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Continuance Intention towards e-Government Web-Based Applications Adoption in Southern Malaysia

Siti Mahzurah Bahruni¹, Marlita Mat Yusof²*, Ramita Abdul Rahim³

¹,²,³ Universiti Teknologi MARA, Puncak Alam, 42300, Selangor, Malaysia

ABSTRACT

Objective – To identify the relationship between the e-Government web-based application adoption and citizens’ continuance intention in Southern Malaysia and to determine which element in the predictor variable that has more influence towards the outcome variable based on a theoretical framework.

Methodology/Technique – It is a correlational study that uses survey to gather data. This study is conducted in the selected private organizations in the Southern Malaysia; namely the states of Johor, Melaka and Negeri Sembilan. Convenience sampling was chosen to select 216 respondents.

Findings – The results found that website design, complexity and perceived usefulness significantly associated with citizens’ continuance intention. In addition, perceived usefulness is the main predictor in influencing citizens’ continuance intention.

Novelty – This study focuses on the continuance intention to use the intended web-based applications rather than the initial intention to use the applications.

Type of Paper: Empirical

Keywords: e-Government adoption; Continuance intention; Web-Based Applications; Southern Malaysia

1. Introduction

Information and Communication Technology (ICT) world has rapidly led to a diverse tools and communications’ option for all people. A such digital era has perceived tremendous changes in the peoples’ lifestyles and environment. In line with the statement, Hernandez-Ortega (2011) saying that today’s business organizations and individual have become increasingly dependent on computer and Information Technology (IT) to carry out their daily operations.

According to Parayitam, Desai, Desai and Eason (2010), the most vital component in today’s lifestyle is computers, tablets and smart phones and other advanced gadget available in the marketplace. As the Internet technology and usage has become progressively more

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Corresponding author:  
E-mail: marlita@puncakalam.uitm.edu.my  
Affiliation: Faculty of Business and Management, UiTM Puncak Alam, Malaysia
popular in different fields due to its huge capability, all activities can be done virtually (Nov and Ye, 2008). The rapid speed of technological development has made the integration of computers and telecommunication technology as a useful instrument to enable the governments to enhance and possibly transform its relation with citizens, business organizations and agencies as well as other governments around the world.

As reported by the online news; The Star (2012), Malaysia’s government portal, www.malaysia.gov.my has been ranked top 11 among 198 countries that provide e-Government (EG) services by Brookings Institution in the United States. To date, myGovernment Portal provides 1,115 online services to the Malaysians and they can access and download 2,892 forms from this portal (Malaysian Administrative Modernisation and Management Planning Unit (MAMPU) former Director-General Datuk Normah Md. Yusuf in The Star online, 2012).

The successful implementation of e-Government adoption requires citizens to display their high level of acceptance, continuance intention and security with the online services provided by the government (Lin, Fofanah & Liang, 2011). Rehman and Esichaikul (2011) added that in order to achieve the e-Government successful implementation, citizens’ intention and willingness to adopt the web-based applications in continued basis is the most dominating aspect. In Malaysia, the level of user acceptance and adoption toward the e-Government web-based applications are in good level where the Malaysian citizens are prone to engage with ICT as it emerged when the government first introduces the MSC project (Norazah & Ramayah, 2010).

To address the above aspect, this study aims to identify the relationship between the three elements in the e-Government web-based application adoption towards citizens’ intention to continue using such system in the future after experiencing it once. In addition, this study also aims to identify which element that has more influence towards citizens’ continuance intention. Previous researchers have looked at the citizens’ adoption and intention to use e-Government web-based applications as the measure of success in the implementation of the e-Government information system (Ramayah, Noor Hazlina & Lo, 2010).

According to Razlini (2012), the readiness level of Malaysian citizens to utilize and take advantage of the e-Government web-based applications are still low, which is they are not ready to commit with the continued usage of e-Government services. It is further proven by the 2011 Government e-Payment Adoption Ranking (GEAR) report that provided by the Economist Intelligence Unit stated that Malaysia’s rank was in 29th out of 63 countries. This result shows that Malaysia is still left behind from the developed countries in using and utilizing the e-payment method provided by the government to make online payment such as pay the taxes, fees, bills, licenses and fines over multi-channel means such as direct debit, credit card and as well as through Internet banking. Santhanamery and Ramayah (2012) further elaborate that although the citizens do accept the e-Government web-based applications, however, the successful implementation of e-Government depends on the citizens’ intention to use and continually use these particular public e-services.

Based on AlAwadhi and Morris (2009), lack of awareness and understanding the benefits of such web-based applications are associated with the adoption and continuance intention to use. Taken together Hung, Chang and Yu (2006) and AlAwadhi and Morris (2009) stated that the barriers in adopting and users’ ongoing intention to use the e-Government web-based applications are lack of familiarity with IT in several groups of people such as the economically disadvantaged, some older people, and some people with disabilities to perform the online transactions. If the aforementioned issues continue to happen, those large amounts of investment made by the Malaysian government could be simply wasted and would be deemed as failure (Ooh, 2008; Ramayah, Ahmad & Lo, 2011). Grounded by these issues, the focus of this study is to identify the most significant factors that influence citizens’ continuance intention to use the e-Government services rather than the initial intention to use it.
2. Intention to Adopt e-Government Web-Based Applications

Intention simply signifies a course of action that one proposes to follow and strong predictor of future behaviors (Zhao, Stylianou and Zheng, 2013). Behavioral intention is an individual’s subjective possibility of performing a specified behavior, and this is the major contributing factor of actual usage behavior (Ajzen, 1985; Fishbein & Ajzen, 1975; as cited in Lee, 2009). The perspective on technology adoption is aligned with the user initial behavioral intention to use a particular technology. Dies and McIntosh (2009) defined the intention to use or adoption intention as an individual’s or organization’s intention to use or adopt an innovation in the present and future. In sum, the IS adoption is the act of receiving information technology and use the technology willingly. User intention to adopt the IS are really the true success factors to such system which, depending on first-time use and subsequently, the continuing use (Lin, 2012).

The decision to readily adopt new information technology is influenced by users’ initial perceptions of the technology and perceives significant risk and trust that associated with the technology (Li, Hess & Valacich, 2008). In the study that conducted by Santhanamery and Ramayah (2012); Azmi and Bee (2010); and Ambali (2009) found that in Malaysia, the result of the studies found that e-filing systems drew a significant relationship between perceived risk and citizens intention to use e-filing applications which means that the higher the user perceived risk, the lower the intention to adopt and make use the e-filing in the future.

The accessibility on e-Government websites also affects the initial intention to use particular online services among the Malaysian. However, according to Mohd. Hanapi and Mohamad Noorman (2010), there is no single Malaysian e-Government websites that passed the World Wide Web Consortium (W3C) Priority 1 accessibility checkpoints. Note that the W3C is an international body that devoted to the standardization of the World Wide Web. The result leads to fewer citizens make use the e-Government web-based application these days where they did not have the initial intention to use it because of the accessibility and lead to discontinuance usage of the e-services.

Figure 2.1 Conceptual Framework

2.1 Continuance Intention to Use E-Government Web-based Applications

Continuance intention is defined as user’s intention to continue use or long term usage intention of technology in order to make sure that the technology is better from the previous one (Santhanamery & Ramayah, 2013). Kim, Hong, Min & Lee (2011) argue that IS continuance has received relatively small attentions from IS researchers than acceptance/adoption does and most of it in the initial IS acceptance/adoption. This section provides discussion of continuance intention to use IS since it is the baseline of this study. Continuance behavior is defined as the continued perception of IS adopters, where continuance decision follows closely to the initial
usage decision (Lin, 2012). The ultimate success of an IS depends on its continued use rather than first-time use by the user, but some researchers claimed that initial use of IS especially e-Government services are an important indicator of e-Government implementation success (Wangpipatwong, Chutimaskul & Papasratorn, 2008).

2.2 e-Government Web-Based Applications Adoption

The conceptual framework developed based on the intention-based model (TAM, DOI, ECM and Trust). Carter and Belanger, 2004 as cited in Rehman and Esichaikul, 2012 proposed an integrated model containing TAM, DOI and web trust model as the moderating role. Thus, this study fulfills the research gap on the previous studies in integrating the constructs from the model of Technology Acceptance Model (TAM), Diffusion of Innovation (DOI) theory, and Expectation-Confirmation Model (ECM) which been moderate by the trust of the citizens to continue use government e-services.

2.2.1 Website Design

As the successful e-Government adoption is related to the complication of the government online service and the website interface (Aladwani, 2013), this study intends to embrace the question on how e-Government website design disturbs the intention of citizens to continue use the applications in the future. Website design is added to the framework to see whether the design of the website and interface really gives influence towards user continuance intention to use the website in future.

2.2.2 Complexity and Perceived Usefulness: The Integration of DOI and TAM

As mention beforehand, previous researcher such as Carter and Belanger (2004) and Rehman and Esichaikul (2012) proposed for the future study to integrate the model containing TAM and DOI. To fulfill the research gap on the previous studies, this study is integrating the constructs from the model of Technology Acceptance Model (TAM), Diffusion of Innovation (DOI) theory. Complexity is defined as the degree to which an innovation is perceived as relatively difficult to understand and to use (Rogers, 1983 as cited in Alomari, Woods & Sandhu, 2012; Sang, Lee & Lee, 2009). Complexity from DOI is similar to perceived ease of use (PEoU) from TAM (Alomari, Woods & Sandhu, 2012). TAM proposes that the primary drivers for technology acceptance behaviors consist of two particular beliefs, which are perceived usefulness and perceived ease of use (Lee, 2009). Perceived usefulness and perceived ease of use influences individual attitude towards system usage, and which influence one’s behavioral intention to use a system, which in turn determines actual system usage (Sang, Lee & Lee, 2009).

Table 1. Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis (H)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>There is a relationship between e-Government’s website design and continuance intention in Southern Malaysia.</td>
</tr>
<tr>
<td>H2</td>
<td>There is a relationship between e-Government’s complexity and continuance intention in Southern Malaysia.</td>
</tr>
<tr>
<td>H3</td>
<td>There is a relationship between e-Government’s perceived usefulness and continuance intention in Southern Malaysia.</td>
</tr>
<tr>
<td>H4</td>
<td>e-Government’s website design has an influence on continuance intention in Southern Malaysia.</td>
</tr>
<tr>
<td>H5</td>
<td>e-Government’s complexity has an influence on continuance intention in Southern Malaysia.</td>
</tr>
<tr>
<td>H6</td>
<td>e-Government’s perceived usefulness has an influence on continuance intention in Southern Malaysia.</td>
</tr>
</tbody>
</table>
3. Research Methodology

The correlational research design was chosen as the intention of this study is to see if there is a relationship that exists between the dimensions of the e-Government web-based applications adoption and citizens’ continuance intention and trust as the moderating role. The population for this study is the employees in Southern Malaysia that includes the states of Johor, Melaka, and Negeri Sembilan. In this study, three private organizations in service industry were selected respectively for each state, rounding up to 270 respondents in total. They were chosen based on their consistent usage on e-Government web-based applications such as e-Filing. As suggested by Krejcie and Morgan’s table, N = 270 and S = 159. Thus, this study followed that suggestion by sampling only 159 cases. The sample consists of employees of various positions with experience of using Malaysia’s e-Government web-based applications. Questionnaire was used as the instrument in the study. It was adopted from previous research and certain questions were modified to meet the context of the local study. The questionnaire comprises of six sections, Section A until F respectively. The design of the question for Section A were closed-ended, meanwhile for the rest of the section were in five-point Likert Scale ranging from one (1) to five (5).

4. Results and Discussion

In this study, data were analyzed using the Statistical Package for Social Science Software (SPSS) version 2.0. Initially, data screening and was conducted in order to check for errors in data entry and assessing the data normality using the skewness and kurtosis test. Next is, the descriptive statistics were used to measure the central tendency and variability of the variables which include mean, mode, median, standard deviation, frequency and percentage. Descriptive statistics are used to explore and summarize the data collected (Coakes, 2013).

Table 2. Correlation coefficient between -Government website design and continuance intention

<table>
<thead>
<tr>
<th>e-Government Website Design</th>
<th>Continuance Intention</th>
<th>Pearson Correlation</th>
<th>Sig. (1-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>. Correlation is significant at the 0.01 level (1-tailed).</strong></td>
<td></td>
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</tbody>
</table>

Based on the result, it shows that there is a significant relationship with a moderate degree of correlation between e-Government website design and citizens’ continuance intention ($r = .344$, $p < 0.01$). Therefore, $H_1$ is accepted, showing there is a relationship between these two elements as e-Government website design has a significant relationship towards their continuance usage. As e-Government web-based applications become the main medium for online transactions between the government and its citizens, designing user-centered websites are top priorities to the web designer in ensuring the citizens to continue using the website.

Table 3. Correlation coefficient between -Government complexity and continuance intention

<table>
<thead>
<tr>
<th>e-Government Complexity</th>
<th>Continuance Intention</th>
<th>Pearson Correlation</th>
<th>Sig. (1-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>. Correlation is significant at the 0.01 level (1-tailed).</strong></td>
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</tbody>
</table>

Similarly, $H_2$ is accepted, showing that there is a significant relationship with a moderate degree
of correlation between e-Government complexity and citizens’ continuance intention \((r = .479, p < 0.01)\). This study inferred that less complex website significantly related to continuance usage. If the e-Government web-based applications are too complex and unstandardized, the different designs might be undesirable for most people when they need to navigate to the different websites to conduct different transactions.

Table 4. Correlation coefficient between Government perceived usefulness and continuance intention

<table>
<thead>
<tr>
<th>e-Government Perceived Usefulness</th>
<th>Continuance Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>Sig. (1-tailed)</td>
</tr>
<tr>
<td>Continuance Intention</td>
<td>**. Correlation is significant at the 0.01 level (1-tailed).</td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

From the findings, there is a significant relationship with a strong degree of correlation between e-Government perceived usefulness and citizens’ continuance intention \((r = .521, p < 0.01)\). Therefore, \(H_3\) is accepted. Thus, this study able to prove that perceived usefulness significantly correlates with person intention to continue to use such technology. Indeed, e-Government web-based applications are information systems that can simplify tasks and activities as the users perceived benefit from them. This finding confirms the result of Norazah and Ramayah (2010) that indicated that continuance intention is determined by perceived usefulness with past use experience.

Table 5. Results of multiple regression analysis of e-Government web-based applications adoption and continuance intention

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Continuance Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td><strong>Beta values ((\beta))</strong></td>
</tr>
<tr>
<td>Website design</td>
<td>.206**</td>
</tr>
<tr>
<td>Complexity</td>
<td>.265**</td>
</tr>
<tr>
<td>Perceived usefulness</td>
<td>.304**</td>
</tr>
<tr>
<td>R</td>
<td>.597</td>
</tr>
<tr>
<td>(R^2)</td>
<td>.356</td>
</tr>
<tr>
<td>Adjusted (R^2)</td>
<td>.346</td>
</tr>
<tr>
<td>F values</td>
<td>35.810</td>
</tr>
<tr>
<td>Sig. F values</td>
<td>.000</td>
</tr>
<tr>
<td>Durbin-Watson</td>
<td>2.094</td>
</tr>
</tbody>
</table>

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

The result indicates that all the three variables do have influence on citizens’ continuance intention to use the e-Government web-based applications in Southern Malaysia. However, perceived usefulness has the highest beta values among the three variables and it is the main predictor for continuance intention \((\beta = .304, p < .01)\). It is then followed closely by the complexity \((\beta = .265, p < .01)\) and website design \((\beta = .206, p < .01)\). Therefore, this clearly shows that perceived usefulness does significantly contribute to the citizen continuance
intention, $F (3, 194) = 35.810, p < .05$. This is supported by the previous research conducted by Wang (2014) in evaluating the China citizens in perceived usefulness in mobile government continuance use. The researcher found that the Chinese perceived value and benefit by using such e-Government applications as they said that it is so convenience and easy to use such system when conducting the official matters.

**Acknowledgements**

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**References**


