Technology Adoption in the Public Sector:
An Exploratory Study of E-Government in Malaysia

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ABSTRACT

All around the world, the quest to improve government service delivery is becoming an important agenda for most governments. Information and Communications Technology (ICT) and the Internet in particular have opened new possibilities for the government and the governed. Successful delivery of online services has rapidly become an important measure of effective public sector management and this has made many governments to deploy Electronic Government (e-Government) as a tool to achieve this vision. The dual objectives of e-Government are to reinvent the government of Malaysia in terms of service delivery through the use of ICT and to catalyze the successful development of the Multimedia Super Corridor (MSC) with ICT as one of the leading sectors of the economy. This paper provides the various initiatives taken by the government in implementing e-Government projects as well as the issues, challenges and benefits derived. A brief case study on electronic procurement as one of the projects in e-Government initiative will be presented.

Categories and Subject Descriptors

e-Services, e-Business Modeling, e-Government

General Terms

Management, Measurement, Documentation, Economics, Reliability, Human Factors, Adoption Issues

Keywords

Multimedia Super Corridor, e-Government, e-Procurement

1. INTRODUCTION

The waves of e-Government are rising through public organizations and public administration across the world. More and more governments are using IT especially the Internet and Web-based network, to provide services between government agencies and citizens (G2C), businesses (G2B), employees (G2E)

and other non-governmental agencies [4][6][8] The transformation of government into e-Government turns out to be a global phenomenon [1][3][10][12]. Many countries have formulated various policies, visions, objectives, plans and strategies for introducing some form of e-Government to benefit their citizens.

E-government is variously defined but the common focus is on the application of ICT to improve the internal management of the government, to offer more flexible and convenient services to the public and to a limited extent, to enhance public participation and democracy [2][5][9][11].

The aim of this paper is to explore some of the e-Government flagship projects that were implemented by the government of Malaysia under the Multimedia Super Corridor (MSC) initiative implemented in 1996. This will be followed by an empirical finding about the e-Procurement project as one of the e-Government initiatives. The paper ends with a short discussion and our recommendation to the key stakeholders with the intention of ensuring the e-Government initiative will achieve its intended objectives.

2. E-GOVERNMENT IN MALAYSIA

In last decade (1995-2005), concerted efforts were undertaken by the government to provide a stronger platform for the country's transition towards a knowledge-based society [13, 14]. Increasingly central of this effort was the promotion of ICT as a strategic driver to support and contribute directly to the growth of the economy as well as enhance the quality of life of the population. Investment by both the public and private sectors was directed at building the essential ICT infrastructure.

The Multimedia Super Corridor Malaysia (MSC Malaysia), established in 1996, set the platform to build a competitive cluster of local ICT companies and a sustainable ICT industry. The MSC Malaysia is considered a long-term strategic initiative (1996-2020) which involves the partnership between the Government (as the chief architect of its vision) and the private sector (as the main drivers for its implementation). In order to improve the service delivery f the government, e-Government Flagship was introduced as part of the MSC initiative.

The vision of e-Government is a vision for people in government, business and citizens working together for the benefit of Malaysia and all of its citizens [7]. The vision calls for reinventing government using multimedia and IT to improve productivity. There are eight projects launched to date under the e-Government Flagship since it was started in 1997. All these projects will use

ICT and multimedia technologies to transform the way the government operates, coordination and enforcement. Table 1 summarizes the projects and its characteristics.

Table 1. Projects under the e-Government flagship

Projects	Characteristics
Generic Office Environment (GOE)	provides a new paradigm of working in a collaborative environment where government agencies communicate, interact and share information
Electronic Procurement (EP)	Links the government and suppliers in an online environment. Government agencies as buyers procure goods/services by browsing catalogues advertised by suppliers.
Project Monitoring System (PMS)	Provides a new mechanism for monitoring implementation of development projects, incorporating operational and managerial functions, and knowledge repository
HRM Information System (HRMIS)	Provides a single interface for government employees to perform HRD functions effectively and efficiently in an integrated environment.
Electronic Services (e-Services)	Enables direct, online transactions between the public, the government and large service providers via electronic means
Electronic Labour Exchange (ELX)	A one-stop-centre for labor market information, accessible to government agencies, the business sector and the citizens.
E-Syariah	Introduces administrative reforms that upgrade the quality of services in Syariah courts and to enhance the Islamic Affairs Department's effectiveness.
E-Land / E-Tanah	To achieve an updated, effective, efficient and accurate National Land Administration System via utilization of Information Communication and Technology (ICT), the E-Tanah project of Ministry of Natural Resources and Environment encompasses 24 main areas in land administration including disposal, registration of titles, transfer approvals and distribution of property

Source: MDeC (www.mdc.com.my)

Table 2: Type of Organization

Type of Organization	Frequency	Percent
Private Limited	452	90
Limited	9	1.8
Sole Proprietor	41	8.2
TOTAL	**502**	**100**

3. CASE STUDY ON E-PROCUREMENT

The electronic procurement system or known as e-Perolehan streamlines government procurement activities and improves the quality of service it provides. It was officially launched in 1999 as one of the Electronic Government Flagship projects.

E-Perolehan converts traditional manual procurement processes in the government machinery to electronic procurement on the Internet. The new procurement system allows the Government ministries to electronically select items to be procured from the desktop, initiate an electronic approval process and also create, submit and receive purchase orders, delivery orders and other related documents electronically.

E-Perolehan deals with the Government to Business (G2B) relationship. On the supplier's side, e-Perolehan allows them to present their products on the World Wide Web (www), receive, manage and process purchase orders and receive payments from government agencies via the Internet. The supplier's product catalogue can be viewed from any desktop with a web browser. The supplier is able to submit quotations, obtain tender document and submit tender bid through e-Perolehan. E-Perolehan allows suppliers to register or renew their registration with the Ministry of Finance (MoF) through the Internet. Suppliers are able to submit application, check application status and pay registration fees through e-Perolehan. By subscribing to the e-Perolehan system, suppliers will be able to participate in the procurement exercise by the government. Upon final implementation of the e-Perolehan system, full services will be available to all four types of procurement namely:

Phase 1: Supplier Registration & Central Contract
Phase 2: Direct Purchase & Quotation and Tender

4. RESEARCH FINDINGS

A total of 3,000 questionnaires were sent in October 2006 by mail to randomly selected suppliers. There were 502 completed questionnaires received and the findings reported here are based on the analysis of this data. The distribution of the firms is heavily skewed towards Private Limited companies (90 percent) and fall within the Small Medium Industries (SMI) definitions (Table 2). More than half of the firms have registered as e-Perolehan enabled after the year 2004 compared to about 40 percent of them registered before 2004 (Table 3). About 73 percent of the firms' annual sales using e-Perolehan system are within RM 1 million per year; however, about 19 percent have recorded annual sales of RM 1 million to RM 5 million and only six percent with annual sales of more than RM 5 million (Table 4).

Table 3. Year of e-Perolehan registration

Year	Frequency	Percent
2000	49	9.8
2001-2003	151	31.1
2004-2006	296	58.9
2007	6	1.2
TOTAL	502	101

Of the total 502 firms, 266 suppliers (53 percent) have used at least one of the e-Perolehan modules, that is, central contract, direct purchase, tender and quotation, whereas 236 suppliers have not used the e-Perolehan system (Table 5). However, about 91 percent of the latter has indicated that they will adopt e-Perolehan in the near future. The data collected was tested for reliability and the overall results gave alpha value more than 0.98 (Table 6). In general, there are nine factors found to be influencing the adoption and use of e-Perolehan system among the government registered suppliers.

Table 4. Annual transactions using e-Perolehan

Sales (RM 000')	Frequency	Percent
Less than RM 250	162	32.3
RM 250 – RM 500	93	18.5
RM 500 – RM 750	62	12.4
RM 750- RM 1 million	59	11.8
RM 1 – RM 5 million	94	18.7
More than RM 5 million	32	6.4
TOTAL	502	100.1

Table 5. e-Perolehan users

Number of users / non-users	Frequency	Percent
Yes	266	53.0
No	236	47.0
TOTAL	502	100

Table 6. Results for reliability tests

Factors	Items	Cornbach Alpha
Organizational Leadership	5	0.953
Organization Perceived Usefulness	12	0.978
Organization Perceived Ease of used	4	0.902
Organization Facilitators	8	0.918
IT Infrastructure	6	0.429
IT Skills	4	0.939
E-Perolehan Capability	6	0.706
Government Policy & Regulations	11	0.935
Industry Acceptance	14	0.975

5. DISCUSSION & RECOMMENDATIONS

The e-Perolehan initiative is expected to provide significant benefits to both the buyer (government) and supplier communities. There are several benefits of e-Perolehan for the government. The system firstly, offers more effective and efficient procurement process in line with the country's transformation to the knowledge based economy (K-Economy). E-Perolehan is a vehicle for the government to leapfrog into the new economy and promote the widespread adoption of e-Business in the country. The system also is stated to lower the operational cost for the government over time. In addition, the government will be able to reduce administration and operational costs through the usage of e-Perolehan as business processes are reduced and streamlined. From the government's perspective, the e-Perolehan system provides latest product information and pricing available on-line. E-Perolehan will always be up to date with the latest information that will help the buyer to make a more accurate procurement decision.

However, it has been seven years since Phase 1 of the e-Perolehan initiative has been launched. Although there are about 120,000 government linked suppliers (registered with MoF), only approximately 50,000 suppliers are e-Perolehan enabled and although 50,000 suppliers have the capability to participate in e-Perolehan, only 6,000 suppliers are active users of the system. The rest are classified as inactive or casual participants of the system. The following points highlight the key issues inherent within Malaysia's e-Perolehan initiative that prevents the government and the service provider from maximizing the value potential of the e-Perolehan system:

Cost: There are costs involved before a supplier becomes e-Perolehan enabled. Specifically, suppliers have to bear the cost of purchasing a smartcard for transaction, pay for training, and also any software renewal cost that occurs. Given that the majority of the suppliers within the traditional category belong to the small-medium size operations scale, it is expensive for them to register as e-Perolehan supplier.

Infrastructure and Skills: Lack of bandwidth support, poor computing and information systems architecture in general, prevents the majority of the suppliers from playing a more active part in e-Perolehan.

Business Focus/Change Management: Majority of the suppliers are not keen to do business with the federal government, given the e-Perolehan requirement. Suppliers prefer to do business with local and state government as they can use traditional methods for selling their products.

System Constraints: There are issues with the system, for examples, a supplier registered with the system, can only upload product information for ten different product areas, for free. Additional charges will be incurred if more product lines are listed within the system.

Government Policy: Although the Federal government of Malaysia encourages suppliers to become e-Perolehan enabled, the government can decide if it is willing to transact with a non e-Perolehan company, as long as the company is registered with MoF. In other words, this requirement has not been made mandatory as yet.

6. CONCLUSIONS

The findings suggest that the government should take a more proactive role in promoting e-Perolehan in Malaysia. This includes among others, making sure that the government's policy on procurement avoids any contradiction with the e-Perolehan implementation plan. In addition, issues such as regulating the cost for training and purchase of the relevant equipment should also be within the control of the government to ensure the small scale suppliers can be enticed to become active participants of the system. In terms of the sellers (suppliers) two kinds of e-Perolehan adopters currently exist. First is the aggressive adopters who are involved fully (6,000 suppliers). These suppliers seem to benefiting from e-Perolehan and are trying to achieve competitive advantage by using IT in their procurement process. Nevertheless, there are the conservative adopters (the laggards) – are taking 'wait and see' approach, before they are willing to actively become part of the system. On balance, the general consensus amongst both the buyer and seller communities is that e-Procurement will become an important management tool to enhance the performance of supply chain especially in the public sector. In this regard, we expect that between the next three to five years, more suppliers will grab the opportunity and benefit fully from the e-Perolehan initiative in Malaysia.

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