Abstract

The quest to implement electronic government (E-government) by most countries is increasing due to its potential and positive impacts. Nevertheless, the complexity surrounding the implementation of E-government is similar in every corner of the globe. As a consequence, researchers and practitioners alike have focused their attention on finding ways and means of improving the implementation of E-government. As the challenges arising from the implementation of E-government are extensive, this paper is focused on MSC, a huge technology park that is considered crucial for Malaysia to achieve a knowledge-based economy. This paper observes the conditions that give rise to the efficient implementation of E-government in Malaysia. This is achieved by reviewing the policies and the implementation of key flagship applications in MSC. These flagship applications are expected to foster the diffusion of electronic commerce (E-commerce) and E-government in Malaysia.

Keywords: E-Government; Multimedia Super Corridor (MSC); and Malaysia.

JEL Classification: O 38; R 58

1 INTRODUCTION

Electronic government (E-government) has the potential to change the way that a government interacts with citizens and businesses through the new ways of the government’s operation. The realization of E-government affects everyone because the role of government is all-encompassing and very complex. At least, there are three reasons why government should firmly impose its commitment to implement E-government. Firstly, expectations of the citizens for government services are rising for similar kinds of improved services accorded by the business sector. Nowadays, citizens at large are demanding better services from the government and wondering why the government cannot employ ICT and multimedia technologies the way the business sector can. Secondly, having an E-government in place may reduce costs for the government in the long run, particularly during economic downturns. Thirdly, E-government may spearhead the growth of the business sector through its many “network effects”. For instance, the business sector can leverage on an efficient E-government, thus, making it more competitive, efficient and productive.

However, the problems and complexity surrounding the implementation of E-government are quite similar between developed and developing countries. Some predicaments identified in the literature are as follows. On one hand, most governments are hesitant to dive into risks on new systems and processes. In addition, governmental decision and policy making are seen as not being able to keep pace with the technological change and progress in the ICT and multimedia industries. Whereas, on the other hand, citizens are seen as being “forced” to comply with government’s requirements in implementing some of the E-government initiatives, thus, decreasing their actual participation in the usage of these initiatives.

As the challenges arising from the implementation of E-government are extensive with many potential and problems, the objective of this paper is to shed some light on this subject by observing the conditions which give rise to the efficient implementation of E-government in MSC, Malaysia. This paper aims to present the main implementation aspects of the MSC’s key flagship applications, which are supposed to foster the diffusion of E-commerce and E-government in Malaysia.

This paper is organized as follows. The following Section provides the methodology employed. Section 3 reviews briefly the literature on E-government. Section 4 presents an overview of the development of E-government in Asia. Then, Section 5 discusses the experiences of MSC and E-government initiatives in Malaysia. In this Section, a brief evaluation and some lessons from the Malaysian experience are discussed. Finally, Section 6 concludes.
2 METHODOLOGY

In this paper, E-government is reviewed in the framework of regional development strategy, that is, the association of MSC as a technology park and the implementation of E-government in Malaysia. This framework provides major observations of the development and implementation of E-government in Malaysia through the MSC’s key flagship applications. The review is supplemented by useful data and information from several experts and relevant authorities in Malaysia (e.g. officials from the Ministry of Finance, Malaysia; Multimedia Development Corporation (MDC); and related agencies) through direct interviews conducted in August 2003. In addition, the author himself was formerly the officer-in-charge of MSC project at the Ministry of Finance, Malaysia and still has a keen interest in this project.

3 LITERATURE REVIEW

3.1 E-government and Economic Growth

Traditional economic theory analyzes growth in terms of factor accumulation, where the key driver of economic growth is to inject more capital or labor into production. Nevertheless, human capital and technological innovations have been endogenized into the production function by the more recent endogenous growth theory. For instance, E-commerce gives rise to another dimension in the determinants of economic growth, that is, the so-called “network effects”. E-commerce tends to be diffused across the economy, which leads to a wider and more competitive environment in comparison to the traditional economy. In relation to this, government (through E-government) can significantly influence the environment in which the business sector operates and provides the necessary institutional framework to make the overall economy more conducive for E-commerce activities. Although the present trend internationally is towards private single industry supply chains, the East Asia governments are often still the main providers for E-commerce growth such as in Singapore, South Korea, Taiwan and Hong Kong.

From the national value chain perspective, E-government is important because it can contribute to the strengthening of this chain. In reality there is no business being conducted without the involvement of the government agencies and this makes them an automatic member of the industry value chain. The many industry value chains will all interweave themselves with the appropriate government agencies, forming a massive national value chain network. This is the new knowledge-based economy structure that will give any country the flexibility and efficiency to be globally competitive. In this national value chain, every chain member contributes its strength, process, goods/products, while its weaknesses are supplemented by the strength of the other members. The concept of the national value chain can be illustrated as in figure 1 below.

Figure 1: The National Value Chain


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*2 This effect refers to the observation that the sum of individual markets is very much lower than the network of markets as a whole. In other words, the returns from having a network exceed the sum of returns arising from the fragmented markets (Paul, 2003).
3.2 Stylized Facts of E-government

In terms of definition, E-government is often broadly defined as “E-business of the state”. From a technological perspective, E-government is the use of information and telecommunication (ICT) and multimedia technologies to improve the access to and delivery of government’s services to benefit other stakeholders, e.g. employees, citizens and businesses. And from a business perspective, E-government is the application of ICT and multimedia technologies to transform the efficiency, effectiveness, transparency and accountability of informational and transactional exchanges between the government and its stakeholders.

Although there are variations in definition of E-government, its basic principles are as follows: building services around citizens’ choices; providing more accessible services; facilitating social inclusion; providing information responsibly; and using scarce resources effectively and efficiently (The Central IT Unit (UK), 2000; Bhoovarahan, 2002). The dimensions of E-government usually cover three broad areas, that is, the government to citizens (G2C); the government to businesses (G2B); and the government to government (G2G).

In brief, the objectives of E-government are to improve the accessibility, convenience and quality of interactions between citizens, businesses and the government; and to improve the speed and quality of information flow and the processes of policy development, coordination and the enforcement of government operation. The government’s services are seen by many as inefficient and full of red tape in comparison to the business sector’s services. Therefore, the main thrust of E-government is to enable the citizens to be served more efficiently with more alternatives at a much lower operating cost for the government. In other words, with E-government, the citizens would undoubtedly benefit by being able to gain access to the government’s services at any time. Concurrently, for the government’s services, there would be an increase in efficiency through improved and fewer processes; better and cheaper maintenance through the use of standardized systems and applications; and greater organizational cooperation, reduction of paper or paperless operation, among other benefits.

In terms of implementation approach of E-government, there are three basic approaches as follows. First, is the top-down approach that involves a government-driven kind of strategy for a national vision and plan of E-government. This approach requires concerted efforts and tremendous coordination between government agencies, among other things. The second approach is an autonomous approach that involves a strategy of independent initiatives, for example, by individual government agencies or state governments (as in the case of Malaysia). Thirdly, is the sub-national approach that involves a community-driven strategy, either as a vertically up or a parallel kind of strategy with the first approach mentioned above.

Although there are still many unresolved problems plaguing the implementation of E-government globally, there are several key success factors for a successful implementation of E-government. Recent studies have identified these factors as follows: institutional strengths (e.g. political and business support, legal issues, organizational cooperation, etc.); human resources development (e.g. skill and knowledge deficits, new learning curves, mindset changes, etc.); changes in ICT and multimedia technologies (e.g. technical infrastructure, integration, etc.); locality environments (e.g. digital divide problems, cultural concerns, social exclusion, etc.); and availability of funding ( Heeks, 1998; Bhoovarahan, 2002). These factors are fundamental in building and implementing a thriving E-government.

4 SITUATIONAL ANALYSIS OF E-GOVERNMENT IN ASIA

The development of E-government in Asia can be categorized into the following three types.*3 By using the Olympic medal analogy, the first type is the “Gold Medalists”. In this category, the conceptualization, policies and implementation of E-government initiatives are characterized as sound and authentic. There are also clear metrics in place to measure the cost, impact and achievement of these initiatives. In other words, the benchmarks and parameters for progress of these initiatives are clearly defined. Countries like Singapore, Australia, Japan, New Zealand and South Korea are usually categorized in this category. For instance, the eCitizen Portal in Singapore which was launched in 1999 allows access to a wide range of government services in 15 categories, including healthcare, transport and elections. According to a survey in 2002 commissioned by the Ministry of Finance, Singapore, two of every three Singaporeans who need to interact with the government do so electronically. This Portal receives an average of 4.2 million hits each month and about 83% of all feasible E-services are already online (MIS, 2003).

The second type is the “Silver Medalists”. In this category, the policies to implement E-government initiatives are in place. Although there are highly visible governments Web sites, many of them are in the others.

*3 The criteria normally used for this categorization are services online, level of services, delivery channels, and overall maturity, among others.
test-phase. The initiatives also are mostly characterized by experimentation in order to arrive at a truly citizen-centric formula. Hong Kong, Taiwan and Malaysia are normally placed in this category. For instance, the ESDLife Portal in Hong Kong (launched in 2001) is noted as the world’s first bilingual (i.e. English and Chinese) one-stop gateway to administrative and commercial services. This Portal allows more than 140 services from over 40 bureaus, departments and public agencies to be accessed via www.esdlife.com. By the end of 2002, this Portal had attracted 40.7 million visitors and there have been 2.6 million successful transactions. Another example is the E-government in Taiwan which was launched in 2001 (later was renamed as e-Taiwan Project in late 2002). Under this project, all government agencies now exchange official documents electronically, 97% have Internet presence, and 85% of them offer E-services via their Web sites. More than 10% of government services are available through the state’s one-stop information portal, www.gov.tw (MIS, 2003).

Finally, is the third type that is labeled as the “Bronze Medalists” such as India, the Philippines, Indonesia, Thailand and China. The common characteristics in this category are, for example, limited online presence of government agencies, emerging framework for E-government and technological infrastructure limitations (i.e. communication capabilities such as limited connectivity options, system infrastructures, software components and applications). An example is the development of China’s E-government. There are several large-scale projects, e.g. the Golden Customs Project, the Golden Tax Project, and the Government Fiscal Management Information System. Currently, almost 90% of government agencies have local area network (LAN) access or are in the process of securing it and about 42% have their own Web sites. In fact, by 2005, China plans to have 80% of its city governments delivering services online (MIS, 2003).

5 MSC AND E-GOVERNMENT IN MALAYSIA

In the advent of the IT revolution and its positive impact on economic growth and competitiveness, many countries including Malaysia are developing their very own regional development strategies through the dynamic of a high-technology cluster. Guided by the Vision 2020, Malaysia has embarked on an ambitious plan by launching MSC in 1996. The development of MSC is a necessity as the new engine of economic growth to ensure Malaysia is moving in the right direction in embracing the IT revolution. This huge technology park (15 km wide by 50 km long) is considered as the nucleus for the concentric development of the ICT and multimedia driven industries in Malaysia. In brief, MSC is the vehicle for transforming

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*Vision 2020 is the blueprint strategy that stated that Malaysia must be a fully developed and knowledge-rich society by the year 2020, among other visions. MSC is one of the main initiatives to achieve this vision. Basically, MSC is a technology park with a dedicated corridor (15 km wide and 50 km long) which stretches from the world’s tallest Petronas Twin Towers at the Kuala Lumpur City Center (KLCC) in the north to the new Kuala Lumpur International Airport (KLIA) in the south.*
Malaysia — social and economic development levels — into a knowledge-based economy.

There are seven key flagship applications being engineered to jumpstart the development of MSC and also to create an ICT and multimedia utopia for producers and users of these technologies. These flagship applications are expected to expedite the diffusion of E-government and E-commerce activities in Malaysia. These applications, their characteristics and progress of implementation are briefly discussed in the following Section below. The development model of E-government in Malaysia can be illustrated in Figure 2 below.

5.1 MSC’s Key Flagship Applications

5.1.1 E-Government Flagship

This flagship seeks to improve the convenience, accessibility, and quality of interactions between citizens, the business and government sectors. It uses ICT and multimedia technologies to transform the way the government operates and improves the processes of policy development, coordination and enforcement. There are seven main projects under this flagship and can be summarized in Table 1 below.

5.1.2 Multi-Purpose Card Flagship

The main objective of this flagship is to develop a single or common platform for smart card solutions - no duplications of effort and investment. There are two main projects under this flagship. First, is the Government Multi-Purpose Card (GMPC) — known as MYKAD that consolidates identification, license, health and other information on one card. Currently, the status of the MYKAD national rollout phase is being prepared. All cards are embedded with 64 kb of dynamic loading ready chip (multi-functional across varying systems, e.g. ID, driving license, health info., Touch N Go, MEPS Cash, ATM, Public Key Infrastructure). As of May 2003, 4.8 million MYKAD have been issued. The second project is the Payment Multi-Purpose Card (PMPC) — known as Bankcard that enables multi-financial functionality. The functions that will be available on the Bankcard are e-cash; e-debit & credit, ATM. Status - As of May 2003, there are 3.3 million Bankcard have been issued.

5.1.3 Telehealth Flagship

Among the objectives of this flagship is to promote and maintain the wellness of Malaysians and to provide greater access to healthcare information for improved personal health management. At this stage, there are four

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<th>PROJECTS</th>
<th>CHARACTERISTICS</th>
<th>CURRENT STATUS</th>
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<tr>
<td>Generic Office Environment (GOE)</td>
<td>Provides a new paradigm of working in a collaborative environment where government agencies communicate, interact and share information.</td>
<td>Live services, e.g. PM’s Department, PSD etc.</td>
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<td>Currently developing the rollout plan for 14 identified government agencies.</td>
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<tr>
<td>Electronic Procurement (EP)</td>
<td>Links the government and suppliers in an online environment. Government agencies as buyers procure goods/services by browsing catalogues advertised by suppliers. Aimed at best value for money, timely and accurate payment.</td>
<td>Central Contract, Suppliers Registration, Direct Purchase modules have completed. Quotation &amp; Tender module is ongoing. Nationwide rollout in phases to all 25 ministries.</td>
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<tr>
<td>Project Monitoring System (PMS)</td>
<td>Provides a new mechanism for monitoring the implementation of development projects, incorporating operational and managerial functions, and knowledge repository.</td>
<td>All 3 phases are completed. Post-implementation activities are ongoing and Handover Management is now being finalized.</td>
</tr>
<tr>
<td>Human Resources Management Information System (HRMIS)</td>
<td>Provides a single interface for government employees to perform HRD functions effectively and efficiently in an integrated environment. Applications include automating both operational processes and information dissemination.</td>
<td>15 modules have been rolled out to 10 government agencies. Two modules are going through the Provisional Acceptance Test (PAT) and another one waiting for PAT.</td>
</tr>
<tr>
<td>Electronic Delivery Services (E-Services++)</td>
<td>Enables direct, online transactions and interactions between the public, the government and large service providers via electronic means.</td>
<td>Live services e.g. JPJ; TNB; Telekom; PDRM etc.</td>
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<tr>
<td>Electronic Labor Exchange (ELX)</td>
<td>A one-stop center for labor market information, accessible to government agencies, the business sector and the citizens.</td>
<td>Live services.</td>
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<tr>
<td>e-Syariah</td>
<td>Introduces administrative reforms that upgrade the quality of services in Syariah courts. To enhance the Islamic Affairs Department’s effectiveness - better monitoring and coordination of its agencies and 102 Syariah courts.</td>
<td>Launched in April 2002.</td>
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Source: Multimedia Development Corporation.
main projects as follows. First, is the Lifetime Health Plan (LHP) — which generates focused, pro-active personal health maintenance and enhances individuals’ quality of life. Currently, the services are available online at the main hospitals and 24 health clinics. Second, is the Mass Customized Personal Health Information & Education (MCPHIE) — which empowers the public with education and wellness information for personalized health maintenance. Currently, there are 1,298 web pages of accredited health content. Third, is the Continuous Medical Education (CME) — which provides the best available medical knowledge to healthcare professionals on a timely basis. Currently, live registration can be done at online portal site. Finally, the fourth project is the Teleconsultation — which provides electronic peer information sharing capabilities for the development of excellence in patient diagnosis. There are more than 1,000 referrals that have been carried out for live cases (e.g. teleradiology, teledermatology & telecardiology).

5.1.4 Smart School Flagship

The main objective of this flagship is to enhance the quality of education through the reinvention of the teaching-learning processes. The focuses are on improving curriculum, pedagogy, assessment and teaching-learning materials. Current major projects under this flagship are as follows: School Teaching-Learning Materials; Smart School Management System; Smart School Technology Infrastructure; School Assessment System; Systems Integration; and Help Desk/Support. Final reports on the Benchmarking Project & Smart School Rollout Proposal were presented to the Smart School Steering Committee on May 21, 2003.

5.1.5 R&D Clusters Flagship

The objectives of this flagship are to promote the development of next-generation multimedia technologies through forging collaborative R&D efforts among leading-edge corporations and public research institutions and universities. The main projects under this flagship are as follows: MSC R&D Grant Scheme (MGS); MSC Student Attachment Programs (SAP); MSC Technology Forum Series; Collaborative R&D between firms, universities & research institutions; and Exhibitions (local and overseas). Currently, an ideal environment for innovative activities is being developed in MSC (e.g. physical & soft infrastructures, R&D centers, incentives and opportunities for R&D projects). However, innovative networks are still marginal, especially between the universities and the industry players.

5.1.6 E-Business Flagship

The objectives of this flagship are to develop premier hard and soft infrastructure to encourage the growth of E-commerce in Malaysia. Several companies and government agencies are using the Internet to access information and new markets and to buy and sell goods and services. The status of the usage of E-commerce in Malaysia can be considered quite low at this stage. Reasons that can be attributed to this poor performance are as follows: a large number of businesses do not have access to broadband technologies; many have poor understanding of the legal framework governing E-commerce activities; and many of them lack confidence in online payment systems.

5.1.7 Technopreneur Development Flagship

The objectives of this flagship are to spawn and nurture a critical mass of small and medium enterprises (SMEs) in the ICT and multimedia industries and to facilitate the growth of these SMEs into world-class companies. Currently, there are several projects implemented under this flagship, such as, Talent Development Program (TDP); National Incubator Network (NIN); Funding (equity, debt, and developmental grants); Market Access & New Venture Development Programs; and Technopreneur Portal. The statuses of some of these projects are as follows. The Industry Mentoring Program, International Business Series, and Skill Enhancement Program are organized annually. To improve ICT and multimedia entrepreneurship, the formation of the National Incubator Network Association (NINA) was officially created. The Technopreneur Portal was also launched. However, there are still networking, information & knowledge gaps in funding of SMEs. These gaps apply in the case of venture capital financing for ICT/multimedia venture businesses. According to a survey conducted by the author, on average and per year basis, venture capital investors (VCIs) received one hundred and twenty-five venture proposals and from this, seventy-five proposals or 60% were reviewed and only five proposals or 4% were invested. The survey also found that thirteen VCIs or 76% have twenty or fewer invested venture businesses in their portfolio. The performance of funding from debt and developmental grants was also poor because of market-driven criteria and difficulties in getting information faced by these venture businesses (Sohaimi, 2003).

5.2 Evaluation

The following brief evaluation of E-government in Malaysia is based on the discussion above. First, undoubtedly the top-down approach is employed in the estimate a rise to US$750 — US$1.0 billion by 2003. Electronic B2C is also modest, with an estimated 50,000 or so making online
implementation of E-government in Malaysia. The strategic objectives, policies and strategies are heavily characterized by a strong government-driven approach through the development of MSC and its flagship applications to support E-government and E-commerce initiatives. There is also a strong leadership presence, at least, from the main stakeholders of both the government officials and leaders from the ICT/multimedia corporations.

Secondly, the driving forces for E-government in Malaysia are related to the strategic importance and focus on re-inventing the government machinery for a knowledge-based economy and achieving the ultimate Vision 2020; developing ICT/multimedia industries; and attracting foreign investments, especially their technologies and expertise. As for the latter, it is a logical measure since the local management and talent pools are small and still developing (Sohaimi, 2002).

Thirdly, the overall progress of the implementation of E-government in Malaysia matches the label of the “Silver Medalists” category. There are clear policies and strategic projects of E-government for the G2C, G2B and G2G dimensions (as presented in Section 5.1 above). However, many of these projects are still on the experimentation or pilot stage and implemented in phases, mostly in the urban areas and certain states (e.g. in Kuala Lumpur, Selangor and other west coast states of the peninsular Malaysia).

Finally, there is still much room for improvement in terms of the overall achievement of E-government in Malaysia. In the G2C dimension, the actual usage of the E-government services by the citizens is minimal. A survey of 29,000 people in 31 countries by market information services provider Taylor Nelson Sofres (TNS) found that 35% of Malaysians felt safe disclosing personal information (e.g. credit card and bank account numbers) online to the government.*6 However, the irony is that Malaysians lag far behind when it comes to actually using E-government services (TNS, 2002 cf. Raslan Sharif, 2002). Some reasons that could be attributed to this low-usage rate in Malaysia are the mindset, lack of truly citizen-centric components, suspicion of citizens and digital divide problems. For instance, although several cyber laws were enacted since 1997 to support the E-commerce in Malaysia, their enforcement remains to be seen (Sohaimi, 2002 and 2003). For the G2B dimension, the learning curve and mindset changes of the business sector need to be improved in order to increase their commitment and participation.

In contrast, achievements in the G2G dimension are encouraging. Currently, the government employees have improved their learning curve and changed their mindset as compared to the situation in the last decade. These improvements are in tandem with the needs to fulfill the requirements of the new national value chain. In other words, a strong national value chain (i.e. the government, through its agencies, forms a very important link in this chain) will ensure Malaysia has a world-class business sector that is capable of competing successfully in the global market place.

5.3 Lessons from Malaysian Experiences

In brief, there are several lessons that can be learned from the experiences of the implementation of E-government in Malaysia. Firstly, E-government requires a realistic assessment, particularly a very clear policy, committed leadership, an implementation program and the right technology frameworks. E-government also requires a pragmatic approach, taking into consideration the locality environments, capabilities and requirements, among others (e.g. the E-services for senior citizens in Japan and Finland). It is a common concern that what is technologically possible may not be organizationally or socially or politically possible. Finally, the implementation of a successful E-government practically requires marketing expertise to better promote awareness, encouragement and dissemination of information on the benefits that can be reaped by the citizens and other stakeholders. According to the so-called “next-generation report on E-government” by the research arm of consulting firm Deloitte Touche Tohmatsu, governments should regard service delivery as one of the many channels that citizens can use to fulfil their needs, and not as a monolithic "dotgov" operation (cf. Steven, 2002).

6 CONCLUSIONS

In this paper, the main aspects of the implementation of E-government were discussed based on the regional development of MSC and its key flagship applications. The observations from the Malaysian experience are diverse. And engineering a successful implementation of E-government which is supposed to deliver improvements in the overall economic growth is not simply a question of pure policies, but fundamentally one of technological, legal, organizational, and socio-economic frameworks — in all, it is the issue of E-readiness of a country. Therefore, in order to develop a world-class E-government, the...
government itself should firstly also aim to be world-class. The government needs to raise standards, break down old departmental barriers, work in unison to serve citizens, provide an innovative environment, and assess its own capabilities, among other things. These are considered important ingredients in the process to be able to meet the continuously rising expectations of the citizens. The government should beware that instead of being governed, the citizens now have become the service creators for the future.

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Multimedia Development Corporation (MDC), the one-stop agency for MSC.

