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Factors influencing intention to use e-government services among citizens in Malaysia

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ABSTRACT

This study is an exploratory study on the e-government in Malaysia. With the liberalization and globalization, Internet has been used as a medium of transaction in almost all aspects of human living. This study investigates the factors that influencing the intention to use e-government service among Malaysians. This study integrates constructs from the models of Technology Acceptance Model (TAM), Diffusion of Innovation (DOI) which been moderated by culture factor and Trust model with five dimensions. The study was conducted by surveying a broad diversity of citizens in Malaysia community. A structured questionnaire was used to collect data from 195 respondents but only 150 of the respondents with complete answers participating in the study. The result of the analysis showed that trust, perceived usefulness, perceived relative advantage and perceived image, respectively, has a direct positive significant relationship towards intention to use e-government service and perceived complexity has a significant negative relationship towards intention to use e-government service. While perceived strength of online privacy and perceived strength of non-repudiation have a positive impact on a citizen's trust to use e-government service. However, the uncertainty avoidance (moderating factor) used in the study has no significant effect on the relationship between the innovation factors (complexity, relative advantage and image) and intention to use e-government service. Finally in comparing the explanatory power of the entire intention based model (TAM, DOI and Trust) with the studied model, it has been found that the DOI model has a better explanatory power.

1. Introduction

The application of the Internet in the operation of the government has been termed as 'e-government' (Cohen & Eimicke, 2002; Harris, 2002; Jorgensen & Cable, 2002). E-government can be defined as "the complete optimization of service delivery, constituency participation and governance by transforming internal and external relationships through technology, the Internet and new media" (Gartner Group, 2000). It presents a way for governments across the world to provide citizens, business and other government with convenient access to government services and opportunities of collaboration via Internet and wireless communication technology (Siau & Long, 2005). E-government is an initiative aimed at reinventing how the Government works and to improve the quality of interactions with citizens and businesses through improved connectivity, better access, furnishes high quality services and better processes and systems.

In contrast to traditional government processes, e-Government is characterized by (1) extensive use of communication technology, (2) the impersonal nature of the online environment, (3) the ease of information can be collected (data-mining), processed and used by multiple parties (Warkentin, Gefen, Pavlou, & Rose, 2002). However, e-Government has the implicit uncertainty of using an open technological infrastructure for transaction via the newness of the communication medium–interact with a government website. This would indirectly increase the spatial and temporal separation between citizens and government; more uncertainty and concern about the reliability of the underlying Internet and related government infrastructure interfaces. As overall these unique differences increase uncertainty and reduce perception of citizen control, imposing a barrier to e-Government adoption. 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 all citizens individually, businesses or organizations. 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 the citizens. Generally, e-Government portal will be the one-stop gateway to administrative and commercial services.

As one of the strategies to achieve Vision 2020, Multimedia Super Corridor (MSC) has been introduced to accelerate Malaysia's

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Table 1
Ranks and scores in the government e-payment adoption ranking (GEAR).

Rank	Countries 1–22	Score	Rank	Countries 23–43	Score
1	Canada	92.4	23	Philippines	51.2
2	United Kingdom	92.1	24	Malaysia	49.1
3 tie	Germany	90.1	25	Mexico	48.2
3 tie	United States	90.1	26	Russia	45.5
5	Sweden	89.6	27	Poland	45.3
6	Australia	88.0	28	Argentina	44.7
7	Korea, Rep. of	86.8	29	Thailand	42.0
8	France	86.6	30	Kazakhstan	40.8
9	Hong Kong	86.3	31	United Arab Emirates	39.1
10	Singapore	85.6	32	Pakistan	38.4
11	Taiwan	84.5	33	India	34.6
12	Netherlands	81.6	34	Colombia	31.2
13	Spain	76.4	35	Morocco	28.3
14	Ireland	75.0	36	Costa Rica	28.2
15	Italy	74.2	37	Iran	23.8
16	Hungary	73.4	38	Saudi Arabia	20.9
17	Japan	66.4	39	Egypt	19.0
18	Turkey	61.6	40	Venezuela	18.7
19	China	61.1	41	Ukraine	14.6
20	Czech Republic	58.8	42	Nigeria	13.6
21	South Africa	53.8	43	Indonesia	12.8
22	Brazil	52.8			

Source: The Economist Intelligence United Limited, Oct 2007.

entry into Information Age. The services provided through the website are the Government's proactive way to help enhance the public delivery system. Electronic Government (e-Government) was initiated in Malaysia on 24 February 2004. The Vision of e-Government is to transform administrative process and service delivery through the use of IT and multimedia. The Malaysian government has launched a website to collate all the services provided from one roof or portal rather than having separate website for respective services provided. Under the e-government flagship, seven pilot projects of E-Government Flagship Application are identified as Generic Office Environment (GOE), Electronic Procurement (EP), Human Resource Management Information System (HRMIS), Project Monitoring System (PMS), Electronic Services Delivery (E-Services), Electronic Labor Exchange (ELX), and E-Syariah (MDC, 2004).

The Economist Intelligence Unit conducted the Government E-Payment Adoption Ranking (GEAR), measures the extent to which 43 countries provide key government payment services on electronic platforms (Ranking result shown in Table 1). Economist Intelligence Unit analysts and contributors conducted online research to test 16 important transactions, including tax payments and refunds, automotive costs, social-welfare benefits, registration of businesses and government procurement. The unit gathered data on these countries' payments infrastructure, and their educational, economic and political context. The 31 indicators in this study were built into a dynamic scoring model (Indicators shown in Table 2). Based on the research, Canada is the world's leading nation for government e-payments (with the highest score of 92.4 out of 100), edging the UK in second (92.1), Germany and the United States in third (90.1). The ranking followed by Sweden (89.6), Australia (88.0) and South Korea (86.8) round out the top seven. These countries' government combines well-developed information and communications infrastructures, technologically and financially sophisticated populations, and governments committed to electronic payments and to integrating the economy.

In Asian countries, Hong Kong was ranked in 9th (86.4), Singapore in 10th (85.6) and Taiwan in 11th (84.5). The governments of these countries have encouraged online services and electronic payments in recent years as part of their successful economic-development strategies. The report revealed that Malaysia was ranked in 24th (49.1), showed that Malaysians are still low in utilizing e-services provided by government.

Table 2
The 31 indicators in the government e-payments adoption ranking.

Indicator name	Indicator type
Consumer-to-government (C2G)	
1. Income tax payments	Score
2. Social security contributions	Score
3. Obtaining and paying for a new or replacement ID card or driver's license	Score
4. Automotive costs: Toll roads, bridges, zones, fines, tickets etc	Score
Government-to-consumer (G2C)	
1. Income tax refunds	Score
2. Social security benefits	Score
3. Unemployment, workers' comp and welfare benefits	Score
4. Government health benefits	Score
Business-to-government (B2G)	
1. Income tax payments	Score
2. Sales/VAT tax payments	Score
3. Social security and other contributions	Score
4. Company registration and payment of fees	Score
Government-to-business (G2B)	
1. Income tax refunds	Score
2. Sales/VAT tax refunds	Score
3. Payments for goods and services	Score
4. Disbursements of loans (such as SBA in the US)	Score
Infrastructure	
1. Number of ATMs per 10,000 people	Statistic
2. Number of POS terminals per 10,000 people	Statistic
3. Diffusion of broadband	Score
4. Diffusion of narrowband/dial-up	Score
5. Public-access terminals per capita	Score
6. Mobile phone usage per capita	Score
7. Level of development of stored value cards/phones	Score
8. Level of development of 3G and other technologies	Score
Educational, economic and political context	
1. Literacy levels	Statistic
2. Educational levels	Statistic
3. Internet/technology savviness	Score
4. Percentage of population using banks/other financial institutions	Score
5. Percentage of businesses using banks/other financial institutions	Score
6. Government commitment to electronic payments	Score
7. Government commitment to integrating the informal economy	Score

Source: The Economist Intelligence United Limited, Oct 2007.

Based on the Government E-Payment Adoption Ranking (GEAR), Malaysia was ranked in 24th out of 43 countries in the world. This report indicated that more study need to be done to analyze factors influencing the intention to use e-government services among citizens in Malaysia. In addition, the government authorities also have to study their strategies in encouraging more citizens to use e-government services in future. The e-government issues such as integration of legacy systems, installation of appropriate security and privacy mechanism, authentication and confidentiality, technical issue, infrastructure, accessibility, maintainability, social issues, usability and others need to be studied to increase citizens' actual participation in the usage of e-government initiatives. This study is intention to use e-Government among citizens in Malaysia. This study can help the policy maker to know the information on factors that influence and affect citizens' intention to use e-Government services in Malaysia. Hence, it would value add in establishing better understanding and more practical security and control policies that would strengthen the government portal or websites that citizen concern the most. This would also help the government to identify which critical area that needs to be enhanced. Ultimately, the most critical outcome that we would expect out of this study is to increase the confidence of citizens to use e-Government in future. Next section will briefly discuss the literature review on the vari-