E-Government Web Portal Adoption: A Service Level and Service Quality Perspective

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Abstract
E-government web portal service level and service quality are critical factors that determine user’s adoption and continuance use. The paper reports results of a study that examines user’s adoption and continuance intention (CI) of e-government web portal from the perspective of service level and service quality. Three types of user groups are identified based on the purposes of use and the primary activities: information acquisition, information exchange, and transaction processing. Service quality is measured by web portal’s information quality, design/function, reliability, security and privacy, and system responsiveness. A research model is proposed and tested using data based on a sample of 630 individual e-government web portal users in China. Results show that web portal’s service quality affects user’s adoption and continuance intention and the effect differs among different types of user groups. Implications based on the findings of the study are discussed in term of e-government web portal implementation.

1. Introduction
E-government services are typically delivered through web portals built and maintained by the government. Web portal’s quality, functionality, reliability, and security and privacy protection features affect the use of e-government services, hence, user’s adoption of e-government systems. A web portal is a website that brings information together and provides various functions such as search engine, news, email, financial news, and entertainment news, and many different applications, e.g., Yahoo.com. By the end of 1990s, many governments had started to build and implement government web portals, as an important part of e-government initiatives, to provide government services to their citizens. Initially, many government web portals, similar to many commercial portals, are designed to provide citizen with information only. As a result of ICT and e-commerce advancement many governments have extended web portal’s functions to include additional services such as information exchange and transactional processing. However, the level of e-government services and the degree of maturity differs a great deal among different countries and different level of governments within a country. For instance, in case of Canada, the Canada Revenue Agency (CRA) (http://www.cra-arc.gc.ca), the federal government agency, has been taking the lead in e-government practices. Individual Canadian can access, through its web portal, tax related information, download tax forms and file tax return online. For example, currently CRA receives about 2/3 of its annual tax filings through its web portal. There are many factors/variables that can affect the use of web portal and web-based application and ultimately the adoption and success of e-government. For the purpose of this paper, e-government adoption is examined from the perspective of user’s intention to use for different types of services, i.e., service level, as well as service quality. Specifically, it is argued that due to differences in citizen’s intended use of e-government portals, there are differences in user’s requirements in terms of the type of services and the quality of services. Hence the effect of web portal’s overall quality of services (in the form of information quality, reliability, security and privacy protection, and responsiveness) on user’s satisfaction, perceived usefulness, and continuance use might differ among different user groups. This study is designed to explore the effect of web portal’s quality on user’s continuance intention to use based on user’s use intention of e-government services. Accordingly, three types of users are identified based on the primary purpose of the use of government web portal: for information inquiry, for information exchange, and for transaction.

2. Theoretical background and research model
Applying the Expectation-Confirmation Theory (ECT), Bhattacherjee [1] studied (online banking) user’s intention to continue using information systems (IS) and introduced IS Continuance Model (ISCM). According to [1], among factors that affect user’s IS continuance intention (CI), an important factor is user’s satisfaction and perceived usefulness of the system based on his/her previous experience of use. In addition, it was found that user’s satisfaction is affected by perceived usefulness and confirmation.

Similarly, other studies have found that user’s perceived usefulness of the system determines user’s satisfaction [2-4]. For example, it was found that system and information quality are important antecedents of user’s perceived system’s usefulness [2, 3], while user’s satisfaction is viewed as an important variable that moderates the relationship between IS characteristics (functions) and user’s behavior. In [4], it was found that the following factors affect e-government user’s satisfaction in the context of Jordan, e.g., security and privacy, trust, accessibility, awareness of public services, and quality of public services. In addition to individual users, efforts have been made to include other type of users such as business organizations as well as different level of government services and different geographical and demographical regions [5-7]. For instance, Reddick and Roy [5] conducted a study that investigates user’s satisfaction of e-government from the perspective of business organizations in Canada. Detlor et al. [6] examined the role of information quality in citizen’s use of e-government web portal in the context of community municipal portals and found that “information quality plays a critical but indirect role in influencing a person’s use of a community municipal portal (p. 23).” In [7], Hsieh et al. reported results of a study based on data collected in Taiwan and concluded that to be more effective and efficient e-government web portal design must consider differences in different level/region due to different size of population and citizen’s background.

In the pursuit of our understanding of what make e-government web portal more effective, researchers have been examining the issue from two aspects: e-government web portal adoption using traditional technology adoption model (TAM) [e.g., 8, 9] and e-government web portal continuance use (CI) [e.g., 1, 10]. For the purpose of this paper, we report our results from the aspect of CI. As a subset of a large scale e-government study conducted in China, applying the model and concepts introduced in ISCM, this paper reports results that examine user’s adoption of e-government web portal and continuance intent. It is argued that user’s continuance intent (CI) to use the system is determined by user’s satisfaction (US) and perceived usefulness (PU). Perceived usefulness affects user’s satisfaction. The following system’s characteristics affect both satisfaction and perceived usefulness of the system: information quality (IQ), design and functions (DF), reliability (RL), security and privacy protection (SP), and system’s responsiveness (RP). In addition, we argue and speculate that user’s use and continuance user intention is affected by their intended purpose, i.e., the primary purpose and activities for using the e-government services. For example, some individual users might use the e-government web portal to acquire information and for individual use. Some individual might use it for transactions, e.g., paying property tax online or obtaining government services such as vehicle license plate registration and renewal. Still, some organizational users, i.e., those who work for business or other types of organizations, and they might need to use government web portal to conduct businesses, might use it to perform business transactions. We believe that due to the differences in different users and user’s intended use it might be beneficial for web portal designers to consider these differences in order to be more effectiveness in providing government services through web portal.

2.1. User satisfaction, perceived usefulness, and continuance intention

Broadly speaking, the issue addressed in this paper falls in the domain of technology acceptance at individual level (i.e., Technology Acceptance Model) [11, 12] and IS success and ISCM [1, 10, 13-15]. A number of studies [e.g., 1, 8-14] have been conducted over the last two decades to examine the application of these models in online environment, i.e., e-commerce, e-learning, and e-government. It is found that, among other factors, user’s satisfaction and perceived usefulness play important roles in user’s intention to continue use the system. It’s also found that user’s satisfaction is affected by user’s perceived usefulness of the system. By the same token, we believe that these findings are applicable to e-government web portal use. Hence, the following hypotheses are proposed: user’s satisfaction positively affects user’s continuance intention to use the web portal (H1); user’s perceived usefulness positively affects user’s continuance intention to use the web portal (H2); user’s perceived usefulness positively affects user’s satisfaction (H3).

2.2. System’s characteristics, user satisfaction and perceived usefulness
The impact of confirmation on user’s satisfaction and perceived useful is considered in [1]. Although user’s confirmation describes the general perception during the using process of the system, system’s characteristics are not explicitly expressed. To gain a better understanding the causes of satisfaction and usefulness, one needs to include such system’s characteristics as information quality, system’s design and functions, reliability, responsiveness, and security and privacy protection in order to provide better theoretical explanation and useful guidance for system design and development.

In case of e-commerce and web-based application portals, it was found that website’s overall quality affects user’s satisfaction [19-21] and perceived usefulness [23, 24], and trust [25, 26]. While there is no single definition, a website’s overall quality and success can be generally described by using DeLone and McLean’s framework for e-commerce success [15]. DeLone and McLean in [15] identified three antecedents that enable the use and user satisfaction: information quality, system quality, and service quality. Information quality refers to the content of the website (e.g., relevancy, accuracy, and timeliness of information). System’s quality refers to the website’s overall functional and non-functional design (i.e., navigation, usability, consistency, reliability, availability, and system’s security and individual user’s privacy protection). Service quality refers to the timely support provided to the website users (i.e., user’s login support, fixing broken link). In this context, service quality refers to various characteristics of e-government web portal. Based on previous discussion, we proposed a number of hypotheses (shown in Table 1) the relationships between e-government web portal’s characteristics and user satisfaction and perceived usefulness. Accordingly, a research model is proposed and shown in Figure 1 which describes the relationship between e-government web portal’s characteristics, user satisfaction and perceived usefulness, and continuance intention.

<table>
<thead>
<tr>
<th>H1</th>
<th>User’s satisfaction positively affects user’s continuance intention to use the web portal.</th>
</tr>
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<tbody>
<tr>
<td>H2</td>
<td>User’s perceived usefulness positively affects user’s continuance intention to use the web portal.</td>
</tr>
<tr>
<td>H3</td>
<td>User’s perceived usefulness positively affects user’s satisfaction.</td>
</tr>
<tr>
<td>H4a</td>
<td>Information quality is positively related to user’s satisfaction.</td>
</tr>
<tr>
<td>H4b</td>
<td>Design and function is positively related to user’s satisfaction.</td>
</tr>
</tbody>
</table>

Table 1. Hypotheses: continuance intention, user satisfaction, perceived usefulness, and system quality

<table>
<thead>
<tr>
<th>H4c</th>
<th>Reliability is positively related to user’s satisfaction.</th>
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<tbody>
<tr>
<td>H4d</td>
<td>Security and privacy feature is positively related to user’s satisfaction.</td>
</tr>
<tr>
<td>H4e</td>
<td>Responsiveness is positively related to user’s satisfaction.</td>
</tr>
<tr>
<td>H5a</td>
<td>Information quality is positively related to user’s perceived usefulness.</td>
</tr>
<tr>
<td>H5b</td>
<td>Design and function is positively related to user’s perceived usefulness.</td>
</tr>
<tr>
<td>H5c</td>
<td>Reliability is positively related to user’s perceived usefulness.</td>
</tr>
<tr>
<td>H5d</td>
<td>Security and privacy is positively related to user’s perceived usefulness.</td>
</tr>
<tr>
<td>H5e</td>
<td>Responsiveness is positively related to user’s perceived usefulness.</td>
</tr>
</tbody>
</table>

![Figure 1. A research model of e-government web portal continuance intention](image)

2.3. E-government web portal and service level

The use of e-government web portal is often different from using other types of web portal such as e-commerce and e-learning applications in terms of user’s objectives and requirements. For example, in case of e-government, users (citizens or organizations) may require different level of services. Some may use the e-government web portal for information only (e.g., finding and downloading tax forms), some may use it for information exchanges (e.g., sending an email to government agencies to request certain services), some may use it for information exchanges (e.g., sending an email to government agencies to request certain services), some may use it for information exchanges (e.g., sending an email to government agencies to request certain services), some may use it to perform transactions (e.g., submitting annual tax return online). Often the use of these services is non-mandatory. Web portal’s overall quality might have different effect on user’s satisfaction and perceived usefulness depending on what the users want to do.
with their uses. Therefore it’s important to consider the primary objectives of the users and the level of services provided. As such, some previous studies on e-government adoption [27, 28] grouped users by the type of services or user’s objectives for using the services. This study classifies e-government web portal service level into three categories based on the primary objectives of the users: information acquisition, information exchange, and transaction processing. Information acquisition includes such activities as information acquisition (e.g., checking for information and file download). This is a one-way communication. At the information exchange service level, users can submit request for certain information and receive feedbacks from the website (e.g., sending a request for information by e-mails or by posting comments/request on bulletin board). The transaction processing level includes any kinds of transactions (e.g., online tax filing, paying license fee).

3. Methodology

A cross-sectional research design is used for the study. Measurement for each variables included in the research model were developed and the questions associated with each variable was adapted from previous studies. The targeted population is individual who has the internet access and had used e-government web portal. Data were collected by using an online questionnaire.

3.1. Research design

As shown in Figure 1, the study speculates that individual’s e-government web portal continuance use intention is affected primarily by his/her satisfaction and perceived usefulness of the web portal and that web portal’s overall features affect user’s satisfaction and perceived usefulness. As such, a priori hypotheses are derived. A cross-sectional research design and a questionnaire based data collection approach seem to be appropriate.

3.2. Measurement

Instrument is developed to measure each variables included in the research model. Questions associated with each variable were identified based on previous studies. In addition to demographic information, each question is scaled using 5 point Likert scale ranging from strongly agree (5) and strongly disagree (1) for each statement. Detailed description of each variable measurement can be found in Table 2 below.

<table>
<thead>
<tr>
<th>Table 2. List of construct, measurement, and reference source</th>
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</thead>
<tbody>
<tr>
<td><strong>Construct</strong></td>
</tr>
<tr>
<td>Information quality (IQ)</td>
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<td></td>
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<tr>
<td>Design and functions (DF)</td>
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<td></td>
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<tr>
<td>Reliability (RL)</td>
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<tr>
<td></td>
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<tr>
<td>Security and privacy protection (SP)</td>
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<td></td>
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<tr>
<td>System responsiveness (RP)</td>
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<td>Perceived usefulness (PU)</td>
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<tr>
<td></td>
</tr>
<tr>
<td>User satisfaction (US)</td>
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</table>
experience.
Overall, I am satisfied with the website.

Continuance intention (CI)
CI1 I would like to continue to use the website.
CI2 I will continue to use the website. [38, 39]
CI3 I will recommend the website to my relatives and friends.

3.3. Sample and data collection

Since the targeted population for the study is individual citizen who has used e-government web portal previously, it was decided that an online data collection approach be used since the potential respondents would have had access to the internet. A data collection service provider, iResearch was hired to collect data (http://www.iresearchchina.com/). Data were collected over a 2-week period. Sample was randomly selected among the Chinese internet users from the database maintained by iResearch. A total of 932 online questionnaires were completed which resulted a total of 651 usable samples. Among the 651 usable samples, 21 were excluded in the final data analysis since they had indicated that they had not visited any e-government web portal. This results a sample size of 630. To classify the samples according to service level, the following question is adapted from [40] and included in the questionnaire “What is your main purpose of using the e-government web portal”.

Table 3 shows the sample distribution by respondent’s user type, gender and age.

<table>
<thead>
<tr>
<th>User type</th>
<th>Information acquisition</th>
<th>Information exchange</th>
<th>Transaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>268</td>
<td>187</td>
<td>175</td>
</tr>
<tr>
<td>(In %)</td>
<td>(42.5%)</td>
<td>(29.7%)</td>
<td>(27.8%)</td>
</tr>
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</table>

Gender

<table>
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<tr>
<th>Number</th>
<th>284</th>
<th>346</th>
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<tbody>
<tr>
<td>(In %)</td>
<td>(45.1%)</td>
<td>(54.9%)</td>
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Age

<table>
<thead>
<tr>
<th>Number</th>
<th>In %</th>
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<tbody>
<tr>
<td>&lt;19</td>
<td>23</td>
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<tr>
<td>20-29</td>
<td>379</td>
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<tr>
<td>30-39</td>
<td>175</td>
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<tr>
<td>40-49</td>
<td>34</td>
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<tr>
<td>50-59</td>
<td>16</td>
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<tr>
<td>&gt;60</td>
<td>3</td>
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</table>

4. Data analysis

Data analyses were performed to test 1) research instrument’s reliability and validity and 2) research model validation.

4.1. Measurement instrument

Factor analysis was performed using SPSS for each dimension of web portal characteristics measurement. The KMO value is 0.969 which indicates that the data collected meet the factor analysis requirement. As result of analysis, a total of 4 factors emerged (with loading of >=0.5 for each item included). Results show that items included in information quality (IQ) and system’s responsiveness (RP) converged into one single factor (information quality). One explanation is that the responsiveness is viewed by the respondents as the quality of information due to the fact that users receive feedback (i.e., responses by web portal) primarily in the form of information such as answers to inquiries, online help, and request status. Shown in Table 4, Cronbach’s alpha for each item is between 0.85 and 0.91 which indicates that the measurement instrument’s high reliability.

<table>
<thead>
<tr>
<th>Table 4. Measurement instrument reliability</th>
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<tbody>
<tr>
<td>Factor</td>
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<tr>
<td>IQ</td>
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<td>RP</td>
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<td>RL</td>
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<td>US</td>
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<tr>
<td>CI</td>
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</table>
4.2. Research model and hypothesis testing

Research model was validated using a structural equation modeling technique. LISREL 8.7 software package is used for data analysis. Results of structuring equation modeling for three different types of user groups are presented in Table 5, and Figure 2, 3, 4.

Table 5. Results of structuring equation modeling: three type of user group comparisons

<table>
<thead>
<tr>
<th>Index</th>
<th>Threshold</th>
<th>Information acquisition</th>
<th>Information exchange</th>
<th>Transaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$/df</td>
<td>&lt;5</td>
<td>2.30</td>
<td>1.99</td>
<td>1.68</td>
</tr>
<tr>
<td>RMSEA</td>
<td>&lt;0.08</td>
<td>0.07</td>
<td>0.08</td>
<td>0.07</td>
</tr>
<tr>
<td>NFI</td>
<td>&gt;0.90</td>
<td>0.98</td>
<td>0.94</td>
<td>0.96</td>
</tr>
<tr>
<td>NNFI</td>
<td>&gt;0.90</td>
<td>0.99</td>
<td>0.97</td>
<td>0.98</td>
</tr>
<tr>
<td>CFI</td>
<td>&gt;0.90</td>
<td>0.99</td>
<td>0.97</td>
<td>0.98</td>
</tr>
<tr>
<td>IFI</td>
<td>&gt;0.90</td>
<td>0.99</td>
<td>0.97</td>
<td>0.98</td>
</tr>
<tr>
<td>GFI</td>
<td>&gt;0.80</td>
<td>0.84</td>
<td>0.83</td>
<td>0.82</td>
</tr>
<tr>
<td>AGFI</td>
<td>&gt;0.80</td>
<td>0.81</td>
<td>0.81</td>
<td>0.80</td>
</tr>
</tbody>
</table>

As mentioned in Section 4.1, measurement items for “responsiveness” (RP) converged with items included in information quality (IQ), therefore, only one factor, IQ, is kept in the final model for data analysis. Shown in Figure 2, 3, 4, for all three types of user groups, i.e., service level, with the exception of H2 in case of information acquisition user group, H1, H2, and H3 are supported. In other words, it’s found that user’s continuance use intention is positively related with user’s satisfaction and perceived usefulness. And in all three groups it is found that perceived usefulness is positively related to user’s satisfaction (PU $\rightarrow$ US: $\beta=0.36$, t-value=5.14, p<0.001; $\beta=0.46$, t-value=4.12, p<0.001; and $\beta=0.37$, t-value=3.78, p<0.001 for acquisition, exchange, and transaction user groups respectively). In the context of web portal’s features and their relationship with user’s satisfaction and perceived usefulness, hypotheses are partially supported.

In case of information acquisition user group, all hypotheses are supported except H2 (i.e., User’s perceived usefulness positively affects user’s continuance intention to use the web portal), and H4d and H5d (i.e., security and privacy feature is positively related to user’s satisfaction and Security and privacy is positively related to user’s perceived usefulness). In case of information exchange user group, H5a (i.e., information quality is positively related to user’s perceived usefulness), H4c (i.e., design and function is positively related to user’s satisfaction) and H4d (i.e., security and privacy feature is positively related to user’s satisfaction) and H5d (i.e., security and privacy is positively related to user’s perceived usefulness) are not supported. In case of transaction user group, H4a (i.e., information quality is positively related to user’s satisfaction), H4b (i.e., design and function is positively related to user’s satisfaction) and H5b (i.e., design and function is positively related to user’s perceived usefulness) are not supported.
5. Result and discussion

Applying IT/IS adoption theories, the study explored and tested the overall web portal’s service quality and its impact on user’s continuance intention by service level. It’s found that, among information exchange and transactional processing users, user’s satisfaction and user’s perceived usefulness of the web portal affect the continuance intention. Among information acquisition users, user’s satisfaction shows significant effect on user’s continuance intention and perceived usefulness does not show significant effect on user’s continuance intention.

From the perspective of web portal’s service quality and perceived usefulness, with the exception of security and privacy, information quality, design and function, and reliability show significant effect on perceived usefulness among information acquisition users (IQ→PU: β=0.41, t-value=3.87, p<0.001; DF→PU: β=0.21, t-value=2.72, p=0.01; RL→PU: β=0.20, t-value=3.62, p<0.01). For information exchange user group, web portal’s design and function as well as reliability were found to show significant effect on user’s perceived usefulness (DF→PU: β=0.57, t-value=3.76, p<0.001; RL→PU: β=0.27, t-value=2.70, p<0.01). Information quality and security and privacy’s effect on perceived usefulness were found non-significant for this group.

For transaction user group, reliability, information quality, and security and privacy show significant effect on perceived usefulness (e.g., RL→PU: β=0.30, t-value=3.46, p<0.001; IQ→PU: β=0.28, t-value=2.68, p<0.01; SP→PU: β=0.22, t-value=2.60, p<0.05). The results are not unexpected and can be explained according to user’s primary objective, i.e., service level, in using the website. For information acquisition users, their primary objective for using the government website is to seek and to acquire information. There is limited use for exchanging information and performing transactions in this context. Accurate, up-to-date, and reliable information is considered as the most important aspect, i.e., usefulness, of the website for this group of users. In addition, a well designed, easy to use and reliable website allows information acquisition users to find and acquire information efficiently.

For information exchange users, their primary concern is to be able to send and receive information via government websites. For example, a user might want to send a request for information with regard to a specific taxation question, or send a request to create a user account, or contact a government agency for help via online chat (similar to many commercial business’s online help desks). A web portal is considered “useful” if it can enable a user to accomplish these tasks efficiently and effectively. Since information exchange user’s primary objective is not conducting transaction, security and privacy is considered as “less important”.

For transaction user group, the data show that perceived usefulness is impacted by, with the exception of design and function, all of web portal quality factors, i.e., information quality, reliability, and security and privacy. This result is expected since a useful system (i.e., web portal) is expected to be reliable, secure, and with adequate and accurate information to complete a transaction. In case of design and function, our interpretation is that it’s not that transaction user group does not consider design and function non-useful and unimportant, compared with other non-functional factors such as security (and privacy protection) and system’s reliability, design and function is considered by user as “a must have” or “a given” feature of a website, especially for user who does transaction. In other words, user cannot perform any transactions without functions being included in the web portal.

From the perspective of web portal’s service quality and user’s satisfaction, information quality shows the most effect on information acquisition user’s satisfaction (IQ→US: β=0.28, t-value=3.60, p<0.001). This is followed by design and function, and web portal’s reliability (DF→US: β=0.26, t-value=3.12, p<0.01; RL→US: β=0.18, t-value=2.11, p<0.05). For information exchange user group, information quality, design and function shows significant effect on user’s satisfaction (IQ→US: β=0.34, t-value=3.23, p<0.01; DF→US: β=0.19, t-value=2.06, p<0.05). For transaction users, reliability and security and privacy show significant effect on user’s satisfaction (RL→US: β=0.40, t-value=4.07, p<0.001; SP→US: β=0.21, t-value=2.04, p<0.05).

From the perspective of perceived usefulness and user satisfaction, it’s found that perceived usefulness is positively related to user’s satisfaction in all three user groups. This result is consistent with theories in IT adoption, and evidences reported in many of previous studies in area of IT adoption, IS success and web-based online applications (i.e., e-commerce, e-learning, and e-government). E-government web portal, as a gateway between government and citizen (i.e., G2C), is no exception.

From the perspective of the level of impact of web portal’s service quality on user’s continuance intention, it’s found that (see data in Table 6 below): 1) for information acquisition users, information quality shows the most impact, followed by design and function and reliability; 2) for information
exchange users, design and function shows higher impact on other features; 3) for transaction users, reliability shows the most impact, security and privacy protection, information quality also show significant effect.

Overall, from the perspective of web portal service quality, service level, perceived usefulness, user satisfaction, and continuance intention, data in this study indicates that 1) information quality shows significant effect on user’s satisfaction and perceived usefulness for all three user groups with the most effect for information acquisition user group; 2) design and function shows significant effect on user’s satisfaction and perceived usefulness which in turn affects continuance intention among information acquisition and information exchange users; 3) design and function however was not found to show significant effect on transaction user’s continuance intention; 4) reliability affects user’s continuance intention through user’s satisfaction and perceived usefulness for all user groups, with the most effect among transaction users; 5) security and privacy protection shows significant effect, through user’s satisfaction and perceived usefulness, on user’s continuance intention for transaction user group. Its effect on information acquisition and information exchange users is not found to be significant.

| Table 6. Web portal’s service quality and its impact on user’s continuance intention |
|--------------------------------|---------------------------------|--------------------------------|
| Web portal features | Information quality | Information exchange user | Transaction user |
| IQ                  | 0.30                | 0.14                    | 0.13               |
| DF                  | 0.24                | 0.41                    |                   |
| RL                  | 0.18                | 0.16                    | 0.37               |
| SP                  | -                   | -                       | 0.22               |
| Ordered degree of impact | IQ, DF, RL | DF, RL, IQ | RL, SP, IQ |

6. Conclusion and limitation

In summary, the study provides evidences in citizen’s continuance intention of using e-government services by examining the e-government web portal (a.k.a., website) from the perspective of service quality and service level. The service quality is operationalized by web portal’s information quality, reliability, web design and functional features, security and privacy protection features, and web portal’s responsiveness. The service level is operationalized by the primary user objective for using the web portal and determined by different user groups.

The finding of this study contributes to the literature in IT adoption by offering evidences in the context of citizen’s use of e-government web portal. It provides evidences of individual use (for personal and organizational use) and adoption of e-government services via e-government web portal and establishes links between web portal’s service quality and citizen’s adoption by the level of services provided.

Compared with previous TAM based studies in e-government web portal adoption, this study contributes to the literature in the following ways. Using DeLone & McLean’s IS Success Model [13-15] as a research framework the study proposed, operationalized, and validated the service quality of the e-government web portal. It provides evidences of e-government web portal use and adoption in the following ways. With regard to service quality and CI, it was found that service quality affects indirectly (through user’s satisfaction and perceived usefulness) user’s CI. With regard to service level and CI, it was found that the effect of service quality on CI differs among different type of user groups. With regard to the service quality and the degree of impact on CI in terms of user groups, it was found that the following service quality dimensions have significant effects on all three types of user groups, information quality, design and function, and system’s reliability.

Practically, the finding of this study might be useful for system designer and developer in terms of building the e-government web portal. Web portal can be designed and developed with citizen’s primary objective in mind, i.e., providing different type (or multiple version) of website design based on service level requirement.

The study is limited by its research scope, data collection method, and source of data. One important issue not addressed by the study is the question of the differences, if any, between private for profit organizations and government institutions in the context of providing services through web based technologies. For instance, in case of security and privacy protection, one of the most important requirements for any government website is to assure its citizen’s privacy. On one hand, as it’s believed that, unlike organizations in private sector such as commercial banks, government agencies cannot (or should not) set its security standards based on cost/benefit or trade-off for sake of ease of use in order to encourage more citizens to use services through the Internet. On the other hand, unlike many private for profit businesses, government agencies can typically force citizens to use services only
through the Internet, e.g., distribution of tax form, passport and visa applications. What can be done to make sure that web portal serves as a complimentary channel of services and communications to other means such as paper-based, face to face and phone call? Furthermore, do citizens expect more from public sector than private sector relating to services offered through web portal? Should government build the web portal according to service level? Or should government build the web portal that provides a full service?

The finding is limited by the data collection method. Other methods such an in-depth interview and observation can compliment and provide richer picture in our understanding citizen’s use of e-government web portal. The source of data might also limit the applicability of the findings in different context where different culture, political, economic, social, and technological differs. The data for this study were collected in China where much difference exists compared with western countries in terms of, particularly, social, cultural, and political systems. For example, from the aspect of institutional environment, China has very different political and legal systems compared with those of the west where command and control is still the dominant governance structure. The trust between citizens and government might differ between China and other countries. Ultimately, these contextual factors, i.e., macro environment factors, can and do affect citizen’s adoption of e-government services.

7. References


