Computers in Human Behavior 26 (2010) 636–644

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

E-file adoption: A study of U.S. taxpayers' intentions

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ARTICLE INFO

Article history:
Available online 11 February 2010

Keywords:
E-government
E-filing
IT adoption
Perceived risk
Trust
Optimism bias

ABSTRACT

The United States Congress has set ambitious goals for the diffusion of e-government initiatives. One of congress' goals for the 2007 tax year was for 80% of tax and informational returns to be filed electronically (IRS., 2004). In 2008, 90 million Americans choose to e-file (IRS., 2009); however, Congress' goal of 80% adoption has still fallen short. This paper integrates the Unified Theory of Acceptance and Use of Technology (UTAUT) model, online trust, perceived risk, and optimism bias into a comprehensive model of e-file adoption. To empirically test the model a survey is administered to 260 United States taxpayers. Structural equation modeling is used to evaluate relationships between these concepts and intention to use. Results indicate performance expectancy, social influence, facilitating conditions, and optimism bias all have a significant impact on e-file intention. Trust in the internet and trust in the e-file provider were shown to significantly influence perceived risk. Implications for practice and research are discussed.

Published by Elsevier Ltd.

1. Introduction

The global explosion and adoption of the Internet has produced numerous implications for the public sector. Rather than duplicating their traditional brick and mortar equivalents, government agencies with digital delivery systems are non-hierarchical, non-linear, interactive in nature and never closed (West, 2008). E-government permits citizens to search and acquire information at their own convenience, without the restriction of geography. The interactive nature of e-government provides benefits for citizens and bureaucrats alike (West, 2008). Successful e-government initiatives are more than mere technological innovations, they involve rethinking and redesigning the manner in which government operates.

Most U.S. government agencies have embraced the e-government movement and are providing a wide range of materials – publications, forms, government services – online for citizen use. However, despite this push to digitize government agencies, innovation and advancement is sometimes small in scale (West, 2008). One issue plaguing diffusion is the need for cohesive multi-channel distribution (Economist., 2008). Regardless of the manner in which citizens interact with the government, the outcome should be the same (Economist, 2008).

To date, e-government services have been more about quantity than quality. A 2008 global e-government study by the Brookings Institute found that 96% of government websites provided access to publications, but only 50% provided services that were fully executable online (West, 2008). Simply posting information online is not a guarantee of successful e-government (being able to download a form does not mean that it gets filled out correctly and sent to the right place). Making the right documents available is only part of the e-government initiative, getting citizens to adopt the e-services has proven to be the lingering obstacle.

The underlying issue to date has not necessarily been a problem of design, but utilization. The key to successful e-government is the implementation of systems that are utilized and meet users' needs (Economist, 2008). One electronic government service that is receiving increased attention and is fully executable online is the Internal Revenue Service's (IRS) e-file program. The electronic filing of income tax returns (the e-file program) has grown into a Congressional initiative; however, its outright adoption by citizens has yet to be fully achieved. E-filing has the potential to improve the overall process of tax filing for the individual filer while at the same time reducing the cost to both taxpayers and tax collection agencies (Fletcher, 2002). In the U.S., the e-file program is largely considered to be an e-government success story. E-file services have been implemented with the goal of easing the burden on the taxpayer and increasing compliance through the innovative use of technology (Fu, Farn, & Chao, 2006). The use of IRS endorsed e-file systems has continued to with 52.9 million individual returns being filed in 2003, approximately 68 million in 2005 (VanDenburgh & Harmelink, 2006), 80 million in 2007 and approximately 90 million in 2008 (IRS, 2009). However, despite the substantial growth of e-file adoption rates the IRS and Congress have not reached their published goal of 80% of all U.S. citizens' income tax returns being filed electronically.

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0747-5632/$ - see front matter Published by Elsevier Ltd.
doi:10.1016/j.chb.2009.12.017

Given the large investment in the e-file program and the 80% adoption goal that has yet to be reached, the objectives of this study are:

- To identify the impact of the Unified Theory of Acceptance and Use of Technology (UTAUT) factors on e-file adoption intention.
- To identify the impact of online trust perceptions on perceived risk and its influence on intention to e-file.
- To identify the impact of optimism bias on intention to e-file.

Building on previous technology acceptance and e-government studies, we develop a model aimed at further understanding U.S. taxpayers' intention to use an e-file system. Specifically, a survey is conducted to examine taxpayers' intentions to use an IRS endorsed e-file system. The U.S. e-file system is a prime example of a current e-government service where citizen adoption expectations are presently lagging behind. This paper contributes to the literature by empirically validating the UTAUT model in a voluntary usage e-government service context. This study posits that by integrating literature on IT adoption (UTAUT), online trust perceptions, perceived risk, and optimism bias, researchers can gain a more comprehensive understanding of e-file adoption in the United States.

The remainder of the paper proceeds as follows: Section 2 presents the theoretical foundations of the proposed research model and hypotheses. In Section 3 we construct the research model. Section 4 describes the methodology used to empirically test the model. The results are presented in Section 5. We provide a discussion of the findings, an agenda for future research, and limitations in Section 6. Finally, concluding comments are presented in Section 7.

2. Theoretical framework and hypothesis development

How and why individuals choose to adopt new technologies has forever been the focal point of IS research. Within this broad area of research there is a core area of literature that focuses on intention. The Unified Theory of Acceptance and Use of Technology (UTAUT) is the most predominant and comprehensive theory existing in the literature to date. The UTAUT model is comprised of eight theoretical models: the theory of reasoned action (TRA), the technology acceptance model (TAM), the motivational model, the theory of planned behavior (TPB), a model combining the technology acceptance model and the theory of planned behavior, the model of PC utilization, the innovation diffusion theory, and the social cognitive theory. The goal of UTAUT is to understand intention/usage as the dependent variable (Venkatesh, Morris, & Davis, 2003). UTAUT has been utilized in prior e-government research investigating e-government service adoption (Al Awadhi & Morris, 2008).

In addition to technology adoption factors, the literature also identifies perceived risk as an important predictor of intention (Fu et al., 2006). The proposed model combines adoption factors, perceived risk and optimism bias to explain citizens' intention to use e-filing in the United States.

2.1. The Unified Theory of Acceptance and Use of Technology (UTAUT) model

The UTAUT model integrates the eight theoretical models noted above and is made up of four core determinants of usage intention (performance expectancy, effort expectancy, social influence, and facilitating conditions) (Venkatesh et al., 2003). The unified theoretical model was empirically tested in four different organizational settings (entertainment, telecomm, banking, and public administration industries) over a period of six months (Venkatesh et al., 2003). Of the four core determinants, performance expectancy, effort expectancy, and social influence significantly predict intention. The UTAUT model is well suited for the context of this study in that the IRS is the organizational function of the government which collects taxes. Taxes should be paid by all citizens on an annual basis to the IRS. The payment of taxes are mandatory; however, the choice to e-file via an IRS sponsored e-file system is a voluntary usage context. Therefore, it is in this setting that the use of the UTAUT model is best suited for an investigation into the use and adoption of an IRS e-file system. UTAUT has been used in prior e-government studies investigating specific technologies (Wang & Shih, 2009); however, to date the e-government literature has largely ignored the U.S. e-file initiative.

The comprehensiveness, validity and reliability of the UTAUT model have encouraged the current authors of this study to adopt and validate it in the context of e-file adoption. The model was amended to suit the context of the study. Performance expectancy was measured by the perceptions of using e-government services in terms of benefits, such as saving time, money and effort, facilitating communication with government, improving the quality of government services and by providing citizens with an equal basis on which to carry out their business with government (Al Awadhi & Morris, 2008). Five variables comprise the performance expectancy construct: perceived usefulness, extrinsic motivation, job-fit, relative advantage, and outcome expectations (Venkatesh et al., 2003). Recent literature has shown that there are similarities between constructs: usefulness and extrinsic motivation (Davis, 1989), usefulness and job-fit (Thompson, Higgins, & Howell, 1991), usefulness and relative advantage (Davis, 1989; Moore & Benbasat, 1991; Plouffe, Hulland, & Vandenbosch, 2001) usefulness and outcome expectations (Compeau & Higgins, 1995; Davis, 1989), and job-fit and outcome expectations (Compeau & Higgins, 1995). Performance expectancy has been found to be the strongest predictor of intention in previous model tests (Agarwal & Prasad, 1999; Compeau & Higgins, 1995; Thompson et al., 1991; Venkatesh, 2000; Venkatesh et al., 2003).

H1. Performance expectancy will have a significant influence on Intention to Use an IRS endorsed e-file system.

Effort expectancy is the degree of ease associated with the use of the system (Al Awadhi & Morris, 2008; Venkatesh et al., 2003). The UTAUT model identifies three constructs, from the eight models, which make up the concept of effort expectancy: perceived ease of use, complexity, and ease of use (Venkatesh et al., 2003). The similarity among these three variables has also been documented in prior literature (Moore & Benbasat, 1991; Plouffe et al., 2001; Thompson et al., 1991; Venkatesh et al., 2003). The effort expectancy construct has been found to be significant in both voluntary and mandatory usage contexts, but only in the initial usage of the technology (Venkatesh et al., 2003). The effort expectancy construct became insignificant after periods of extended and sustained usage, which is consistent with previous research (Agarwal & Prasad, 1999; Thompson, Higgins, & Howell, 1994). It has been noted that effort oriented constructs are usually found to be more salient in the early stages of a behavior (Venkatesh et al., 2003). This initial stage is when process issues are hurdles that need to be overcome by users and later are forgotten, giving way to concerns about specific system features (Warkentin, Gefen, Pavlou, & Rose, 2002).

H2. Effort expectancy will have a significant influence on Intention to Use an IRS endorsed e-file system.

Social influence is the degree to which an individual perceives that others who are deemed important to them believe that they should use the system (Venkatesh et al., 2003). Social influence is comprised of subjective norms, social factors, and image. The con-