these technologies to the majority of the population. Possession of a world-class infrastructure is indeed necessary but not sufficient. Accessibility is as crucial.

In this regard, one issue of great concern is the problem of digital divide. Indicators for ICT utilization according to states in Malaysia (Table 2) show very uneven penetration rates among the states. For example in terms of the number of telephone lines per 1000 population, the rate ranges from 83/1000 in Sabah to 266/1000 in Kuala Lumpur, implying a gap in development and a potential problem of ICT diffusion. Since there is no data available on the number of personal computers according to states, no comparison can be made on the accessibility to this media. But as pointed out by Chang (2000), income level is still one of the main explanatory variables for accessibility to ICT. Based on this argument, it can be inferred from the data on GDP per capita (and the rate of urbanization as a proxy for access to modern infrastructure) (Appendix I) that there exist wide disparities among states in terms of accessibility to ICT. Given this scenario, if this disparity continues it will hinder the development of an information society and economy in the country. To overcome this problem, efforts to increase the income of the population should be a priority. In addition, ICT should be made available at more affordable prices to ensure greater accessibility and utilization.

**Table 2: Selected Indicators of Informatization by State in Malaysia (Per 1,000 Population)**

States	NW (1999)	Tel. (1998)	Television (1995)*	Internet Subscribers (2000)
Johor	165.59	232	134.1	30.3
Kedah	88.14	170*	96.1	18.1
Kelantan	50.80	92	56.6	12.5
Melaka	174.14	260	138.3	28.6
Negeri Sembilan	161.43	230	164.9	27.0
Pahang	103.37	152	118.6	18.0
Perak	128.03	233	135.0	27.3
Perlis	76.75	-	96.1	18.7
Pulau Pinang	164.87	296	141.9	51.9
Sabah	22.72	83	60.5	16.6
Sarawak	116.37	140	67.2	21.5
Selangor	235.51	289	94.6	84.9
Terengganu	75.71	123	87.9	17.1
Kuala Lumpur	309.96	266	201.4	103.9
Malaysia	133.81	175.4	108.5	34.0

**Note:** \* including Perlis

NW=newspaper circulation

TV=television sets

Tel=No. of telephone lines

Source: Statistics Dept. (various issues); Malaysia 2001.

## 5.0 CONCLUSION

The degree of ICT utilization in the country is still low. Consequently, there is the problem of accessibility to the new technologies for the majority of the population. Since ICT are the infrastructures of the k-economy, access to these technologies is a necessity. More needs to be done to increase accessibility to and utilization of ICT by the masses. Among these is increase in income of the population and more affordable prices of ICT.

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APPENDIX 1

**Table 3. Selected Development Indicators By State in Malaysia  
1995-2000**

	GDP Percapita*		Poverty Rate (%)		Urbanization Rate (%)
	1995	2000	1995	2000	1995-2000
<b>More Developed States</b>	<b>12,940</b>	<b>17,410</b>	<b>4.2</b>	<b>3.9</b>	<b>69.95</b>
Johor	10,007	13,954	3.1	2.5	59.15
Melaka	11,305	15,723	5.3	5.7	58.4
N.Sembilan	9,034	12,791	4.9	2.5	51.15
Perak	9290	13,183	9.1	9.5	57.85
P.Pinang	15,054	21,469	4.0	2.7	78.25
Selangor	14,168	17,363	2.2	2.0	84.55
K.Lumpur	22,799	30,727	0.5	2.3	100.00
<b>Less Developed States</b>	<b>8,027</b>	<b>10,893</b>	<b>15.6</b>	<b>13.2</b>	<b>39.75</b>
Kedah	6,391	8,918	12.2	13.5	36.9
Kelantan	4,484	6,241	22.9	18.7	33.5
Pahang	7,548	10,370	6.8	5.5	38.55
Perlis	7,634	10,802	11.8	13.3	31.7
Sabah	7,206	9,123	22.4	20.1	44.45
Sarawak	9,287	12,755	10.0	6.7	44.85
Terengganu	16,553	22,994	23.4	14.9	48.0
Malaysia	10,756	14,584	8.7	7.5	58.45

Note: \* = at 1978 prices

Source: Table 5-3, 5-5 and 5-7 Malaysia, 2001