Measuring e-Excise Tax Success Factors: Applying the DeLone & McLean Information Systems Success Model

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Abstract

The rapid growth of e-Commerce amongst private sectors and Internet usage amongst citizens has vastly stimulated e-Government initiatives from many countries. The Thailand e-Government initiative is based on the government’s long-term strategic policy that aims to reform and overhaul the Thai bureaucracy. This study attempted to identify the e-Excise success factors by employing the IS success model. The study focused on finding the factors that may contribute to the success of the e-Excise initiative. The Delphi Technique was used to investigate the determinant factors for the success of the e-Excise initiative. Three-rounds of data collection were conducted with 77 active users from various industries. The results suggest that by increasing Trust in the e-Government website, Perceptions of Information Quality, Perceptions of System Quality, and Perceptions of Service Quality will influence System Usage and User Satisfaction, and will ultimately have consequences for the Perceived Net Benefits.

1. Introduction

The rapid growth of e-Commerce amongst private sectors and Internet usage amongst citizens has vastly stimulated e-Government initiatives, which provide more channels for public services via the Internet [19], [42]. For example, the People’s Republic of China has been determined to develop e-Government continually since mid-1980s [47]. The Kingdom of Cambodia has also established the National Information Communications Technology Development Authority (NiDA) in 2000. NiDA is responsible for the development of e-Government under a program called Government Administration and Information System (GAIS) [36].

The Thailand e-Government initiative is based on the government’s long-term strategic policy that aims to reform and overhaul the Thai bureaucracy. This modernization process – e-Thailand – is the first step in reshaping the government through the digitization of different sectors in Thai society. e-Thailand has five long-term strategies: 1) e-Government: focusing on connecting and integrating the information systems of all government agencies, 2) e-Society: solving inequity in accessing information technology amongst people across Thai society, 3) e-Education: creating equal opportunity in accessing education information, 4) e-Commerce: promoting the creation and development websites and 5) e-Industry: supporting expansion of the software industry [25], [42].

The Thai Excise Department is the public sector that launched the online excise tax payment (E-excise) in 2003 (www.excise.go.th). The initial phase covered in three items: Automobiles, Playing Cards, and Telecommunication Services. It was further extended to cover four more items: Motorcycles, Electrical Appliances (Air Conditioner), Batteries, and Night Clubs and Discotheques.

The e-Excise system aims to enhance performance in excise tax collection management and services by allowing excise taxpayers to access the excise tax payment’s services more easily. Although the e-Excise initiative has been running since 2003, most companies still prefer off-line transactions, instead of paying the excise tax electronically. Only 28 out of 2,481 companies (1.13%) used e-Excise in 2008. Moreover, the number of companies that use e-Excise decreased to 26 out of 2,821 companies (0.92%) in 2009. Thus, this study attempted to identify the e-Excise tax success factors by employing the IS success model in answering two research questions: 1) what influences the e-Excise success factors? and 2) to what extent can such factors influence the success? Finding the answers can initiate improvements and enhance the performance of services provided via the electronic network of the Excise Department.

2. Literature review

2.1. Trust in e-Government website

The success of Government to Business (G2B)
services will not only depend on technology but also include how users successfully use the systems [45]. If the system users lacked trust in e-Government services, brought on by the uncertainty of online transactions has inhibited the widespread acceptance [39]. Moreover, trust is not only a one-time interaction, but must be developed gradually and continuously as users continuously interact with the systems [15]. Previous studies suggested that trust plays a major role in technology acceptance and expectations for electronic purchases or transactions [16], [23], [24].

Furthermore, previous studies focused on e-Government such as Teo et al, (2009) found that trust in e-Government web sites is significantly associated with perceived website quality - that is, Information Quality, System Quality, and Service Quality. Carter (2008) also discovered that Perceived Usefulness, Trust in the Internet, Previous Use of an e-Government Service, and Perceived Ease of Use all have significant impacts on one’s Intention to Use an e-Government service. In addition, Tolbert and Mossberger (2006) suggested that e-Government can increase process-based trust by improving interactions with citizens and perceptions of responsiveness.

The relationship between a system user’s trust and a Web site’s quality perceptions can generally be explained by Attribution Theory, which addresses the perceptions and inferences that arise as people try to explain the actions of others or themselves [21], [40]. Attribution Theory is a psychological theory dealing with the causal explanations individuals make in trying to understand events and individuals’ behavior [13]. This theory also analyses the relationship between personal perceptions and interpersonal behavior in order to explain people’s perceptions of human interactions [38]. Attribution theory suggests that when a person has succeeded or failed in performing a task, they would attribute the causes to either 1) Internal or Dispositional cause when that behavior is consistent with prior beliefs and relates with performance in their task or their task’s efforts, or 2) External or Situational cause when that behavior is contrary to prior beliefs and out of control factors such as luck and difficulty of work [28], [40].

In addition, under the context of an e-Government that provides information and services for the public through a website, when people use services from such website, perception will be varied or subjective. In addition, the website’s quality will be based on trust, the perceptions of which may be colored by prior interactions by the user. The attribution of quality’s perception will be formed in 3 steps comprising of 1) perception of the interaction, 2) judgment of the interaction and 3) attribution of qualities. Hence, if people have a high level of trust in a website, defects or faults will be deemed as an external cause, and users will tend to be less demanding of the Web site’s functionality. On the contrary, if people have low levels of trust in website, defects or faults will lead to low levels of quality perception, which is defined as internal cause [40].

Moreover, Dirks and Ferrin (2001), which created trust models relating to consequences of trust in terms of attitude, perception, behavior, and performance outcomes, suggested that high levels of trust will result in positive attitudes, such as satisfaction or perception of good performance. If trust is at low level, it will result in low levels of satisfaction and quality perception.

In the context of e-Government, most e-Government websites provide online information and services for citizens. The perceptions of quality of an e-Government website – Information Quality, System Quality, and Service Quality – will be based on the trusting beliefs of the citizens towards the e-Government website. Moreover, the offline trust in the government – accessibility to government’s services via offline channels – is partly affected to online trust. Thus, trust has an important role to play in understanding e-Government success [40]. Hence, it follows that

Hypothesis 1a: Trust in e-Government website will have positive influence on Perceptions of Information Quality.

Hypothesis 1b: Trust in e-Government website will have positive influence on Perceptions of System Quality.

Hypothesis 1c: Trust in e-Government website will have positive influence on Perceptions of Service Quality.

2.2. IS success model

The DeLone and McLean (1992, 2003) model is possibly one of the most cited models in the field of Information Systems [1], [2], [33]. DeLone and McLean (1992) performed a review of the research published during the period 1981–1987, and devised a model of interrelationships between six success variable categories: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact. This model provided a comprehensive framework for measuring the performance of information systems [11], [40] and also enhanced the understanding of information systems success. First, the model provides a scheme for categorizing the multitude of information systems
success factors and its measures have been widely used in the research literature. Second, it proposed a model of temporal and causal interdependencies between the categories [45], [46].

Although the original DeLone and McLean Success Model has not been empirically tested, it has often been used as a guideline for further research, as many studies are still needed, particularly in assessing the impact of information systems on organizational performance [8], [33]. Therefore, a number of studies have undertaken empirical investigations of the multidimensional relationships among the measures of information systems success, such as Seddon and Kiew, 1994; Goodhue and Thompson, 1995; Etezadi-Amoli and Farhoomand, 1996; Jurison, 1996; Saarinen, 1996; Guimaraes and Igbaria, 1997; Igbaria and Tan, 1997; Teo and Wong, 1998; Rai et al., 2002 [9], [44], [45].

Later, DeLone and McLean (2003) proposed an Updated DeLone and McLean Success Model, which was based on empirical and theoretical contributions of researchers who have tested or discussed the original model [11] during the period from 1993 to mid-2002, covering 285 papers and journal articles [10]. DeLone and McLean (2003) add Service Quality as a new dimension of IS success, and collapse Individual Impact and Organizational Impact into a single impact variable called “Net Benefits.” Therefore, the updated model consists of six interrelated dimensions of information systems success: Information Quality, System Quality, Service Quality, Use, User Satisfaction, and Net Benefits [9], [10], [11], [44], [45] as shown in Figure 1.

DeLone and McLean (2002, 2003) suggest that Information Quality, System Quality, and Service Quality each should be measured separately because they will influence subsequent Use and User Satisfaction. Furthermore, Information Quality is a characteristic of the information system’s output, such as accuracy, timeliness, and completeness [32]. Information Quality is evaluated by the user and will affect User Satisfaction [23] and Use [10].

**Hypothesis 2a:** Perceptions of Information Quality will have positive influence on Use.

**Hypothesis 2b:** Perceptions of Information Quality will have positive influence on User Satisfaction.

System Quality is an important determinant in User Satisfaction [40] and Use. System Quality refers to the technical capacities of an information system, i.e., ease of use, response time, reliability, and availability [10], [11], [40].

**Hypothesis 3a:** Perceptions of System Quality will have positive influence on Use.

**Hypothesis 3b:** Perceptions of System Quality will have positive influence on User Satisfaction.

Service Quality is the difference between perception and expectations, which is an important variable in success measurement. Previous research usually measures Service Quality with respect to responsiveness, assurance, and empathy [10], [11]. In the field of e-Government and e-Commerce, Service Quality is found to be related to Use and User Satisfaction in the online experience [40], [45].

**Hypothesis 4a:** Perceptions of Service Quality will have positive influence on Use.

**Hypothesis 4b:** Perceptions of Service Quality will have positive influence on User Satisfaction.

Moreover, Use and User Satisfaction are closely interrelated. In a process sense Use must precede User Satisfaction, but in a causal sense positive experience with Use will lead to increased User Satisfaction, and in the same vein, increased User Satisfaction will lead to increased Use [9], [10].

**Hypothesis 5:** User Satisfaction will have positive influence on Use.

**Hypothesis 6:** Use will have positive influence on User Satisfaction.

DeLone and McLean (2003, 2004) suggest that Net Benefits are the most important success measures as they capture the balance of positive and negative impact. A positive or negative Net Benefit from the user’s perspective will reinforce or decrease Use and User Satisfaction. This study focuses on the measurement of the e-Excise tax success from the perspective of the e-Excise tax’s users. Therefore, the Net Benefit in this study refers to the e-Excise tax’s users’ Perceived Net Benefits evaluation of the e-Excise system. The e-Excise tax’s users may feel that they are not getting any benefits from using the system, or they may feel that the e-Excise system allows them to save time and money [45].

**Hypothesis 8:** Use will have positive influence on Perceived Net Benefits.

**Hypothesis 9:** User Satisfaction will have positive influence on Perceived Net Benefits.
In addition, DeLone and McLean (2003) suggested that Use and Intention to Use are alternative measures. Intention to Use is an attitude, whereas Use is a behavior. However, attitudes links with behavior, that are difficult to measure, and many researchers may prefer to only consider Use [10], [11], [45], [46].

However, the systems usage in Government to Business (G2B) such as the e-Excise system is entirely voluntary, and system use is an actual usage or an actual behavior. Therefore, this study adopts Use for success’s measurement instead of Intention to Use. Moreover, in order to avoid model complexity, the feedback links from Net Benefits to both Use and User Satisfaction were excluded [45]. DeLone and McLean (2003) also suggest that in future research, the updated DeLone and McLean IS success model should continue to be tested, validated, and challenged. Therefore, this study adapts the updated DeLone and McLean IS success model to the e-Excise system’s success measurement.

2.3. Individual characteristics

It has been accepted previously that the level of utilization of information technology is a key factor for the success of information technology within any organization [27]. From their work, Mahmood, Hall, and Swanberg (2001) concluded that Individual Characteristics such as Education Level, Training Level, and Professional Level were significant influence upon IT system usage. Such is in line with work of Masrek, Karim, and Hussein (2008), They found that four Individual Characteristics, including Web Efficacy, Personal Information Technology Innovation, Length of Service, and Intranet Experience had significant impact upon the Intranet utilization.

In addition, Choi (2004) studied individual characteristics and organizational context in order to forecast a Korean electronics company’s innovative-use behavior, and suggested that individual characteristics could be used for forecasting innovation-use behavior.

Teo et al. (2009) suggested that the model of DeLone and McLean could be further extended by investigating the nature of information systems use, as the nature of IS use may allow us to better understand the interrelationships amongst success variables under the DeLone and McLean model. Therefore, this research applies Individual Characteristics, such as the system success measurement. This leads to the following hypothesis:

**Hypothesis 7:** Individual Characteristics will have positive influence on Use.

3. Methodology

This study collected data by applying the Delphi Technique, via a recurring progression of questions through a series of questionnaires, in order to test opinion consensus amongst a group of e-Excise system users [43]. There were a total of 77 respondents to our questionnaire, from 26 companies that used the e-Excise system between 2006-2009. These subjects were active users from various industries and were directly responsible for handling the system and also hold expertise and experience in the payment of excise taxes via electronic means. The subjects were seen as experts whose knowledge would be useful for this study. In accordance with the Delphi Technique, the subjects must posses the following criteria; 1) holding knowledge and experience in the subject being studied 2) having the willingness and capability to participate 3) having adequate time to participate and 4) having effective communication skills [37].

Skulmoski et al. (2007) suggested that a two or three iteration Delphi questionnaire is adequate for most research. Therefore, this study strictly follows the Delphi Technique by distributing three sets of questionnaires as follows:

**1st questionnaire:** contains questions covering general information on the respondent and measurement of 8 variables, including Trust in e-Government Website, Perceptions of Information Quality, Perceptions of System Quality, Perceptions of Service Quality, User Satisfaction, Use, Individual Characteristics, and Perceived Net Benefits. Questions were characterized as Open-ended Questions in order for the respondent to answer freely.

**2nd questionnaire:** Developed from the answers of the 1st questionnaire by synthesizing all comments from all respondents after screening overlapping data. Questions were answered on a Likert Scale with 5 points, from 1 (Completely Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), to 5 (Completely Agree).

**3rd questionnaire:** Similar to the 2nd questionnaire. The researcher also used a 5-level Likert Scale and in order to make respondents aware of the responses of other participants, the 3rd questionnaire displayed the mean, mode, median and interquartile range of answers from the responses from the 2nd questionnaire in each item. It follows that

The central trend: **Mean** is the average opinions with 5 points from 1.00-1.80 (Completely Disagree), 1.81-2.60 (Disagree), 2.61-3.40 (Neutral), 3.41-4.20 (Agree), to 4.21-5.00 (Completely Agree). **Mode** is the most occurring answer and **Median** is the middle opinions with 5 points, from 1 (Completely Disagree), 2 (Disagree), 3 (Neutral),
4 (Agree), to 5 ( Completely Agree). The spread: **Interquartile Range** is the spread of or dispersion within an opinions with 5 points from 0.00-0.99 ( Completely consistency), 1.00-1.99 (Consistency), 2.00-2.99 ( Most Consistency), 3.00-3.99 (Inconsistency), to 4.00 above ( Completely Inconsistency).

In addition, each respondent was allowed to confirm or change the answer. If the respondent decided to change his or her answer, it’s necessary to define or explain that issue in the questionnaire. The purpose of the 3rd questionnaire was to ask respondents to consider their scores in the light of the group response and decide whether they wanted to change any of their responses [37], [43].

Furthermore, this study adopted regression analysis for hypothesis testing and analyzing the relationship between independent variables and dependent variables [6]. Regression analysis was seen as the most appropriate analytical technique since the goal of this study was to determine the e-Excise tax success factors, and answer the two research questions: which factors can influence the e-Excise success factors, and to what extent can such factors influence success?

However, this study didn’t use factor analysis because the total number of respondents to the questionnaire totaled only 77 users – Gorsuch (1983) and Kline (1994) suggested that factor analyses requires a sample size of at least 100 as an absolute minimum, and Comrey and Lee (1992) offered sample sizes of 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1,000 or more as excellent [17], [30].

**4. Data analysis**

**4.1. 1st round analysis**

The researcher distributed the 1st questionnaire to the 77 e-Excise system users and each respondent was asked to explain comments regarding the e-Excise (9 questions) and his or her general information (7 questions). The return rate was 94.80% (73 respondents), and collected similar or repeated answers were developed to be incorporated into questions in the 2nd questionnaire, totaling 40 questions.

In addition, the researcher also asked the respondents to prioritize the factors influencing success of payment of excise taxes via e-Excise system and found that 64.4% of respondents viewed that Perceived Net Benefits was the factor having greatest influence, and 76.7% viewed that Individual Characteristics had the least influence.

**4.2. 2nd round analysis**

The researcher distributed the 2nd questionnaire, measured with a 5-point Likert Scale, to the same group of respondents from the prior round of analysis. The return rate was 100%. Questions contained in the 2nd questionnaire were further developed from the answers of the 1st questionnaire. In order to increase the reliability of the 2nd questionnaire, the researcher also referred to previous research to design the survey questions. and the results (Mean, Mode, Median and Interquartile Range) shown in Appendix.

**4.3. 3rd round analysis**

The researcher distributed the 3rd questionnaire, measured on a 5-point Likert Scale to the same group of respondents from the past two rounds of analysis, and customized for each respondent. Once again, the return rate was 100%. Analysis of information for the 3rd round was similar to that of the 2nd round. The results (Mean, Mode, and Median) was increased from the 2nd round and the spread within the respondent’s opinions (Interquartile Range) is more consistency, as shown in Appendix.

**4.4. Reliability assessment**

Reliability was evaluated by assessing the internal consistency of the scale constructs using Cronbach’s Alpha. An Alpha value of more than 0.7 is acceptable [3], [4], [18], [22], [35]. The reliability for each construct is demonstrates acceptable reliability levels (above 0.70), illustrated in Table 1.

**Table 1. Reliability of the model constructs**

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Cronbach alpha coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust in e-Government website</td>
<td>0.821</td>
</tr>
<tr>
<td>Perceptions of information quality</td>
<td>0.828</td>
</tr>
<tr>
<td>Perceptions of system quality</td>
<td>0.845</td>
</tr>
<tr>
<td>Perceptions of service quality</td>
<td>0.778</td>
</tr>
<tr>
<td>User satisfaction</td>
<td>0.791</td>
</tr>
<tr>
<td>Use</td>
<td>0.746</td>
</tr>
<tr>
<td>Individual characteristics</td>
<td>0.759</td>
</tr>
<tr>
<td>Perceived net benefits</td>
<td>0.869</td>
</tr>
</tbody>
</table>

**4.5. Results**

Regression analysis was used for hypothesis testing and analyzing the relationship between predictors (independent variables) and outcomes (dependent variables), the results of which are illustrated below:
Trust in the e-Government website (independent variable) was found to be positively related to Perceptions of Information Quality (R=0.548, R^2=0.301, beta=0.548, P=0.000), Perceptions of System Quality (R=0.584, R^2=0.341, beta=0.584, P=0.000) and Perceptions of Service Quality, (R=0.737, R^2=0.543, beta=0.737, P=0.000). Hence, H1a H1b and H1c are supported.

Perceptions of Information Quality, Perceptions of System Quality, Perceptions of Service Quality, and Use (independent variables), are related to User Satisfaction (R=0.739, R^2=0.546). User Satisfaction is significantly related to Perceptions of Information Quality (beta=0.318, P=0.047), Perceptions of Service Quality (beta=0.300, P=0.002), and Use (beta=0.199, P=0.032), thereby supporting H2b, H4b, and H6. Only Perceptions of System Quality is found to be not significantly related to User Satisfaction (beta=0.132, P=0.419), hence H3b is not supported.

The results also show that Perceptions of Information Quality, Perceptions of System Quality, Perceptions of Service Quality, User Satisfaction, and Individual Characteristics (independent variables), are related to Use (R=0.584, R^2=0.341). Consequently, Perceptions of Service Quality, User Satisfaction, and Individual Characteristics (independent variables), are related to Use (R=0.584, R^2=0.341). Perceptions of Information Quality is not significantly related to Use (beta=-0.445, P=0.052), while Perceptions of System Quality (beta= 0.471, P=0.027), Perceptions of Service Quality, (beta= 0.271, P=0.030) User Satisfaction, (beta= 0.286, P=0.43) and Individual Characteristics (beta= 0.262, P=0.026) are found to be significantly related to Use. Thus, H3a, H4a, H5, and H7 are supported, while H2a is rejected.

In addition, Use and User Satisfaction (independent variables), are related to Perceived Net Benefits (R=0.462, R^2=0.214). Use (beta= 0.030, P=0.799) is not significantly related to Perceived Net Benefits, while User Satisfaction (beta= 0.447, P=0.000) appeared to be a significant determinant of Perceived Net Benefits. Therefore, H9 is supported, while H8 is rejected.

The research findings are in agreement with the research hypothesis, with the exception of the relationship between Perceptions of Information Quality and Use, Perceptions of System Quality and User Satisfaction, including Use and Perceived Net Benefits, which had no statistical significance.

Trust in the e-Government website allows excise tax payers to complete the transactions with reliable information, as well as providing an adequate level of security for the users. Trust also shows statistically significant effects on Perceptions of Information Quality, Perceptions of System Quality, Perceptions of Service Quality, which is in line with the study of Teo et al. (2009), finding that trust in an e-Government website will have a significant impact on perceptions of Information Quality, System Quality, and Service Quality of the e-Government website. This resulted from the nature of an e-Government website where most of the public only uses it for the purpose of searching for information and services and conducting small transactions. Therefore, responding to information on demand and the enhancement of the efficiency of the service and transaction processes are the basic missions of government agencies.

Furthermore, the fact that the user has shown high levels of trust will lead to positive attitudes e.g. satisfaction or perception of efficiency. On the contrary, if the user shows low levels of trust, it will lead to low
levels of satisfaction and perception of quality [21]. Therefore building trust amongst users is significant and necessary for the success of e-Government websites [40], while increasing the level of trust of the user can be done by continually supporting and enhancing different variables of quality, e.g. Perceptions of System Quality, Perceptions of Service Quality, and Perceptions of Information Quality [4].

Perceptions of Information Quality is a factor influencing User Satisfaction for the most extent, but has the least influence (no statistically significant effect) upon Use. With respect to Perceptions of Information Quality in e-Excise, the users viewed that it is reliable, of benefit for facilitating payment of excise taxes, available for the time needed, clear and immediately understandable, regularly updated, and adequate for demand for payment of the excise tax by the user. This is in line with findings from the studies of McGill, Hobbs, and Klobas (2003) and Iivari (2005), who focused on examining models of DeLone and McLean and finding that Information Quality does not have significant influence on Use. In addition, Goodhue and Thompson (1995) also investigated Task/Technology Fit and found that Information Quality, Locatability, Authorization, and Timeliness of Information had no significant influence on the Use [31].

The user may view that Perceptions of Information Quality is not a factor that has direct effect on the Use of e-Excise systems, but on the other hand, Perceptions of Information Quality is a significant factor to create satisfaction amongst users. Such relationships are explained by McGill, et al. (2003), as an indirect effect via User Satisfaction’s effect on Use.

Perceptions of System Quality – which implies availability at all places and times needed, adequate security, easily apprehensible menus and user-friendly systems, acceptable response time, and user-friendly pages – will mostly affect Use, but have the least amount of impact (no statistically significant effect) on User Satisfaction. This is in line with findings found by Floropoulos, Spathis, Halvatzis, and Tsipouridou, (2010) who studied the success of information systems relating to taxation in Greece (The Greek Taxation Information System: TAXIS) and further found that increasing System Quality would not increase User Satisfaction. System Quality may be inadequate to create satisfaction, and merely gives confidence that the system can work normally [46]. In addition, System Quality may not be a critical factor to create user satisfaction [14]. However, although most users have not significantly paid attention to the appearance of the system with respect to the submission of payment forms (or to payment of excise taxes via electronic networks as compared with other kinds of payment methods), continual development of System Quality (e.g. creating more aesthetically pleasing and user-friendly page displays, decreasing the system’s response time, etc.) can indirectly increase User Satisfaction [34].

Perceptions of Service Quality of e-Excise systems also demonstrated the third largest influence upon Use, and the second largest influence upon User Satisfaction. The user took the view that the e-Excise system provides services that meet the needs of the user, with troubleshooting options when the user has experienced problems during Use, all-time availability for users wanting swift service, and appropriate problem response.

User Satisfaction and Use have influence upon each other at a statistically significant level. Findings from the study indicate that Use will lead to User Satisfaction and that when the user has gained positive experiences from system usage, it will lead to more satisfaction. At the same time, increasing satisfaction will lead to more Use as well [10], [18].

Individual Characteristics had the fourth biggest effect on Use. Individual Characteristics means the user views that one has the capability to pay the excise tax by oneself, has experience with the use of the e-Excise system, an intention to try new technology, and has basic knowledge in computer use. Therefore, if the user has confidence in one’s capacity, in the use of the system, and is interested in innovation or new technology, it would be a driving force for increasing continual use [26].

Perceived Net Benefits refers to how users view whether the e-Excise system can provide alternate options for excise tax payment, which can help reducing the overhead costs for tax payment while increasing efficiency and convenience. User Satisfaction will mostly have influence upon Perceived Net Benefits while Use will have a minor effect on Perceived Net Benefits (but not at a significant level). These are in line with studies done by Wu and Wang (2006), who found that system use will occur when the user feels that the Perceived Net Benefits has a higher value than that of cost of use, both in terms of expenditure and effort exerted. However, if the user views that one would not get any benefit from system use, or that such a system would not help one’s work or transactions to a satisfactory extent, such use will be at a low level if at all.

In addition, creation of Perceived Net Benefits of the user will need both psychological and behavioral processes. In order to build trust in the e-Government website, an increase of Perceptions of Information Quality, Perceptions of System Quality, and Perceptions of Service Quality will have an influence on Use behavior and evaluation of User Satisfaction, and will ultimately have consequences for the Perceived Net Benefits of the
user [45]. However, the use patterns of each user may be different, according to Individual Characteristics.

6. Limitations

This research limits its scope to by limiting trust as influencing only three dimensions of quality (Perceptions of Information Quality, Perceptions of System Quality, and Perceptions of Service Quality), in accordance to the success model of information systems of DeLone and McLean (2003) while trust may virtually interact or influence other factors. Moreover, this study only focused on the users of a system for paying excise taxes via electronic networks. Application of findings from this study for evaluating the success of other work systems or agencies should be done with care as each system, agency, and user group operates under its own unique context.

7. Implications for research

There are several implications for research emerging out of this study. First, a user with a high level of trust in e-Government websites may have different pattern of use from a user with a low level of trust in the e-Government website. Therefore, for future research, it is suggested to draw comparisons between the two user groups.

Second, this study did not examine feedback that could relate Net Benefits to Use and User Satisfaction in respect to the success model of DeLone and McLean (2003). It is suggested in future studies to pay attention to such feedback in order to investigate the relationships and to better understand the success model more complete.

Third, this study focused on the users of a system for paying excise taxes via electronic networks. Thus, future studies should pay attention to the success of information systems for providing services in different types of tax payment via electronic network, perhaps at the different levels such as the organization or industry levels.

Fourth, this study focused on the user of a system for paying the excise tax via electronic network, and thus, the future study should focus to success of information systems for providing e-Government services in Thailand or in another foreign country (e.g. the Republic of India, the Republic of the Philippines, and The United States, etc.) from the user or service provider’s perspective, or through a comparative study on the perspectives of the both the user and the service provider towards success.

Fifth, the DeLone and McLean model (2003) can be further extended by examining the nature of IS use in this study, we investigated the nature of IS use by Individual Characteristics, and thus, in further studies, there should be more investigation into the nature of IS use in order to gain a better understanding of the relationship between factors of the success model of DeLone and McLean (2003).

8. References


Appendix The Delphi Technique analysis

<table>
<thead>
<tr>
<th>Items</th>
<th>2nd round</th>
<th>3rd round</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) = Mode</td>
<td>(2) = Median</td>
</tr>
<tr>
<td>Trust in e-Government website</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 The Web site is trustworthy.</td>
<td>4</td>
<td>4.00</td>
</tr>
<tr>
<td>2 This Web site seems to be truthful to me.</td>
<td>4</td>
<td>4.12</td>
</tr>
<tr>
<td>3 Even if not monitored, I’d trust the website to do the job right.</td>
<td>5</td>
<td>4.30</td>
</tr>
<tr>
<td>4 I am quite certain of website’s security.</td>
<td>3</td>
<td>3.55</td>
</tr>
<tr>
<td>5 Overall, I was trusted with this website.</td>
<td>4</td>
<td>4.13</td>
</tr>
<tr>
<td>Perceptions of information quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 The e-Excise provides up-to-date information.</td>
<td>3</td>
<td>3.06</td>
</tr>
<tr>
<td>7 Information provided by the e-Excise is clear.</td>
<td>3</td>
<td>3.26</td>
</tr>
<tr>
<td>8 The e-Excise will provide relevant information about transactions.</td>
<td>4</td>
<td>4.14</td>
</tr>
<tr>
<td>9 The e-Excise’s information is reliable.</td>
<td>4</td>
<td>4.39</td>
</tr>
<tr>
<td>10 The e-Excise provides sufficient information.</td>
<td>3</td>
<td>3.29</td>
</tr>
<tr>
<td>11 Through the E-excise, I get the information I need in time.</td>
<td>3</td>
<td>3.51</td>
</tr>
<tr>
<td>Perceptions of service quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 The e-Excise is easy to use.</td>
<td>4</td>
<td>4.64</td>
</tr>
<tr>
<td>13 The e-Excise is user friendly.</td>
<td>4</td>
<td>4.71</td>
</tr>
<tr>
<td>14 The response time of The e-Excise is acceptable.</td>
<td>4</td>
<td>4.37</td>
</tr>
<tr>
<td>15 I would find the e-Excise secure enough to conduct my payment transactions.</td>
<td>4</td>
<td>4.37</td>
</tr>
<tr>
<td>16 I could use the e-Excise at anytime, anywhere I want.</td>
<td>4</td>
<td>4.13</td>
</tr>
<tr>
<td>17 The E-excise’s user interface is attractive.</td>
<td>3</td>
<td>3.23</td>
</tr>
<tr>
<td>User satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 The e-Excise provides dependable services.</td>
<td>4</td>
<td>4.00</td>
</tr>
<tr>
<td>19 The e-Excise provides rapid services.</td>
<td>4</td>
<td>4.78</td>
</tr>
<tr>
<td>20 The e-Excise gives me prompt service.</td>
<td>4</td>
<td>4.36</td>
</tr>
<tr>
<td>21 The e-Excise’s service is responsive to my request.</td>
<td>5</td>
<td>4.29</td>
</tr>
<tr>
<td>22 The e-Excise’s empathy to my problems.</td>
<td>4</td>
<td>4.74</td>
</tr>
<tr>
<td>Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 I am satisfied with the e-Excise efficiency.</td>
<td>4</td>
<td>4.69</td>
</tr>
<tr>
<td>24 I am satisfied with the way that the e-Excise has carried out transactions.</td>
<td>4</td>
<td>4.14</td>
</tr>
<tr>
<td>25 I will use the e-Excise continuous.</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>26 Overall, I was satisfied with the E-excise.</td>
<td>4</td>
<td>4.37</td>
</tr>
<tr>
<td>Individual characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 I have computer knowledge.</td>
<td>4</td>
<td>4.14</td>
</tr>
<tr>
<td>31 If I heard about a new IT, I would look for ways to experiment with it.</td>
<td>5</td>
<td>4.17</td>
</tr>
<tr>
<td>32 I have an experience with the E-excise.</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>33 I can use the e-Excise by myself.</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Perceived net benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 The e-Excise makes my job easier.</td>
<td>4</td>
<td>3.97</td>
</tr>
<tr>
<td>35 The e-Excise saves my money.</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>36 The e-Excise enable me to accomplish tasks more efficiently.</td>
<td>4</td>
<td>4.03</td>
</tr>
<tr>
<td>37 The e-Excise saves me time.</td>
<td>4</td>
<td>3.94</td>
</tr>
<tr>
<td>38 The e-Excise reduces tax payment’s process.</td>
<td>4</td>
<td>4.05</td>
</tr>
<tr>
<td>39 The e-Excise reduces risks</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>40 The e-Excise enable me more alternatives in tax payment.</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>