

.my

Malaysia

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Total population	27.46 (2008) ^a
Literacy rate	Male = 92%; female = 90% (2008) ^b
GDP per capita (in USD)	USD 7,000 (USD 1= MYR 3.147) (2008) ^c
Computers per 100 inhabitants	21.8 (October 2005) ^d
Mobile phone subscribers per 100 inhabitants	85.1 (2007) ^e
Internet users per 100 inhabitants	14.3 (2007) ^e
Domain names registered under .my	78.618 (as of October 2008) ^f
Broadband subscribers per 100 inhabitants	7 (2008) ^e
Internet domestic bandwidth	3.6 Mbps (September 2008) ^g
Internet international bandwidth	3.6 Mbps (September 2008)

(Sources: ^aMalaysian Statistics Department 2008; ^bBank Negara Malaysia [Central Bank of Malaysia] 2008; ^cAziz 2008; ^dAbu Hassan and Hasim 2008; ^eMCMC 2008; ^fMYNIC Berhad 2008)

INTRODUCTION

Since gaining independence from the British in 1957, Malaysia has embarked on various development projects to accelerate the country's growth. In recent years, information and communication technology (ICT) has been a major component of the country's five-year development plans. The five-year development plans in the 1970s sought to create balanced development within states in Malaysia and to reduce disparities between rural and urban areas. The development of ICT at the global level has prompted the Malaysian government to strengthen the role of ICT in national economic development.

Various institutes have been set up in support of ICT development. For instance, the Malaysian Institute of Microelectronic Systems (MIMOS) was established in 1985 with the aim of providing critical infrastructure for the advancement of the local electronic industry (MIMOS 2008). Vision 2020, a plan to achieve developed country status for Malaysia by the year 2020, was launched in February 1991 by then Prime Minister Tun Dr Mahathir Mohamed in a speech entitled 'Malaysia: The Way Forward' at the Malaysian Business Council (Economic Planning Unit 1991). Under the 7th Malaysia Plan 1996–2000, the National Information Technology Council (NITC) was established as an advisor to the government on IT development. The government likewise launched the Multimedia Super Corridor (MSC) during this development period. The National Information Technology Agenda (NITA) was adopted soon thereafter to guide IT development in the country (Abu Hassan and Hasim 2008).

The 8th Malaysia Plan 2001–2005 aimed to provide a stronger platform for the country's transition toward a knowledge-based economy. In the 9th Malaysia Plan 2006–2010, the

focus is on advancements in the global digital environment and promoting wider ICT adoption and usage in all aspects of everyday life. This chapter provides an overview of some of the efforts in this regard.

TECHNOLOGY INFRASTRUCTURE

Under the 9th Malaysia Plan a budget of MYR 12.88 billion (about USD 3.55; 1 USD = MYR 3.147) has been allocated for ICT-related programs. This represents a 64 percent increase from the MYR 7.88 billion budgetary allocation for ICT-related programs during the 8th Malaysia Plan (Economic Planning Unit 2006).

A centrepiece program in technology development in Malaysia is the Multimedia Super Corridor (MSC), designed to create an ideal environment for ICT-related production and provide the backbone for an information superhighway. The network contains a high-speed link that connects Malaysia to other countries in the Association of Southeast Asian Nations (ASEAN), Europe, Japan, and the United States (US), and is capable of supporting extensive public administration, education, and business applications. In other words, the superhighway is intended to provide Malaysians with fast and reliable access to global information.

The government's efforts to improve access to ICT are connecting more citizens. Statistics show that there were 2,851,000 fixed-line residential telephone subscribers (47.8 percent of households) and 1,499,000 fixed-line business subscribers in 2007 (MCMC 2008). Similarly, the cellular phone penetration rate increased to 85.1 per 100 inhabitants at

the end of 2007, with 23,347,000 cellular phone users in the country. Internet dial-up subscriptions also increased to 14.3 per 100 inhabitants in 2007 compared to 13.9 per 100 inhabitants in 2006. The broadband subscription in 2007 was five per 100 inhabitants (MCMC 2008). The personal computer penetration rate in 2005 was recorded at 21.8 per 100 inhabitants (Economic Planning Unit 2006).

To develop technology infrastructure, Malaysia has launched a five-year ICT master plan called Malaysian Information, Communication and Multimedia Services 886 Strategy (MyICMS 886). The plan aims to deliver, in the 2006–2010 period, advanced information, communication, and multimedia services. The plan consists of eight new services to catalyze and promote the development of eight essential infrastructure for consumers and businesses in Malaysia to generate growth in six areas (ITU 2006). The eight new services are high speed broadband, third generation (3G), mobile TV, digital multimedia broadcasting, digital home, short range communication, Voice over Internet Protocol (VoIP)/Internet telephony, and universal service provision. The eight essential infrastructures are multi-service convergence networks, 3G cellular networks, satellite networks, next-generation Internet protocol (IPv6), home Internet adoption, information and network security, competence development, and product design and manufacturing. The six areas that will generate growth are content development, an ICT education hub, digital multimedia receivers, communication devices, embedded component devices, and foreign ventures.

KEY INSTITUTIONS AND ORGANIZATIONS DEALING WITH ICT

Twenty-six ministries and the prime minister's department are expected to utilize ICT to the fullest in delivering services to their target sectors (Abu Hassan and Hasim 2008). Several government organizations are specifically tasked with ICT development in Malaysia:

- The Ministry of Energy, Water and Communication (MEWC) is responsible for policy and strategic planning for the communications industry, coordinating policy implementation, and monitoring industry performance.
- The Ministry of Information is responsible for public information dissemination through the electronic media, face-to-face communications, and film making activities. There are four agencies under the ministry: the Department of Broadcasting, Department of Information, Department of National Film, and Department of Special Affairs.
- The Ministry of Home Affairs is responsible for film control to safeguard racial harmony in accordance with the principles of *Rukunegara* (the Malaysian National Principles).
- The Ministry of Science, Technology, and Innovation (MOSTI) provides technical and management support services to ICT projects and programs.
- The Ministry of Rural and Regional Development is in charge of community access, telecentres, rural information programmes, bridging the digital divide, and village information center (Infodesa) projects for computer training skills and computer literacy.
- The Malaysian Communications and Multimedia Commission (MCMC), which is under the MEWC, issues telecoms licences, implements regulations, and facilitates universal service provision.
- The Malaysian Administrative Modernisation and Management Planning Unit (MAMPU) is tasked with enhancing the quality, efficiency, effectiveness, and integrity of the Malaysian Civil Service. This includes overseeing ICT development, in addition to organizational development, management integrity, and enhancing the relationship between the public and private sectors.

Every state government also plays an important role in promoting use of ICT particularly by providing community access to the State Information Technology Advancement Unit (KIT) for Electronic Government System, education network, and electronic commerce. The local authorities of city councils are also responsible for providing community access to the Internet, as well as computer skills training and computer literacy.

In the private sector, cybercafé entrepreneurs play an important role in Malaysian ICT development by providing communities with access to the Internet and the digital experience (Abu Hassan and Hasim 2008).

ICT AND ICT-RELATED INDUSTRIES

MSC Malaysia (formerly known as the Multimedia Super Corridor) was set up in 1996 with the aim of building a competitive cluster of local ICT companies and a sustainable ICT industry. It is a national initiative to promote both the national ICT industry (to transform them into world-class companies) and to provide a test bed for the global ICT industry. As such, the MSC provides state-of-the-art ICT and multimedia facilities in 'Cybercities' to various businesses, including major global ICT companies. As of May 2005, 67 international companies had been awarded MSC status, including Nokia, Siemens, Motorola, Alcatel, Oracle, Ericsson, IBM, Lotus, and Reuters. In 2007, 1,792 companies were awarded MSC status. Of these 1,711 are local companies, 61 are institutions of higher learning, and 20 are incubator companies (Multimedia Development Corporation 2007a).

The increasing demand for offshore shared services and outsourcing (SSO) activities worldwide has bolstered the position of MSC Malaysia as a marketing and promotional hub. The MSC’s competitiveness as a global SSO destination was enhanced and by the end of 2005, more than 50 SSO companies were established, providing 12,000 high-skill jobs (Economic Planning Unit 2006).

The implementation of the MSC Malaysia is divided into three phases over a 25-year period, from 1996 to 2020. Phase 1 (1996–2003) was successfully completed with the establishment of the MSC. Phase 2, called Next Leap (2003–2010), includes the establishment of a web of corridors and the enactment of a global framework of cyber laws. In addition, at least five intelligent Malaysian cities will be linked to other global cities worldwide. In phase three (2010–2020), the benefits of MSC will be extended to the rest of the country, an International Cybercourt of Justice will be established, and 12 intelligent cities will be linked to the global information highway (Multimedia Development Corporation 2007b).

The five corridors established under phase two of MSC Malaysia are:

- Iskandar Malaysia established in 2006 in the southern region of the peninsula to promote growth in manufacturing and services.
- Northern Corridor Economic Region (NCER) launched in July 2007 with a main focus on agriculture, manufacturing, tourism and logistic services (MASSA News 2007), and covering the states of Perlis, Kedah, Pulau Pinang, and the northern part of Perak (Northern Corridor Economic Region 2007).
- East Coast Economic Region (ECER) launched in October 2007 to accelerate economic growth and elevate income levels in the east coast regions of Peninsular Malaysia, which covers the states of Kelantan, Terengganu, Pahang, and the north parts of Mersing district of Johor.
- Sabah Development Corridor launched in January 2008 with a main focus on the development of the tourism, agriculture and manufacturing sectors (*The Borneo Post Online* 2008).
- Sarawak Corridor of Renewable Energy (SCORE) launched in February 2008 primarily to develop the central region of the state encompassing Bintulu, Kapit, Sibul, Mukah dan Sarikei divisions, which will focus on energy-based industries (Bernama 2008). SCORE is expected to channel electricity generated in Sarawak to Sabah and Peninsular Malaysia, to ensure that the whole country receives abundant and reasonably priced electricity for generations to come (*The Star* 2008).

KEY ICT POLICIES, THRUSTS, AND PROGRAMS

Malaysia privatized its telecommunication and broadcasting industries in the late 1980s to make these sectors more globally competitive. Furthermore, Malaysia set up the National IT Council in 1994 to take charge of policy formulation, strategic direction setting, policy coordination and evaluation, technology assessment and adoption, and industry promotion (Abu Hassan and Hasim 2008).

The focus of ICT development in Malaysia includes (Economic Planning Unit 2006):

- Enhancing Malaysia’s position as a global ICT and multimedia hub;
- Expanding the communications network to ensure more equitable access to information and services;
- Intensifying efforts at bridging the digital divide;
- Developing the existing cyber cities as well as promoting new cyber centres and MSC multimedia applications;
- Fostering new sources of growth in the ICT sector, including bioinformatics;
- Developing a skilled ICT workforce;
- Accelerating e-learning acculturation; and
- Enhancing information security.

The government also launched the Malaysian Public Sector Strategic Plan in August 2003 to provide a clear direction for the utilization of ICT for service delivery. The plan identifies several high impact community and other initiatives to provide access to the services of multiple agencies from a single point or window. These include a business community portal, a citizen-centric portal, a government-to-employee portal, e-social services, e-learning, online income tax services, and an integrated financial management system.

A total of MYR 12.9 billion is allocated for ICT-related programs and projects such as the computerization of government agencies, bridging the digital divide among schools, a communications infrastructure service provision program, telecentres and ICT training/services, and MSC multimedia applications.

LEGAL AND REGULATORY ENVIRONMENT FOR ICT DEVELOPMENT

The development of IT and multimedia without appropriate laws in place can result in abuses that in turn can discourage the

use of such technologies. In Malaysia, six cyber laws govern ICT use: the Communications and Multimedia Act 1998, the Malaysian Communication and Multimedia Commission 1998, the Computer Crimes Act 1997, the Digital Signature Act 1997, the Telemedicine Act 1997, and the Copyright (Amendment) Act 1997 (Abu Hassan and Hasim 2008).

The Malaysian Communication and Multimedia Commission (MCMC) is the regulator for the converging communications and multimedia industry. It also oversees the new regulatory framework for the converging industries of telecommunications, broadcasting, and online activities.

Information security is a major focus, with an intensive effort being taken to enhance the confidentiality, integrity, and availability of online information systems. The National Information Security Framework Study provides comprehensive guidelines on information security management, mechanisms for institutional networking and coordination, as well as strategies for intellectual capital development. Other key initiatives in this area are the establishment of the National ICT Security and Emergency Response Centre (NISER), which provides skill development and consultancy services, and the formation of the Malaysia Computer Emergency Response Team (MyCERT) to tackle security issues for the private sector.

DIGITAL CONTENT

Several digital content projects are being implemented by the government, private entities, and NGOs to help expose Malaysians, especially in rural communities, to computers and the Internet. These projects include the Infodesa program of the Ministry of Rural and Regional Development, the Rural Internet Centre (RIC) project of the MEWC, and the e-Melaka project of the Melaka state government.

Infodesa is a program to encourage rural people to engage in small scale entrepreneurship projects and programs addressing the digital divide. It involves setting up a one-stop centre equipped with ICT facilities for easy and fast access to information. There are 34 Infodesa projects throughout the country. Among the topics available at the Infodesa Web page are agro tourism, village industries, health, education, agriculture, animal husbandry, fisheries, e-services and e-government, local community, and opportunities and incentives.

There are 42 RICs nationwide, each with its own website where community members can interact. The websites contain information about the history of the community, youth, women, arts and culture, health, agriculture, security, entrepreneurship, and tourism.

The e-Melaka webpage contains information on 12 flagship projects, namely: e-government, e-education, e-business, e-youth,

e-mosque, e-media, e-community, e-tourism, e-politics, e-health, e-security, and e-women (Bahagian K-Ekonomi, Jabatan Ketua Menteri Melaka 2007).

Malaysians are increasingly being influenced by digital content. It has been said that one factor in the ruling party's loss of its two-thirds majority in the parliament in the March 2008 general elections is the increased capacity of citizens to get information from digital sources (Welsh 2008). Because the opposition was denied balanced coverage in the mainstream media, it relied on alternative media such as the Internet, blogs, SMS, mailing lists, listservs, and YouTube to get its campaign messages to the public. Not surprisingly, many politicians have set up their own blog sites.

ONLINE SERVICES

The Malaysian government is actively promoting the online services available on www.gov.my, the official portal of the Malaysian government. The portal includes an e-transaction centre where individuals can obtain online services and download forms for transacting with various government agencies and local authorities. At present there are nearly 1,000 forms that can be downloaded. The portal also has quick links to the government directory, government tenders, job vacancies in government, information and policies, weather information, as well as public complaints, feedback and inquiry, and immigration and customs service feedback.

In general, Malaysians enjoy a host of online services provided by both the government and private sector. The public can access these services through the Internet, cellular phones, and ASTRO's interactive television channel. As of the third quarter of 2007, there were almost 12 million dial-up Internet subscribers, 1.3 million broadband Internet subscribers, 22 million cellular phone subscribers (MCMC 2007), and more than 2.3 million ASTRO subscribers (ASTRO 2008).

With regard to e-commerce, the public can now pay utility bills and engage in bank transactions online. Although online shopping is still not as popular as online banking, the public has started booking airline tickets online and comparing online prices before making hotel reservations.

ICT-RELATED EDUCATION

One of the government's main initiatives is the Smart Schools Project started in 2006. The project seeks to integrate ICTs in teaching and learning and in school management in order to prepare students for an information-based society. Primary and secondary schools throughout the country are provided with

hardware, applications, and training in ICT-supported teaching and learning processes and school administration.

At the higher education level there is the HEdStart Program, a joint program organized by Microsoft, public universities, and Prestariang System Sdn. Bhd. The program objective is to provide computer skills training for students and certification that is recognized worldwide.

The private sector is involved in non-formal computer training through joint venture projects such as the Maxis Cyberkids Camp and Maxis Cyberlab. The camp trains teachers and students in how to use computers and the Internet. Those who have attended the Camp would then train their friends and peers. The Maxis Cyberlab project conducts computer skills training for rural communities (MEWC n.d.).

OPEN SOURCE

The Malaysian government has been promoting open source software (OSS) since 2004. The use of OSS is envisioned to promote interoperability among ICT systems and accelerate growth in the local ICT industry. To facilitate the adoption of OSS, the government has set up the Open Source Competency Center (OSCC) under MAMPU as the single point of reference on OSS. The OSCC is tasked with guiding, facilitating, coordinating, and monitoring the implementation of OSS in the public sector. It enters into collaborative partnerships with the public and private sector to provide training and technical support, and to pursue research and development (R&D). To date the OSCC has released five products through its R&D activities: MySpamGuard, MySurfGuard, MyNetWatch, MyMeeting, and MyWorkspace (Malaysian Public Sector 2006).

The Malaysian government target is for all public agencies to have switched to OSS by 2010. As of 2007, 25 percent of the public sector has adopted OSS. Thus, it seems that the government through MAMPU and the OSCC are likely to achieve its target.

ICT FOR DEVELOPMENT RESEARCH AND DEVELOPMENT

ICT for development (ICTD) is being advocated by many sectors. However, using ICT for community development requires a complete package of hardware, software, facilities, personnel, training, and applications. More important, the community itself must be involved in the planning, implementation, and management of ICT projects. A multi-stakeholder approach would also improve project sustainability.

In Malaysia, the first step in encouraging communities to use ICT is bridging the digital divide. Norizan et al. (2007) reported

that as many as 1,670 telecentres are helping to address digital divide issues in the country. A comprehensive overview of ICT-related projects in Malaysia is available at the MEWC website (<http://www.aspirasidigital.net.my>).

Several studies have been conducted to assess the impact of ICT projects on communities. A study by Abu Hassan et al. (2008) found that community members who participated in programs organized by their local ICT project centres had gained computer and Internet knowledge and skills. A study by Mohd Yusof et al. (2007) compared the impact of three rural ICT projects and found that the level of exposure, knowledge, and utilization of ICT varied among the villages studied. Despite the low computer ownership and low economic status of the respondents, they were found to be willing to pay for the computer or Internet courses offered by the centres. Looking at the status of ICT development and its potential, Aziz (2007) noted that the Malaysian government is committed to inculcating an ICT culture among citizens. He proposed that an m-PortalRakyat (a mobile portal for the citizen) be set up to take advantage of the widespread use of cellular phones in the country.

CHALLENGES AND OPPORTUNITIES

The primary stakeholders in ICTD initiatives are the government and the community. The government faces the challenge of providing ICT facilities and developing policies that would encourage the participation of the private sector and other parties in ICTD projects. The community faces the challenge of ensuring that the ICT projects in their locality benefit all community members and are sustainable over the long term.

A strategy that has been proven to work in some contexts is putting the computers and Internet facilities meant for the community in the school. The ICT facilities would thus be used optimally, by the students and teachers during school days and by the community members after school hours or during the weekends. Providing adequate ICT facilities in schools would also encourage the younger generation to gain ICT experience that they can share with their parents.

It is equally important for government to ensure that the rollout of ICT facilities includes the deployment of trained personnel to manage them, as well as training programs to ensure that the facilities are not underutilized. ICT centre managers should plan with the local community activities and programs that are relevant to the community.

To encourage private sector involvement in ICTD projects, the government needs to provide incentives, such as tax breaks and social recognition. The private sector contribution may be in terms of hardware and other facilities. Companies can be

encouraged to make a long-term commitment to specific ICT projects, or to adopt a number of ICT projects. This win–win strategy would allow the company to discharge its corporate social responsibility and the community to expect better facilities for the implementation of ICTD projects.

To develop ICT knowledge and skills among community members and get them to use the available ICT facilities, regular ICT exhibitions could be held. There could be informal sharing sessions where members of the community can demonstrate a newly acquired skill or discuss ICT issues of interest to the community. Competitions among ICT centres in the state and at the national level could encourage community members to work together in promoting their communities through ICT. The communities would also learn from one another and may be encouraged to share information by linking their community websites.

In summary, with the commitment of the government to provide an integrated ICT package and the commitment of members of the community to utilize ICT facilities in ways that would lead to community development, various challenges can be overcome and opportunities can be leveraged to make Malaysia's vision of a globally competitive knowledge society a reality.

NOTE

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