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## Adoption of tax e-filing: A conceptual paper

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E-government is becoming increasingly more important in today's world due to its effectiveness and applicability in various areas. Tax e-filing is one of the e-government services that have been adopted by many developed countries today where the public has to discharge their responsibility to the government via online tax filing. Despite the rapid adoption of tax e-filing in many countries, researchers have argued that it is yet to establish an integrated system that is reliable, especially in developing countries like Malaysia due to high perceived risk by the public. Evidence shows that the marketing strategies and organisation commitment throughout the hierarchy is trivial, however, it is lacking in some countries, particularly in Asian countries. This implies that it will be very difficult, if not impossible, to truly embed responsible behaviour within a community if individual perceptions of risk of the e-government service is the issue. The paper aims to study the relationship of perceived risk and its facets within the technology acceptance model (TAM) within the tax e-filing context. This paper proposes a conceptual model to further understand the role of perceived risk in influencing consumer behaviour throughout the adoption process. This paper is then developed into concrete research hypotheses for future studies. The model will serve as a useful guideline for strategies development in promoting e-government services, particularly the tax e-filing service.

**Key words:** E-government, taxation, e-filing, risks, TAM.

### INTRODUCTION

Governments around the world are increasing the use of information and communication technologies to improve the delivery of public services and the dissemination of public administration information to the public. Thus, the success of e-government depends on the importance that citizen's place on factors such as convenience and usefulness of such services. One prominent type of e-government is the introduction of the e-filing system for income tax. Through this system, taxpayers are able to submit their tax returns electronically to the tax authorities. However, this system is slow in gaining acceptance by taxpayers. For example, in the US, which introduced e-filing in 1986, it is reported that only 52% of its taxpayers used e-filing in 2007 (The Internal Revenue Service, 2007).

Recently, Malaysia also introduced tax e-filing (also referred to as e-filing in this paper). In 2009, the fourth year after e-filing was implemented, only 1.25 million

taxpayers were reported to have filed their tax return through e-filing (Bernama, 2009). E-filing is one of the most important and advanced e-government services in Malaysia, providing convenience to taxpayers for tax assessments and payment. The tax authority in Malaysia, the Inland Revenue Board (IRB) has invested a substantial amount of money and resources to develop an e-filing system in Malaysia. If Malaysia wants to reap the rewards from its investment in e-filing, studies have to be conducted on e-filing to improve its adoption by taxpayers.

Researches such as Hoffman et al. (1995), Alba et al. (1997) and Peterson et al. (1997) have discussed several benefits of online activities to the consumers. Among them are that the Internet allows consumers to conduct transactions within a few mouse clicks. This convenience can serve as a key driver of e-filing adoption. E-filing provides many aspects of 'convenience' to taxpayers (that is time to file, place to conduct the filing, ease-of-use, information searching and online transactions) at a degree that is not available through traditional channels. E-filing also offers flexibility of time and reduces calculation error on the tax return form to the taxpayers.

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Furthermore, e-filing offers many benefits to service providers, which are the tax authorities. To the service provider, e-filing minimizes their workload and operational cost due to the submission of tax returns in a paperless environment. It also reduces the cost of processing, storing and handling of tax returns.

Despite these benefits associated with e-filing, tax authorities face some major challenges towards the implementation of the e-filing system. One such challenge is the public perception of the e-filing system. After using an e-service over the Internet, the public may find the e-service system easy and useful or otherwise. Since the public cannot directly communicate with tax personnel, see or touch the tax forms as the service is provided online, the e-filing service system delivered to them may not perform as expected. In addition, the public may be burdened by the time and effort spent learning the new system and accommodating any services failure. Although time is a non-monetary effort and varies among individuals, researchers have recognized that time is a cost that consumers/users must pay for any use of products/services (Sweeney et al., 1999).

Another major challenge is to ensure that the system runs smoothly and efficiently during the tax filing period each year. This refers to the technical aspects of e-filing, i.e. computer and information systems utilized for the e-filing system need to be stable and reliable enough to handle a large amount of information processing, especially during the peak period of e-filing and particularly as the deadline approaches. The service provider has to ensure that the e-filing system can handle the heavy processing of data during the month of tax submission without any glitches. Another critical issue on e-filing is that the tax authorities have to ensure that the confidentiality and privacy of the information submitted through the Internet is preserved.

If tax authorities are not able to provide an e-filing system that could overcome these challenges, taxpayers might be reluctant to adopt the e-filing system. The issues, such as loss of valuable time, information privacy, glitches on the system's performance, if not strategically overcome, could be translated into risks to current and potential adopters of the e-filing system. Thus, perceived risk of e-filing is defined as the overall amount of uncertainty or anxiety perceived by an individual in using e-filing. It is very important for the tax authorities to understand the risks perceived by the taxpayers and to ensure that these risks are minimized for the successful implementation of the e-filing system.

This paper proposes a model that adopts and extends the Theory of Acceptance Model (TAM) to include the different facets of perceived risk associated with e-filing. The importance of this proposed model is described as follows. First, this research adds to the existing e-service and e-government literature by focusing on the significance of the different facets of perceived risk on the adoption of tax e-filing. Second, the research is useful to

tax authorities because it identifies the types of risk that the taxpayers perceive about the e-filing system. This model could be a useful guide to the service provider in their strategic development or improvement of their e-filing system.

This paper is organized into the following parts. The first part provides the literature review. The second part, presents the proposed model and a set of research hypotheses based on the theories in the preceding section. Finally, is the conclusion together with the discussion on the implications of the research and future research direction.

## LITERATURE REVIEW ON ADOPTION OF E-FILING

At present, there is very limited literature that focuses on the adoption of e-filing systems. Most of the literature related to e-filing adoption applies and extends the well known technology acceptance model (TAM) by Davis (1989) (Wang, 2002; Chang et al., 2005; Gallant et al., 2007), theory of planned behaviour (TPB) by Fishbein and Ajzen (1975) (Hsu and Chiu, 2004; Hung et al., 2006) and a unified model of both theories (Fu et al., 2006) to assess the adoption intention of the e-filing system. Other literature such as Carter et al. (2008) used the Unified Theory of Acceptance and Use of Technology (UTAT), while Wang et al. (2007) used the Innovation Diffusion Theory to observe e-filing adoption among taxpayers.

In previous studies that adopted the TAM and TPB models, the antecedents of the perceived usefulness (PU) and perceived ease of use (PEU) variables were identified and measured. For example, Wang et al. (2007) examined the effect of the computer self-efficacy variable on PU and PEU while Fu et al. (2006) observed the compatibility variable. Chang et al. (2005) examined the effect of quality antecedents of PEU and PU, which are information system quality, information quality and perceived credibility on adoption intention.

In this literature (that is, Hsu and Chiu, 2004; Fu et al., 2006; Gallant et al., 2007; Carter et al., 2008), the perceived risk variable was also incorporated into their models. All of the studies have found that perceived risk significantly affects the behavioural intention of current and potential users of e-services including the e-filing system. However, the perceived risk identified in the literature only measures the effect of overall risk on the behavioural intention. A perceived risk variable decomposed into its sub-facets is possibly a better measure because it gives insight as to which risk facets are important for potential users (Featherman and Pavlou, 2003). Rotchanakitumnuai (2007) investigated the use of three risk facets, namely, privacy risk, performance risk and the fair financial audit risk on the tax e-payment system in Thailand and found that only performance risk and the fair financial audit risk were

significant variables to the adoption of the e-payment method in Thailand.

## RESEARCH FRAMEWORK

This conceptual paper proposes the e-filing Adoption Model, which is derived from the theoretical foundations of prior research in the theories of perceived risk as well as the technology acceptance model (TAM) by Davis (1989). TAM is widely used and accepted to explain the relationship between perceptions and the use of technology. The two main constructs that influence behavioural intention are Perceived Usefulness (PU) and Perceived Ease of Use (PEU). PU is defined as the user's perception of the degree to which using the system will improve his or her performance in the workplace. PEU is defined as the user's perception of the amount of effort they need, to use the system. Past researchers have provided evidence of the significant effect of PEU and PU on behavioural intention (BI) (e.g. Venkatesh and Davis, 1996; Davis et al., 1989; Agarwal and Prasad, 1999). Similar to Davis et al. (1989), the attitude construct is dropped from this extended TAM model, because of its weak strength in mediating the impact of beliefs on behavioural intention. Based on the literature, the following hypotheses were developed.

H1: Perceived usefulness of e-filing will have a positive effect on the adoption of e-filing.

H2: Perceived ease of use of e-filing will have a positive effect on the adoption of e-filing.

In particular, the paper proposes a model that examines the impact of PEU, PU and perceived risk of the tax e-service on the adoption behaviour of taxpayers. Various e-service literature (e.g. Bahli and Benslimane, 2004; Featherman and Pavlou, 2003) indicates the significant effect of perceived risk on behavioural intention. Research such as Cunningham (1996), Bellman et al. (1999) and Featherman and Pavlou (2003) identified several facets of risk that are important in influencing behaviour. Among these, Featherman and Pavlou's (2003) categorisation of risks into its seven facets is found to be the most useful for evaluating the adoption of the e-filing system for various reasons. Their study developed a comprehensive risk facet model using TAM and the model was developed for e-service applications.

Thus, the paper suggests that in addition to the TAM constructs, the influence of seven different facets of perceived risk that also influence an individual to adopt or reject the e-filing system should be considered. These facets of risk are performance risk, financial risk, time risk, psychological risk, privacy risk, social risk and overall risk as suggested by Featherman and Pavlou (2003). It is hypothesized (see below) that these facets of risk will be prevalent in the adoption of e-filing.

Performance risk measures the risk that users are exposed to if the e-filing system malfunctions. This could occur, especially during the last minute rush to meet the tax return submission deadline. Financial risk measures monetary loss due to the use of e-filing such as keying-in incorrect information in tax returns that may lead to the wrong calculation of tax payable. Time risk measures the amount of time lost trying to learn how to use the e-filing system. Adopters of the e-filing system may lose more time learning how to fill in the return form online than submitting the form manually to the tax authorities. Psychological risk measures the feelings of frustration or anxiety when using the IT system. Those who are not IT literate, for example, may find using the e-filing system frustrating. Social risk is also another risk that measures the negative perception that adopters of e-filing may face such as the loss of status in society. Privacy risk measures the security of the personal information transmitted through the internet in an e-filing system. E-filing involves the transmission of private information such as monthly income, personal addresses, and bank account numbers through the Internet. Finally, overall risk is also included in this research design as it measures all of the facets of risk together.

H3: Perceived risk of e-filing adoption will be affected by performance risk, financial risk, time risk, psychological risk, social risk, privacy risk and overall risk.

Following from this, additional hypotheses are developed to include the perceived risk construct in the TAM model. It is hypothesized, as seen below, that the perceived risk construct will have a negative relationship with PEU, PU and behavioural intention.

H4: Perceived risk of e-filing will have a negative effect on perceived usefulness.

H5: Perceived risk of e-filing will have a negative effect on the adoption of e-filing.

H6: Perceived ease of use of e-filing will have a negative effect on the perceived risk of e-filing usage.

Various studies have shown the negative relationships between perceived risk and constructs in the TAM model. Dowling and Staelin (1994) indicated that the uncertainties, (that is perceived risk), may influence product adoption and evaluation (that is perceived usefulness). Moore and Benbasat (1991) have shown that a user interface that is complex may reduce the system's evaluation and adoption intention. Fu et al. (2006) indicated that taxpayers may not adopt a system if they perceive that the e-filing system is lacking in security features. Also, Featherman and Pavlou (2003) indicated that a system that is problematic and needs a lot of effort to use may be perceived as facing performance problems and usage uncertainties (Figure 1).

This conceptual paper provides an insight into the role

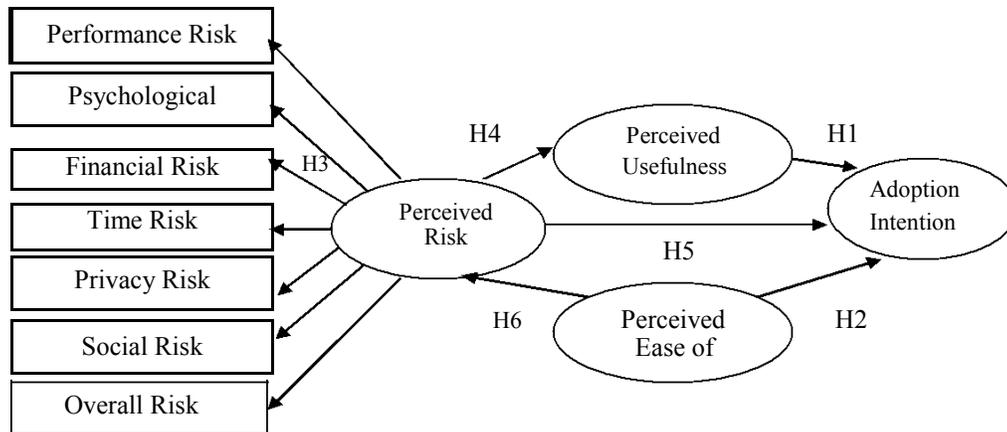


Figure 1. Research framework.

of perceived risk of taxpayers in adopting the e-filing system within a country. From the available literature this paper draws on the importance of integration between PU, PEU and perceived risk facets, which is currently not a common practice. As discussed earlier, perceived risk appears to be a key component in achieving public trust of e-filing and to guide the service provider's relationship building with stakeholders. Yet, although service provider's perceptions regarding the issues are addressed marginally, a few studies found the significance of users' perceived risk with regard to e-filing adoption (e.g. Fu et al., 2006; Gallant et al., 2007). This paper proposes the influence of perceived risk on public adoption of e-filing first through the higher level construct of PU, and second through the PEU. The proposed research direction is in line with Featherman and Pavlou's (2003) suggestion of a new model in predicting e-service adoption through facets of perceived risk.

## CONCLUSION AND FUTURE RESEARCH

Previous researchers have highlighted the importance of perceived risk to the adoption of e-filing. This research attempts to provide insights into its facets, thus, providing useful input on the adoption and evaluation of the e-filing system by users. It is predicted that many of these risk facets will be significant. Among the risks that could possibly be significant are performance risk, psychological risk, time risk and privacy risk. Past studies have shown that taxpayers tend to e-file near the tax deadline and this may lead to system crashes if the e-filing system is not tailored to accommodate this trend. Psychological and time risks could possibly be prevalent for taxpayers who are not IT literate, they may find themselves frustrated or anxious if a lot of time is spent learning about the e-filing system and then find that the system does not function as they had hoped it would. Privacy risk may possibly be a significant risk for e-filing adoption;

this is because e-filing involves the transmission of taxpayers' confidential information through the Internet.

There are potential benefits of this research. First, risk-reducing strategies could be formulated to encourage e-filing adoption such as improved security features for the user interface. The risk-reducing strategies could be developed to cater to the facets of risk that are the most prevalent in e-filing adoption. For example, if psychological risk is a significant factor, the tax authorities could develop several methods of helping taxpayers e-file such as a offering a web-based tutorial or a video that guides the taxpayers throughout the e-filing process. Second, this research could identify the demographic characteristics of those with higher or lower inherent e-filing usage risk. By identifying these, different advertising strategies could be targeted to a specific group of people.

This research could also be expanded to include different types of respondents such as paid tax preparers and different types of taxpayers. Paid tax preparers are given the rights by their clients to prepare their tax matters. They use the e-filing system for different types of clients and are more frequent users of the e-filing system than taxpayers who file for themselves. It would be interesting to understand which facets of risk are more significant to them. Different types of taxpayers such as companies may deal with more complex transactions than individual taxpayers, thus, they may emphasise different risk facets when filing in the tax return form electronically.

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