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## **APPLICATION OF COMMUNICATION TECHNOLOGY IN MALAYSIAN PUBLIC SERVICE**

Abu Samah Supa'at  
Mohd Hanif Bin Idris

### **8.1 INTRODUCTION**

The Government of Malaysia is committed towards modernizing its administrative machinery and enhancing its service delivery mechanisms. The process of ensuring an efficient and effective public sector is being driven by the enabling capabilities of information and communications technology (ICT). The resultant widespread adoption of ICT systems by the public sector has meant that more and more Government agencies are moving towards the paperless work environment where ICT systems have become indispensable for the provision of Government services to citizens. The expansion of ICT systems within the public sector has in turn led to a significant increase in the number of public sector information repositories and other ICT-based installations and assets. The security of these ICT installations and assets are exposed to the vulnerability of open and networked electronic systems. As such agencies now face the additional responsibility of securing ICT-based Government information and systems as well as ensuring that they are available to authorized users.

Communications Technology has proven its role in accelerating sustainable development and bridging the ever-growing divide in our present day society. There is however, a critical need to channel the vast potential of ICT in the right direction for the betterment of society and effective human

development Asian economies are growing at a phenomenal rate. However, the rate of growth varies vastly among the different countries in Asia, thus creating a digital divide among nations. It is, therefore, imperative that Asian countries work together to harness the potential of ICT for development and ensure the divide is not a permanent chasm that marginalizes and excludes the less developed nations from the interconnected digital economy

Some of our nations have acquired a high degree of competence in the applications of ICT and are leading in the field of software and hardware development. Thus, initiatives in sharing their experiences and best practices will facilitate other countries to learn from their knowledge and leapfrog in the race of human development. However, it must be noted that developing countries have specific issues and needs that have to be carefully examined. In view of this, the identification, selection and customization of the choice of technology have to be undertaken seriously and with a great degree of planning.

Communication technologies are usually defined as technologies that facilitate communication and the processing and transmission of information by electronic means. This broad definition encompasses the full range of ICTs from radio and television to telephones (fixed and mobile), computers and the Internet.

The revolutionary potential of ICTs lies in their capacity to instantaneously connect vast networks of individuals and organizations across great geographic distances at very little cost. As such, ICTs have been key enablers of development, facilitating flows of information, capital, ideas, people and products. An explicit focus on using ICTs in pursuit of development goals allows countries to achieve a wide diffusion of benefits from ICTs and contributes to both broad-based economic growth and specific development goals.

Moreover, a holistic approach that sees ICTs as key development enablers recognizes that the potential of ICTs is linked to a complex mixture of international, national and local conditions. A number of interrelated factors should be addressed to

maximize the benefits of ICTs for development. These include deploying ICT infrastructure, building human capacity, establishing a transparent and inclusive policy process, creating incentives for enterprise, and developing appropriate content. For all these to be realized, there is a need to understand the critical relationships between various strategic interventions in the context of local conditions and to secure the participation and commitment of all key stakeholders—local communities, non-governmental organizations (NGOs), governments and the private sector

## **8.2 APPLICATIONS**

### **8.2.1 E-Government**

The term refers to e-services and e-applications used by the government in carrying out its day-to-day activities. Broadly defined-government is the use of ICTs to promote more efficient and effective government, and facilitate more accessible government services. E-Government might involve delivering services via the Internet, telephone, community centers (self-service or facilitated by others), wireless devices or other communications systems. E-Government can be classified into four distinct areas.

The flagship application was launched with the objective of improving government operations in terms of its internal processes and delivery of services to the public and to business. Leading-edge ICT technologies and solutions were to enable such change and reinvent the way Government operated. Under this flagship, six pilot projects were implemented, namely, the Electronic Services (E-Services), Electronic Procurement (EP), Generic Office Environment (GOE), Human Resources Management Information System (HRMIS), Project Monitoring System (PMS) and the Electronic Labor Exchange (ELX) [1].

The E-Services project covered a range of services such as the issuance and renewal of driver's license, fines processing, driving test scheduling and utilities payment. These applications were expected to be made available to the public in May 2001

[1]. Under the EP project, the traditional procurement system of the Government was automated to realize cost savings and faster turnaround times. Phase I of the system, which went live on a pilot basis on 6 October 2000, would benefit about 20,000 large and small suppliers when fully rolled out [1]. Under the GOE, a generic set of ICT tools was developed such as document management, messaging system, electronic meeting and decision tracking, which would assist the functioning of core processes, thus facilitating day-to-day operations and management of government offices.

The system, scheduled to go live in April 2001, would not only increase the ICT awareness among government personnel but also improve their efficiency and effectiveness. The HRMIS project would enable about 950,000 government personnel to perform human resource management functions in an integrated environment through single window interface [1]. Employee productivity, motivation and satisfaction would be enhanced with the availability of better equipment and facilities and automation of work processes. By the middle of 2002, Phase I of the project would be rolled out to benefit 150,000 users in the 10 pilot agencies identified. Meanwhile, PMS trial runs were conducted for the application of projects under the Eighth Malaysia Plan [1].

The ELX aimed to be a one-stop centre for labor market information accessible to the public, both locally and overseas. The objectives were to improve the mobilization of the nation's human resources and to ensure that manpower utilization was optimized through the systematic matching of job seekers to job vacancies. The project was targeted to become fully operational by November 2001

### **8.2.2 Smart School**

The use of ICTs in education aims to improve the quality of teaching and learning as well as democratize the access to education. The smart schools initiative was introduced with the objective of producing a new generation of Malaysians who will be

ICT literate, creative as well as innovative and capable of leading the economy into the Information Age.

The project, which was implemented on a pilot basis during the Seventh Plan, involved a total of 90 schools comprising the construction of nine new schools and the upgrading of 81 existing schools [1]. These schools were equipped with state-of-the-art multimedia/computing equipment and provided with comprehensive teaching learning materials for four subjects, namely, *bahasa Malaysia*, English, science and mathematics [1]. These materials not only enhanced the network-based curricula but also enabled students with varying capabilities to progress at their own pace.

The Smart School Management System enabled school administrators to efficiently and effectively manage resources and processes required to support the teaching and learning functions of these schools. As a complement to the smart schools, the Global Schools Network was also initiated to network Malaysian schools with selected schools around the globe.

The Internet enables students and teachers to have access to vast amounts of up-to-date information and knowledge not only from traditional sources such as libraries, but also from museums, research centers and government institutions. The many multimedia learning materials that are now available are engaging for learners and encourage learning by exploration (discovery and experiential learning).

The learning environment is expanded significantly with students now able to connect with each other, with their teachers/instructors, and with other experts through email, conferencing, message boards and e-forums. Moreover, appropriate use of ICTs in the classroom fosters critical, integrative and contextual teaching and learning; develops information literacy (the ability to locate, evaluate and use information); promotes teaching across the curriculum; and enables students to apply abstract concepts learned in class to real-world problems. Also, ICT-enhanced modes of education such as distance education and on-line learning, make possible continuous teacher

training and student learning, thus, it improves the overall efficiency of the delivery of education in schools and educational management institutions at the national, state/provincial and community level.

### **8.2.3 Telehealth**

This application was aimed at accelerating the achievement of Malaysia's health care vision towards creating a nation of healthy individuals, families and communities. During the Plan period, telehealth was implemented at 42 health centers and 41 other teleconsultation sites, many of which were located in the rural areas.

The implementation of the telehealth project started in August 2000 and by the end of the year, one of its projects, Teleconsultation, had completed installation at all sites. The three other projects, namely, Mass Customized/Personalized Health Information and Education (MCPHIE), Continuing Medical Education (CME), and Lifetime Health Plan (LHP) completed their respective Phase I [1]. MCPHIE and CME were nationwide in scope while LHP covered sites such as Hospital Kuala Lumpur, Hospital Kajang, Hospital Ipoh, Hospital Seremban and selected health centers nationwide. The telehealth flagship application was not just a point-to-point consultation but incorporated the full spectrum of multimedia technologies to bring benefits to all players in the health sector.

ICTs are being used in many developing countries and communities to facilitate remote consultations, diagnosis and treatment. Basic data is collected and conveyed over the Internet from primary health centers and doctors, to medical specialists who analyze the data and respond with basic diagnostic results and, in some cases, prescriptions, thus sparing patients from having to make an arduous journey to a medical facility in the city. Also, a number of countries (especially in Africa) have invested in ICTs to improve the administrative efficiency of their public health system

through the streamlining of medical procurement or the creation of patient history databases.

#### **8.2.4 Multi purpose card**

A flagship application that was introduced to improve the ease with which Malaysians conducted routine transactions with the Government and private companies. Two major initiatives were carried out, namely, the Payment Multi Purpose Card (PMPC) and the Government Multi Purpose Card (GMPC). A series of milestones were achieved.

The e-cash, a key application in both cards, completed its technical pilot during the Kuala Lumpur '98 – XVI Commonwealth Games, followed by the e-cash commercial pilot launched in September 1999 [2]. With regard to GMPC, field tests were carried out with selected users. It was targeted that a total of two million smart cards would be issued to citizens in the MSC and Kelang Valley in 2001.

The card provided secure medium for storing key personal identification information, which included data on identity card, driving license and immigration entry/exit records. Health information was also to be stored on the card to allow medical practitioners instant access to basic and critical medical information that would aid diagnosis and care in emergencies.

The GMPC became a test-bed for the creation of new leading-edge technologies by local companies, many in collaboration with other world-class corporations. To facilitate e-business through enhanced security, a new application, the Public Key Infrastructure (PKI), was included in the GMPC. The National Multipurpose Card seeks to develop a single and common platform for a Multipurpose Card (MPC) that will enable the government and private application providers to implement smart card solutions without duplications of effort and investment. Initially, the MPC is implemented through the GMPC and PMPC projects. As a result, MyKad and Bankcard are the products developed for the GMPC and PMPC initiatives.

The objectives of the MPC Flagship Application to provide the government and payment application, and other future applications on a single MPC platform then to provide enhanced services to customers; and to enhance security and convenience of existing and new applications delivered on the MPC platform [2].

MyKad is developed by the National Registration Department (JPN) and private ICT developers that create a common platform for smart card solutions. The card is embedded with a security enhanced 64K microprocessor chip that is multifunctional across varying systems. MyKad applications are:

- National ID.
- Driving License.
- Passport Information.
- Health Information.
- Touch 'n Go.
- MEPS Cash.
- ATM.
- Public Key Infrastructure.

The GMPC project is developed in two phases – the initial pilot roll-out for an estimated population of 2 millions in the Kuala Lumpur, Klang valley and MSC Malaysia area followed by a national roll-out. The project was successfully implemented with the issuance of 2.59 million people in the Klang Valley as of October 2002 [3]. As for the national roll-out (NRO), the project will be extended nationwide, targeted for 2005.

As one of the Multimedia Super Corridor Flagship Applications, the development and implementation of the chip based Bankcard began in 2000 with the Malaysian Electronic Payment System (1997) Sdn. Bhd. (MEPS) at the helm working together with domestic banking institutions. Bank Negara Malaysia served as the lead agency whose primary function is to facilitate the implementation. The Bankcard will spur the vision of promoting electronic payment in the country. Initially the Bankcard will contain three payment applications namely:



- ATM.
- e-Debit.
- MEPS Cash.

The use of Bankcard encourages cashless payment transaction for various sectors e.g. retail, vending machines, car parks and transport and closed community to leverage on Bankcard to use MEPS Cash as the mode of payment. It also encourages participation of business venture in undertaking merchant acquiring business. Under this initiative of implementing multiple payment applications onto a single smart card, the domestic banking institutions pioneered the chip based electronic purse during the Commonwealth Games (SUKOM) in September 1998. The full implementation of the PMPC project (ATM, e-Debit and MEPS Cash) commenced in early 2001. In August 2002, several domestic banking institutions began their pilot rollout by issuing the Bankcard to their staff and the public. On 28 February 2003, the Bankcard was officially launched.

**Table 8.1** Development Allocation For ICT-Related Programmes & Projects, 2001-2005 (RM Million)

<b>Programme Project</b>	<b>Allocation</b>	<b>Percentage</b>
Flagship Application	1824.9	35.4
E-government	434.8	
Smart schools	401.1	
Telehealth	400	
Multi Purpose Card	418.1	
R&D Cluster	1.9	
Cross Flagship	169	
Computerization	1641.8	31.8

### **8.3 CONCLUSION**

Malaysia has made significant strides in increasing the information and knowledge content in all economic activities. In developing further the knowledge based economy, Malaysia will leverage on the knowledge accumulated from the implementation of the MSC since 1996. Efforts will be intensified in the provision of access, particularly of the rural population, to the necessary infrastructure and info structure. This will enable all Malaysians to take advantage of advances in ICT to improve efficiency and productivity, thus contributing to the increased overall competitiveness of the economy. Additional measures will also be undertaken to enhance human resource development to provide adequate skilled and knowledge manpower to support the knowledge-based economy.

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