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Public User Assessment of Malaysia's E-Government Applications

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***Abstract*—**The implementation of electronic government started since the initiation of Multimedia Super Corridor (MSC) by the Malaysia government. The introduction of ICT in the public sector especially e-Government initiatives opens up a new book in the government administration throughout the world. The aim or this paper is to discuss the implementation of e-government in Malaysia, covering the result of public user self assessment on Malaysia's electronic government applications. E-services, e-procurement, Generic Office Environment (GOE), Human Resources Management Information System (HRMIS), Project Monitoring System (PMS), Electronic Labor Exchange (ELX) and e-syariah(religion) were the seven flagship application assessed. The study adopted a cross-sectional survey research approach and information system literature were used. The analysis was done for 35 responden in pilot test and there was evidence from public user's perspective to suggest that the e-government applications were generally successful.

***Keywords*—**Electronic government, flagship, multimedia super corridor, public user.

I. Introduction

GOVERMNET around the globe are striving to deliver effective and efficient services to their citizens. In late 1990's, the Malaysia government introduced seven flagship project as part of Multimedia Super Corridor (MSC) initiatives to spur the growth of information and communication technology in Malaysia. The objectives of MSC to achieve the goals of Malaysia's vision 2020, leapfrog Malaysia into leadership in the information age and to build global bridges between Malaysia and other intelligent cities[1]. Electronic government was one of the projects.

Electronic government is defined as the use of Internet and other digital devices in public sector to deliver services and information [2,3,4]. 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 enhance public participant and democracy [2,5,6,7,8]. The government flagship initiative will be the basis for enhancing efficiency and service delivery to the public while fostering partnership between the government, citizens and businesses [9].

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In Malaysia, one of the government agencies, Malaysia Administrative Modernization and Management Planning Unit (MAMPU), has been entrusted to pelan, implement and monitor the e-government initiative. Re-inventing government services within the government itself and to the public and the business is one of the key elements for the successful e-government implementation in Malaysia. Seven applications were designed in Malaysia electronic government namely e-services, e-procurement, Generic Office Environment (GOE), Human Resources Management Information System (HRMIS), Project Monitoring System (PMS), Electronic Labor Exchange (ELX) and e-syariah(religion). The governments entrusted a particular agency to lead the implementation for each of these application as below:

TABLE I
MALAYSIA'S E-GOVERNMENT PROJECTS AND IMPLEMENTATION AGENCIES

E-G APPLICATIONS	AGENCIES
HRMIS	Public Service Department
GOE	Prime Minister's Office
PMS	Implementation Coordination Unit at the Prime Minister's Office
ELX	Ministry of Human Resources
e-service	Road Transport Department
e-procurement	Ministry of Finance
e-syariah	Islamic Justice Department at the Prime Minister's Office

In Ninth Malaysia plan, the government spend about RM2.2 billion on the development of ICT for the public sector in 2005 [10]. This figure is projected to grow at 10% annually. Based on the huge amount, this public users' a assessment and result could perhaps lean-to a new glow on the success of Malaysia's e-government flagship application in lead implementation agencies. Some literature review about electronic government will discuss in next chapter. Chapter three the methodology of the research. Finding and discussion that involved feedback from data pilot a available in chapter 4. The last chapter discuss the conclusion of the research.

II. LITERATURE REVIEW

A. Malaysia's Electronic Government Applications

The public sector in Malaysia is going through a period pf rapid change. The government's leading role in spearheading the surge forward into the information rich digital age has compelled the public sector to lead the way [11]. In the last several years, the public sector has become a major investor and user of information technology. The Malaysia government

launched electronic government as one of the MSC flagship application to employ technologies to re-invent the way government operates. E-government will improved government operation internally and how it delivers services to the people of Malaysia's.

As mention before, there a seven project launched under e-government flagship since started in 1997. All these projects will use ICT and multimedia technologies to transform the way government operates, including coordination and enforcement[12,13]. Table 2 summarizes the projects and its functions.

TABLE II
PILOT PROJECT UNDER E-GOVERNMENT FLAGSHIP

PROJECTS	FUNCTIONS
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. Aimed at best value for money, timely and accurate payment
Project Monitoring System (PMS)	Provides a new mechanism for monitoring implementation of development projects, incorporating operational and managerial functions, and knowledge repository
Human Resources Management Information System (HRMIS)	Provides a single interface for government employees to perform human resources department 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 Labor Exchange (ELX)	A one-stop-centre for labour 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. To enhance the Islamic Affairs Department's effectiveness- better monitoring and coordination of its agencies and 102 Syariah courts.

Source: MDeC[13]

B. IT project success model

Researches, analysis and discussions on the success factors of IT projects have been done tremendously. The researchers analyzed the successful projects and explained the success factors based on individual project. The success of an IT project is very much depending on its capability and strategies thus the project is able to complete according to plan, estimated cost and successfully implemented. Researchers considered this factor as the fundamental factor towards the success of IT projects. This factor must be closely monitored to avoid unforeseen problems disturbed the projects to run smoothly. Apparently, success factors of a project is begun with the ability to control cost and timeline. The project is not supposed to be overspent. Due to that, timeframe must be taken care off because this is the major factor contributes to cost surplus.

Measuring IT success is recognized as a difficult task. As a result, researchers turned to surrogate measures of IT success. One commonly used surrogate measure is user satisfaction. User satisfaction refer to the successful interaction between the information system itself and its user [14]. User satisfaction measure has been used since the 1980s until the present day. Beside user satisfaction, other measures of information system success include system quality, information quality, use, individual impact and organization impact [14]. System quality is concerned with whether or not there a bugs in the system, the consistency of the user interface, ease of the use, response rate in the interactive system, documentation and sometimes quality and maintainability of the program code. Information quality is concerned with such issues as timeliness, accuracy, relevan and format of the information generated. Use examines the use of information system and the extent of use of information systems in the user jobs. Individual impact examines the effect of the information system on the users' performance. Organizational impact concerned with the influence on the information system on overall organization performance [15]

This study used the DeLone and McLean model[14] of information system success. Consequently, based on DeLone and McLean (1992) model, a research framework as shown in figure 1 was developed. The framework showed the relationship between the organizational factors and the four Information System success dimensions.

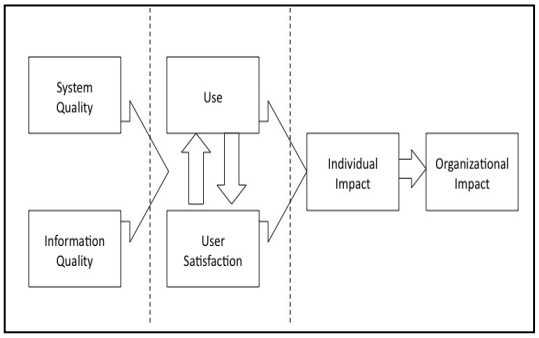

Fig. 1 DeLone and McLean's model of information system success

III. RESEARCH METHODOLOGY

This study used a cross sectional survey and self administered procedure. Seven e-government flagship application - e-services, e-procurement, Generic Office Environment (GOE), Human Resources Management Information System (HRMIS), Project Monitoring System (PMS), Electronic Labor Exchange (ELX) and e-syariah were the target for evaluation.

The population of the study consisted of anybody that

usually used the e-government application as an end users. As a pilot test requirements, only 35 selected respondents who properly complete the questionnaire taken into account. The amount based on 10% of the actual sample size in real survey - 350 data's representing Malaysian citizens. Respondents were required to evaluate agreement to statements that used a seven point Likert scale. A seven point represents 'strongly agree' while a one point represents 'strongly disagree'. Measures of service quality were borrowed and adapted accordingly from Sherman (1997).

Ten questionnaires were distributed to information system lecturers in a few university in Malaysia for pretest. They were asked to critically evaluate the questionnaire with regards to its objective, contents clarity and ease of completion. All respondents responded and the feedback was incorporated accordingly. A pilot test was conducted using the improved version of the survey instrument based on the pretest. A total of three hundred survey questionnaires were then distributed randomly by using the email in a pilot test to anybody as a Malaysian citizens. Only 35 completed survey questions considered to analyze and discuss in this study.

IV. FINDINGS

The study used online questionnaire survey to measure the usefulness of the electronic government application. Three hundred online questionnaires were distributed randomly by email to respondents in August 2009. The respondents were asked to evaluate the e-government application that frequently used whether for work or personal matters. A few criteria's need to measure like system quality, information quality, perceived usefulness, user satisfaction and organization context.

TABLE III
E-SERVICE APPLICATION TASK

Agency	Task
Road Transport Department	a. Information services b. Summon payment c. Driving lesson d. Driving license e. Renew road tax
Kuala Lumpur City Hall	a. Bill payment b. Tax payment
Malaysia Telecommunication Department	a. Bill payment b. Information services
Tenaga Nasional Berhad (electricity)	a. Bill payment b. Information services
Insolvency Department	a. Searching bankrupt status for individu and company

The number of usable response was 35, yielding a usable response rate of 11.67%. Based on public user assessment, the majority of the usable responses were on e-service, while the fewest number of usable responses were on e-syariah, PMS (project monitoring system), GOE (generic office environment). It is because that three application not really related to daily business (refer to Table 2 for functionality of the system). E-service application involved a multiple daily task as shown in Table 3.

A. Reliability analysis of measures

A reliability analysis was then conducted on items of each construct in the study. Reliability refer to the accuracy of a measuring instrument [16]. Reliability Analysis is determined by obtaining the proportion of systematic variation in a scale, which can be done by determining the association between the scores obtained from different administrations of the scale. Thus, if the association in reliability analysis is high, the scale yields consistent results and is therefore reliable. Reliability analysis was performed for all the measures shown in Table 4.

TABLE IV
RELIABILITY ANALYSIS

Measures	No of item	Cronbach's Alpha
User satisfaction	5	0.90
System quality	8	0.96
Information quality	10	0.97
Usefulness	5	0.91
Organization context	8	0.93

Tests of internal consistency (cronbach's alpha) were conducted to assess the reliability of each of the constructs used. All of the measures included in the questionnaire show adequate levels of internal consistency and reliability. The reliability for the measures ranges between 0.90 for user satisfaction to 0.97 for the measure of information quality. Cronbach alpha score 0.70 above is considered reliable [17]. The results showed high value of Cronbach alpha in Table 4 indicating that all the constructs are accurate and hence suggests the instrument is reliable and is suitable to measure the concepts employed in the study.

B. Correlation Analysis

In order to understand the strength of the relationship between the measures, correlation analysis was conducted. The association between the four information system success dimension employed in the study, system usefulness, information quality, system quality, user satisfaction and organization context are presented in Table 5. The results showed that the five variables are highly correlated with one another. The value of Pearson correlation matrix ranges from r = 0.621 to r = 0.919. The highest correlation value was between information quality and system quality. This suggests that the user concerned on the quality of the information system presented to them and the quality of the information can make system more quality and frequently use.

The cutoff value for highly correlated factors is 0.5 as suggested by Hair [18]. The high correlation value suggests the five IS suggested dimensions are significantly related with each other.

TABLE V
CORRELATION ANALYSIS BETWEEN THE FACTORS

Item	User satisfaction	System quality	Informa-tion quality	Useful ness	Organiza tion context
User satisfaction	1	.876**	.867**	.632**	.697**
System quality	.876**	1	.919**	.697**	.720**
Information quality	.867**	.919**	1	.621**	.660**
Usefulness	.632**	.697**	.621**	1	.835**
Organization context	.697**	.720**	.660**	.835**	1

**. Correlation is significant at the 0.01 level (2-tailed).

C. Profile measures

In order to know the relationship and acceptance value for all the variables, the assessment of the mean value for each factors was done in Table 6.

TABLE VI
PROFILE OF MEASURES

Measures	No. of item	Average mean
User satisfaction	5	5.37
System quality	8	5.49
Information quality	10	5.37
Usefulness	5	5.18
Organization context	8	4.80

All items that measure user satisfaction show that the mean is above 5.0. The average score for user satisfaction is also above 5.0 that is 5.37. Generally, the majority of public users were satisfied with the e-government flagship applications. For system quality , all items that measure is show that the mean also above 5.0. The average score for system quality is 5.49 means that the public users who responded to the survey perceived that the e-government applications had system quality value. All variables that measures information quality show that mean is above 5.0 and the average score is 5.37. The public user who responded to the survey professed that the e-government applications had information quality value.

Similarly, all items that measure system usefulness show that the mean above 5.0 and the average score for system usefulness is 5.18. Its show that majority of the public users were used the system for personel or work matters. All variables that measure organization context show that that the mean is above 4.0. The average score for organization context is also above 4.0 (mean = 4.80). Generally, the majority of users perceived that most organization in Malaysia support the e-government application.

V. Conclusion

The main objective of the research is to investigate the public users assessment of Malaysia's e-government applications. In order to answer the research question , the study had used the DeLone and McLean success theory to evaluate Malaysia's e-government applications. The research finding demonstrate that public users who used the system were generally satisfied with the system. The public users who responden to the survey perceived that the e-government applications had system and information quality value for them. Additionally the system very useful and the most organization in Malaysia support the e-government initiatives. It can be concluded from this study that e-government applications were successful from the public users' perspectives. This research contributes to theoretical knowledge in that finding from correlation analysis show that model of information systems success can be used to evaluate Malaysia's e-government application. Further studies should focus to evaluate internal user either for lead agencies or other related government agencies perceptive in e-governments application. Beside that, future studies could also take case studies and interview or observation approach to evaluate or understand reasons or specific issues that relate for variability in user or system developer perception of each application.

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