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ABSTRACT

Electronic tax filing is an emerging area of e-government. This research proposes a model of e-filing adoption that identifies adoption factors and personal factors that impact citizen acceptance of electronic filing systems. A survey administered to 260 participants assesses their perceptions of adoption factors, trust and self-efficacy as they relate to e-file utilization. Multiple linear regression analysis is used to evaluate the relationships between adoption concepts and intention to use e-filing systems. Implications for practice and research are discussed.

Keywords

E-file, e-government, trust, self-efficacy, adoption

INTRODUCTION

The United States (U.S.) government is one of the largest users of information technology (IT) systems in the world (Evans, 2006). A considerable percentage of the governments IT investment is allocated to e-government initiatives. E-government in the U.S. provides its citizens with convenient access to government information and services. The electronic filing of income tax returns (the e-file program) is an invaluable application that aids citizens with the process of collecting their personal tax information and provides them the ability to electronically transmit their return. Electronic filing (e-file) has the potential to improve the tax filing process for the individual and the government by reducing monetary and temporal costs for both taxpayers and tax collection agencies (Fu, Farn, and Chao, 2006).

The use of IRS endorsed e-file systems has continued to grow over the last couple of years with 52.9 million individual returns being filed in 2003 and approximately 68 million in 2005 (IRS, 2004). However, despite the numerous Internal Revenue Service (IRS) endorsed e-file systems that are available, this still only accounts for about 50% of the total number of returns. Congress wanted 80% of all tax and informational returns be filed electronically by 2007 (IRS, 2004). Thus, the U.S. has fallen short of the 80% goal and the lower than desired adoption rate continues to plague the IRS. Throughout the IS literature, the prediction of usage has always been a focus. With the growing interest in e-government and increased pressures to get to 80% utilization it raises the question of how to increase citizens' adoption of e-file.

Building on previous technology adoption studies, we develop a model that depicts U.S. taxpayers' intention to use an e-file system to file their taxes. Specifically, a survey is conducted to examine taxpayers' intentions to use an IRS endorsed e-file system. This study posits that by integrating literature on technology adoption, trust and self-efficacy researchers can gain a more comprehensive understanding of e-file adoption. This paper is organized as follows: first, the background literature is presented; then, the research model and hypotheses are illustrated; next the methodology is discussed; finally the results, implications and suggestions for future research are presented.

BACKGROUND LITERATURE

Technology Adoption

Numerous studies have explored the factors that impact e-government adoption (Bélanger and Hiller, 2006; Burn, 2003; Choudrie and Dwivedi, 2005; Cross, 2007; Dwivedi, Papazafeiropoulou and Gharavi, 2006; Gefen, Rose, Warkentin, and Pavlou, 2005; Gilbert, Balestrini and Littleboy, 2004; Hackney and Jones, 2002; Huang, 2007; Thomas and Streib, 2003). Within this broad area of research there is a core of literature that focuses on intention to use an innovation. The Unified Theory of Acceptance and Use of Technology (UTAUT) is the most predominant 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 and Davis, 2003).

The UTAUT Model

Venkatesh et al.'s (2003) UTAUT model is composed of four core determinants: performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy is defined as the degree to which individuals believe that using the system will help them improve their job performance (Venkatesh et al., 2003). Five variables comprise the performance expectancy construct: perceived usefulness, extrinsic motivation, job-fit, relative advantage, and outcome expectations (Venkatesh et al., 2003). Venkatesh et al. (2003) found the performance expectancy to be the strongest predictor of intention, which is consistent with previous model tests (Agarwal and Prasad, 1998; Compeau and Higgins, 1995; Taylor and Todd, 1995; Thompson et al., 1991; Venkatesh and Davis, 2000).

Effort expectancy is the level of difficulty associated with the use of the system (Venkatesh et al., 2003). Venkatesh et al. (2003) identify 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) note that the similarity among these three variables has been documented in prior literature (Moore and Benbasat, 1991; Plouffe et al,. 2001; Thompson et al., 1991; Venkatesh et al., 2003). Venkatesh et al. (2003) found that their effort expectancy construct was significant in both voluntary and mandatory usage contexts, but only in the initial usage of the technology. It became insignificant after periods of extended use which is consistent with previous research (Agarwal and Prasad, 1999; Thompson et al., 1991; Thompson, Higgins and Howell, 1994; Venkatesh et al., 2003). Effort oriented constructs are usually prominent in the preliminary stages of a behavior (Szajna 1996; Venkatesh et al., 2003).

Social influence relates to an individual's perception that others who are important to him believe that he should use the system (Venkatesh et al., 2003). Social influence is comprised of subjective norms, social factors, and image. Thompson et al. (1991) use the term "social norms" to define their construct, and acknowledge its similarity to "subjective norm" within the Theory of Reasoned Action. According to Venkatesh et al. (2003) social influence contains the explicit or implicit notion that people's behavior is influenced by the way in which they believe others will view as a result of having used the technology. Venkatesh et al. (2003) found that none of the social influence constructs were significant in voluntary contexts; however, all of them were significant when usage was mandatory. Venkatesh and Davis (2000) suggest that these effects in a mandatory context could be attributed to compliance that causes social influence to have a direct effect on intention. However, social influence in voluntary contexts, influences perceptions of the technology. E-file adoption for individuals is currently voluntary for individuals.

Facilitating conditions refer to an individuals belief that an organizational or technical infrastructure exists to support the system (Venkatesh et al., 2003). The authors found that when both performance expectancy constructs and effort expectancy constructs are present in the model, facilitating conditions are not significant predictors of system usage. Also, since facilitating conditions is predicted to have a direct effect on actual usage, not intention to use, it is not included in the proposed model (Venkatesh et al., 2003).

Trust of the E-filer

The literature contains numerous definitions of trust. One popular definition was proposed by Rotter (1967). The author draws from social learning theory and defines trust as an expectancy that the promise of another can be relied upon. Rotter's research is referenced in numerous studies of trust (Castelfranchi and Pedone, 2000; Mayer, Davis, and Schoorman, 1995; Zucker, 1986). Trust of electronic services has been explored extensively in both e-commerce (Gefen and Straub, 2002; Gefen, Karahanna and Straub, 2003; Jarvenpaa, Knoll, and Leidner, 2000; McKnight, Choudhury, and Kacmar, 2002; Pavlou, 2003; Tan and Theon, 2001; Van Slyke, Belangerand Comunale, 2004) and e-government (Carter and Bélanger, 2005; Gefen et al. 2005; Welch, Hinnant and Moon, 2004; Warkentin and Gefen, 2002).

Citizens must possess trust in the entity providing the electronic service. E-file acceptance depends on the belief that e-file service providers are capable of providing electronic services effectively and confidentially. In e-commerce research, this concept is frequently referred to as the firm's reputation. Reputation effects the extent to which buyers believe an organization is honest and concerned about its customers (Jarvenpaa et al., 2000). Regarding e-government, citizens will be

more likely to use Internet services provided by organizations with a good reputation. Hence, each citizens' individual level of trust in the e-file provider is an imperative element of e-file diffusion.

Web-Specific Self-efficacy

Computer self-efficacy is defined as one's assessment of his ability to use computers in diverse situations (Compeau and Higgins, 1995). Those with high levels of CSE are more likely to have positive views of technology and use technology more frequently (Compeau, Higgins and Huff,1999). Computer self-efficacy (CSE) has been explored in various technology adoption studies (Agarwal et al., 2000; Compeau and Higgins, 1995; Hasan, 2006; Jeyaraj, Rottman and Lacity, 2006; Thatcher and Perrewe, 2002; Thong, Hong and Tam, 2004; Torkzadeh, Gholamreza, Chang and Demirhan, 2006). Jeyaraj et al. (2006) exam 48 empirical studies of technology adoption by individuals; although computer self-efficacy is not included in adoption models as frequently as TAM, the authors state it is a very promising predictor of system usage. Several studies advocate the inclusion of computer self-efficacy, in addition to TAM constructs, in technology adoption research (Agarwal et al., 2000; Holsapple and Sasidharan, 2005; Wang, Hsin-Hui and Luarn, 2006).

Recent studies have developed the construct even further into Internet self-efficacy and Web-specific self-efficacy. Internet self-efficacy (ISE) is the beliefs that an individual can successfully perform a distinct set of behaviors required to establish, maintain and utilize effectively the Internet (Eastin and LaRose, 2000). Internet self-efficacy (ISE), or the belief in one's capabilities to organize and execute courses of Internet actions required to produce given attainments, is an important factor in users' efforts to use e-services (Hsu and Chiu, 2004). Complexity, knowledge barriers to initial e-service adoption, and comfort and satisfaction issues faced by new users may be construed as Internet self-efficacy deficits (Eastin and LaRose 2000). Understanding the role of Internet self-efficacy in e-service adoption constitutes an important research issue (Hsu and Chiu, 2004).

Hsu and Chiu (2004) distinguish between general ISE and Web-specific self-efficacy, as is done in this study. General ISE refers to "an individual's judgment of efficacy across multiple Internet application domains", whereas Web-specific self-efficacy refers to an "individual's perception of efficacy in using a specific WWW application (service) within the domain of general Internet computing" (pg. 370) (Hsu and Chiu, 2004). These two efficacy beliefs are similar, however, there are several conceptual differences. General ISE is trait-oriented, web-specific self efficacy is state oriented. The difference between trait and state efficacy is that trait efficacy is a stable cognition that people hold and carry with them, reflecting the expectation that they posses the ability to successfully perform given tasks in a variety of situations (Hsu and Chiu 2004). In contrast, state-efficacy is a state based expectation; a judgment about the likelihood of successful task performance measured immediately before any effort is expended on the task. In the context of e-file usage, general ISE is developed across time and situation, while web-specific efficacy is developed and measured through usage (Hsu and Chiu 2004). As a result, web-specific self efficacy is more variable and a more appropriate proxy to use when evaluating e-file usage. Furthermore, self - efficacy researchers emphasized that self-efficacy beliefs should be assessed in a way that the beliefs correspond to the targeted performance and context of interest (Agarwal, 2000; Maraka et al., 1998). Citizens with high levels of web self-efficacy will also have a high intention to use an e-file system.

RESEARCH MODEL & HYPOTHESES

Based on the aforementioned literature, we propose the following research model (see figure 1). Intention to use an e-file system is influenced by three technology acceptance factors – effort expectancy, performance expectancy and social influence – and three personal factors – trust of the e-filer, Web self-efficacy and e-file experience (operationalized as the use of an e-file system in the previous tax season).
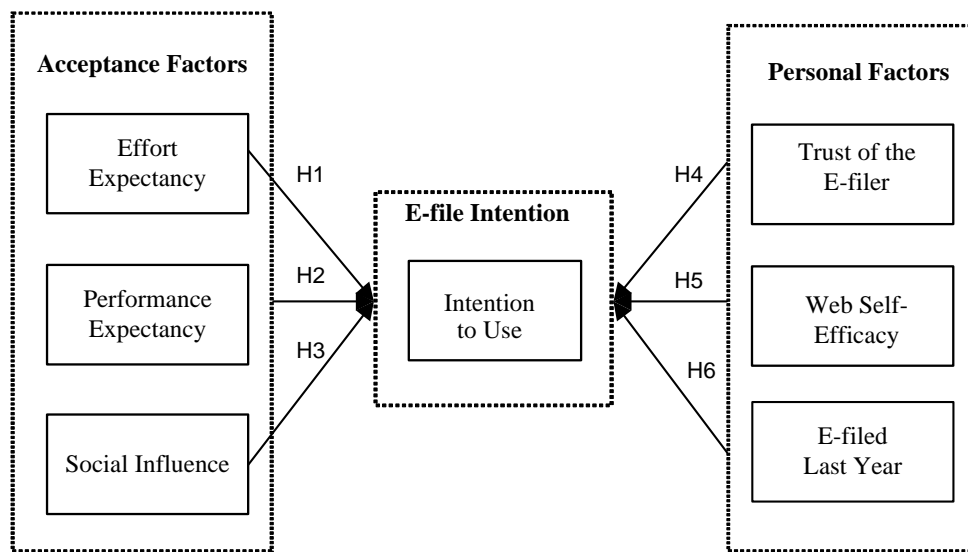
Figure 1. Proposed E-file Adoption Model

The research hypotheses are presented in table 1.

No.	Hypothesis
H1.	Effort Expectancy (EE) will have a positive effect on intention to use.
H2.	Performance Expectancy (EE) will have a positive effect on intention to use.
H3.	Social Influence (SI) will have a positive effect on intention to use.
H4.	Trust of the E-filer (TOE) will have a positive effect on intention to use.
H5.	Web Self-Efficacy (WSE) will have a positive effect on intention to use.
H6.	E-file use in the previous year (LSYR) will have a positive effect on intention to use.

Table 1. Research Hypotheses

METHODOLOGY

Data was collected via an online survey. The literature states that surveys are a viable means for collecting data (Pedhazur and Schmelkin, 1991). To obtain study participants, an e-mail announcement was sent to MBA students, masters' level and upper level accounting students. The results were analyzed using multiple linear regression in SPSS 15.0.

Sample

The survey was completed by 260 MBA, upper level and graduate accounting students. 53 % of the participants were female. The sample's age ranged from 18 – 54; 83% of the sample was in the 18-24 age group. 89% were Caucasians. 93% have completed an e-commerce transaction and 71% have completed an e-government transaction. 34% of the respondents used an e-file system last year.

Instrument Development

Questions were adapted from validated instruments (Carter and Belanger 2005, Fu et al. 2006, Pavlou 2003). Wording was modified to fit the e-filing context. The resulting items for each construct were then included in random order on the survey instrument. Questions were measured on a 7-point Likert-type scale, ranging form 1 (strongly disagree) to 7 (strongly agree). The instrument is available from the authors upon request.

Items were tested for reliability using Chronbach's alpha. The reliability analysis is presented below in table 2.

Construct	# Items	Reliability
Effort Expectancy (EE)	6	.844
Performance Expectancy (PE)	4	.764
Social Influence (SI)	4	.783
Trust of the E-filer (TOE)	5	.897
Web Self-Efficacy (WSE)	6	.901
Intention to Use (USE)	5	.892

Table 2. Reliability Analysis

Factor analysis was conducted using principal component analysis with promax rotation. Most items loaded on the proper factor. Cross loading items EE1, EE2 were dropped from further analysis. The loadings are presented in table 3.

Item	EE	PE	SI	TOE	WSE	USE
EE1					.846	
EE2					.806	
EE3	.673					
EE4	.707					
EE5	.758					
EE6	.464					
PE1		.745				
PE2		.650				
PE3		.724				
PE4		.600				
SI1			.844			
SI2			.816			
SI3			.623			
SI4			.713			
TOE1				.864		
TOE2				.855		
TOE3				.768		
TOE4				.853		
TOE5				.831		
WSE1					.766	
WSE2					.782	
WSE3					.828	
WSE4					.821	
WSE5					.780	
WSE6					.825	
USE1						.703
USE2						.768
USE3						.702
USE4						.758
USE5						.654

Table 3. Factor Analysis

DATA ANALYSIS

The research model was tested using multiple linear regression analysis. Regression analysis is used to relate a dependent variable to a set of independent variables. The goal of this study is to determine the relationship between use intentions (dependent variable) and citizens' perceptions of electronic filing systems (independent variables). The model includes six independent variables (effort expectancy, performance expectancy, social influence, trust of the e-filer, web-specific self-efficacy and previous use of an e-file system) and one dependent variable (intention to use).

RESULTS

The model explains a large percent of the variance in citizen adoption of e-filing systems; adjusted R Square equals .753. Since the overall model was significant (F=132.347 p=.000), we tested the significance of each variable. Four of the six hypotheses were supported. Performance expectancy, social influence, trust of the e-filer and web-specific self-efficacy all have a significant impact on intention to e-file (see table 4). Interestingly, effort expectancy and previous use of an e-file system did not increase one's intention to use an e-file system. On the contrary, those who e-filed last year were less likely to e-file in the future. Implications for practice and research are provided in the discussion section.

Hypothesis	Coefficient	t-value	Significance	Supported
H1(EE)	.132	1.664	.097	NO
H2 (PE)	.498	7.592	.000	YES
H3 (SI)	.261	6.413	.000	YES
H4 (TOE)	.243	4.128	.000	YES
H5 (WSE)	.142	2.008	.046	YES
H6 (LSYR)	-.433	-4.575	.000	NO*
*Although the p-value is significant the hypothesis is not supported since the sign of the coefficient is different from the prediction.				

Table 4. Hypotheses Testing

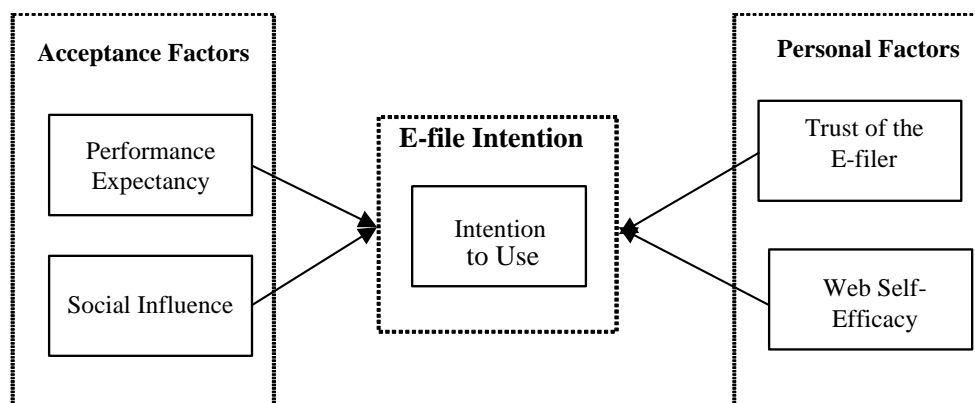The resulting model is presented below (figure 2). Two acceptance factors and two personal factors are significant.

Figure 2. Significant Results

DISCUSSION

Significant Results

Two of the three acceptance factors are significant: performance expectancy and social influence. Citizens who believe an electronic option will help them file their taxes more quickly and efficiently than traditional alternatives are more likely to adopt e-file systems. Hence, government agencies need to emphasize the benefits and advantages of e-file relative to paper-based and telephone alternatives. Regarding social influence, citizens with peers, mentors, bosses, etc. that use e-file are more likely to use e-file as well. Government agencies need to start grass root initiatives that get adopters to encourage their friends to give e-filing a try.

In addition to the acceptance factors, two personal factors were also significant: trust of the e-filer and web-specific self-efficacy. Trust is imperative when risk is present (Mayor et al., 1991). Citizen trust in the ability and integrity of the e-file provider is an important element of adoption. Hence, the IRS needs to make sure that the companies that it endorses (such as TurboTax) are trustworthy. If the e-filer is unreliable, citizens will be unwilling to use IRS endorsed e-file systems.

Prior studies have shown that web-specific self-efficacy is an important determinant of behavioral intention (Agarwal, 2000; Hsu and Chiu, 2004; Maraka et al., 1998). Specifically, WSE has been shown to have a significant direct effect on e-service usage (Hsu and Chiu 2004). It is for these reasons that WSE has been chosen for inclusion in the model predicting e-file intentions to use.

Non-Significant Results

Surprisingly, neither effort expectancy nor use of e-file last year had a positive impact on intention to use and e-file system. The significance of effort expectancy is inconsistent in the literature. Several studies suggest that performance expectancy is the most salient adoption factor (Benbasat and Barki, 2007). Venkatesh et al. (2003) posit that effort expectancy is only important at certain stages of adoption (the initial stages).

Even more surprising were the effects of e-filing in a previous year on intention to use an e-file system in the future. The results indicate that citizens who e-filed last year were less likely to e-file in the future. Perhaps, citizens are not satisfied with the current electronic options. Perhaps citizens have found that the benefits do not outweigh the costs (In the U.S. if your annual income is greater than $50,000 you have to pay a fee to e-file). Or perhaps, these results are a function of the sample. As stated earlier, the sample is composed of graduate and undergraduate business students who have a lot of confidence and experience with Internet systems. The sample's demographics are not represented of the population at large. Future studies should continue to evaluate the relationship between previous use and future intentions.

Implications for Research and Practice

The findings of the present study have various implications for practice as well as research. The present study confirmed that WSE had a significant effect on intention. This study provides an initial step toward the application of WSE to the study of citizens' intention to e-file. Our research confirms that WSE is a meaningful construct within the context of e-filing. The results indicate that citizens' with higher WSE are more likely to e-file. This implies that increasing citizens' WSE is critical to the success of e-file adoption. This study also serves as a bridge extending the e-services research into the specific domain of e-filing.

LIMITATIONS & SUGGESTIONS FOR FUTURE RESEARCH

There are a few limitations to this study that should be noted. The most notable is the diversity of the subjects that were evaluated. The sample was composed of graduate and undergraduate students. Previous research suggests that students have a higher affinity towards and access to technology than the average citizen. While valid results were produced from testing, there was limited diversity in the sample. Future research should attempt to validate the findings of this study by testing a more diverse array of participants to increase the variance on some variable dimensions. Another limitation is that the data for this study was collected through surveys, therefore allowing a potential of self-report bias from respondents. The survey was administered online which may also bias the results by capturing the views of those who may be more knowledgeable and comfortable with technology than the average citizen. Future research should consider using multiple-methods to collect and analyze data to test the proposed model.

CONCLUSION

In conclusion, this study presents a comprehensive yet parsimonious view of e-file adoption. Information Communication Technology (ICT) adoption is an important element of IS literature. This study highlights the acceptance factors and personal factors that impact the adoption of an emerging ICT: electronic tax filing. It integrates constructions from adoption, trust and self-efficacy literature to explain over seventy-five percent of the variance in intention to use an e-file system. This study uses very specific constructs such as Trust of the e-filer instead of a generic trust concept and web-specific self-efficacy instead of a general self-efficacy construct. The tailored e-file model can serve as a building block for future studies of e-file adoption. The constructs in the model are also applicable to other e-government systems, such as online license renewal. The proposed model adds to the current discourse on the evolution of e-government by presenting a very focused yet explanatory model of e-file utilization.

REFERENCES

1. Agarwal, R. and Prasad, J. (1999) Are individual differences germane to the acceptance of new information technologies, *Decision Sciences*, 30, 2, 361-391.

2. Agarwal, R., Sambamurthy, V. and Stair, R. (2000) The evolving relationship between general and specific computer self-efficacy: An empirical investigation, *Information Systems Research*, 11, 4, 418-430.

3. Bandura, A. (1982) Self-efficacy mechanism in human agency, *American Psychologist*, 37, 2, 122-147.

4. Bandura, A. (1997) Self-Efficacy: The Exercise of Control, Freeman, New York.

5. Becerra, M. and Gupta, A. (1999) Trust Within the Organization: Integrating the Trust Literature with Agency Theory and Transaction Costs Economics, *Public Administration Quarterly*, 23, 2, 177-203.

6. Bélanger, F., and Hiller, J. (2006) A Framework for E-Government: Privacy Implications. *Business Process Management Journal* 12, 1, 48-60.

7. Benbasat, I., Barki, H. (2007) Quo Vadis TAM, *Journal of the Association for Information Systems*, 8, 4, 211-218.

8. Burn, J. and Robins, G. (2003) Moving Towards E-government: A Case Study of Organizational Change Processes. *Logistics Information Management*, 16, 1, 25-35.

9. Carter, L. and Belanger, F. (2005) The Utilization of E-government Services: Citizen Trust, Innovation and Acceptance Factors, *Information Systems Journal*, 15, 1, 2- 25.

10. Chau, Y. K. And Hu, J. H. (2001) Information technology acceptance by individual professionals: a model comparison approach, *Decision Sciences* 32, 4, 699-718.

11. Choudrie, J. and Dwivedi, Y. (2005) A Survey of Citizens Adoption and Awareness of E-Government Initiatives, The Government Gateway: A United Kingdom Perspective. E-Government Workshop. Brunel University, West London.

12. Compeau, D.R., & Higgins, C.A. (1995) Computer Self-Efficacy: Development of a Measure and Initial Test, *MIS Quarterly*, 19, 2, 189-211.

13. Compeau, D., Higgins, C.A., and Huff, S. (1999) Social Cognitive Theory and Individual Reactions to Computing Technology: A Longitudinal Study, *MIS Quarterly,* 23, 2, 145-158.

14. Cross, M. (2007) £5m e-government awareness campaign flops, *The Guardian*, http://www.guardian.co.uk/technology/2006/oct/12/marketingandpr.newmedia

15. Davis, F. D. (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology, *MIS Quarterly,* 13, 3, 319-340.

16. Dwivedi Y, Papazafeiropoulou A and Gharavi H (2006) Socio-Economic Determinants of Adoption of the Government Gateway Initiative in the UK. *Electronic Government*, 3, 4, 404-419.

17. Eastin, M.A. and LaRose, R.L. (2000) Internet self-efficacy and the psychology of the digital divide. *Journal of Computer Mediated Communication*, 6, 1.

18. Evans, K. (2006) Expanding E-government: Making a Difference for the American People Using Information Technology. Executive Office of the President, Office of Management and Budget. Published December 2006.

19. Fu, J.-R., Farn, C.-K. and Chao, W.-P. (2006) Acceptance of electronic tax filing: A study of taxpayer intentions, *Information & Management*, 43, 1, 109-126.

20. Ganesan, S. and R. Hess (1997) Dimensions and Levels of Trust: Implications for Commitment to a Relationship. *Marketing Letters*, 8, 4, 439-448.

21. Gefen, D. (2000).E-commerce: The Role Of Familiarity and Trust. *Omega: The International Journal of Management Science,* 28, 6, 725-737.

22. Gefen, D., Rose, G. Warkentin, M. and Pavlou, P., (2005) Cultural Diversity and Trust in IT Adoption: A Comparison of USA and South African e-Voters. *Journal of Global Information Management,* 13, 1, 54-78.

23. Gefen, D., Karahanna, E., and Straub, D. W. (2003) Inexperience and experience with online stores: The importance of TAM and trust. *IEEE Transactions on Engineering Management*, 50, 3, 307-321.

24. Gilbert, D., P. Balestrini, and Littleboy, D. (2004) Barriers and Benefits in the Adopiton of E-government, *International Journal of Public Sector Management* 17, 4/5, 286-301.

25. Hackney, R. and Jones, S. (2002) Towards E-government in the Welsh (UK) Assembly: an Information Systems Evaluation, *Proceedings of the ISOneWorld Conference and Convention*, April 2002, Las Vegas, USA.

26. Hart, P. and Saunders, C. (1997) Power and Trust: Critical factors in the adoption and use of electronic data interchange. *Organizational Science*, 8, 1, 23-42.

27. Holsapple, C. W. and Sasidharan, S. (2005) The dynamics of trust in B2C e-commerce: a research model and agenda. *Information System E-Business Management,* 3, 4, 377-403.

28. Hsu , M. Chiu, C. (2004) Internet self-efficacy and electronic service acceptance, *Decision Support Systems*, 38, 3, 369-381.

29. Huang, Z. (2007) A comprehensive analysis of U.S. counties' e-Government portals: development status and functionalities. *European Journal of Information Systems,* 16, 2, 149-164.

30. Jarvenpaa, S. L., N. Tractinsky, et al. (2000) Consumer Trust in an Internet Store. *Information Technology and Management,* 1, 1-2, 45-70.

31. Jeyaraj, A., Rottman, J., Lacity, M. (2006) A review of the predictors, linkages, and biases in IT innovation adoption research, *Journal of Information Technology* 21, 1, 1 – 23.

32. Lee, M.K.O. and E. Turban (2001) A Trust Model for Consumer Internet Shopping. *International Journal of Electronic Commerce*, 6, 1, 75-91.

33. IRS (2004). IRS e-Strategy for Growth. http://www.irs.gov/pub/irs-pdf/p3187.pdf

34. Marakas, G.M., Yi, M.Y. and Johnson, R.D. (1998) The multilevel and multifaceted character of computer self-efficacy: Toward clarification of the construct and an integrative framework for research, *Information Systems Research*, 9, 2, 126-163.

35. Mayer, R.C., Davis, J.H. and Schoorman, F.D. (1995) An integrative model of organizational trust. *Academy of Management Review*, 20, 3, 709-734.

36. McKnight, D.H., Choudhury, V. and Kacmar, C. (2002) Developing and Validating Trust Measures for E-Commerce: An Integrative Approach. *Information Systems Research,* 13, 3, 334-359.

37. McKnight, D.H., Cummings, L.L. and Chervany, N.L. (1998) Initial Trust Formation in New Organizational Relationships. *Academy of Management Review*. 23, 3, 473-490.

38. Moore, G. and Benbasat, I. (1991) Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research,* 2, 3, 192-222.

39. Pavlou, P. (2003) Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model, *International Journal of Electronic Commerce*, 7, 3, 69-103.

40. Pedhazur, E. J. and Schmelkin, L. P. (1991) Measurement, Design, and Analysis: An Integrated Approach. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

41. Plouffe, C.R., Hulland, S.J. and Vandenbosch, M. (2001) Research report: Richness versus parsimony in modeling technology adoption decisions--Understanding merchant adoption of a smart card-based payment system. *Information Systems Research,* 12, 2, 208-222

42. Thomas, J. C. and Streib, G. (2003) The new face of government: Citizen-initiated contacts in the era of E-government. *Journal of Public Administration Research and Theory* 13, 1, 83 -102.

43. Thompson, R., C. Higgins, and J. Howell (1991). Personal computing: toward a conceptual model of utilization. *MIS Quarterly*, 15, 1, 124-143.

44. Thompson, R., C. Higgins, and J. Howell (1994) Influence of experience on personal computer utilization: Testing a conceptual model. *Journal of Management Information Systems*, 1, 11, 167-187.

45. Thong, J., Hong, W. and Tam, K. (2004) What Leads to User Acceptance of Digital Libraries? *Communications of the ACM*. 47, 11, 78-83.

46. Torkzadeh, G., Chang, J. and Demirhan, D. (2006) A contingency model of computer and Internet self-efficacy. *Information and Management*, 43, 4, 541-550.

47. Shapiro, S.P. (1987) The social control of impersonal trust, *American Journal of Sociology*, 93, 3, 623-658.

48. Szajna, B. (1996) Empirical evaluation of the revised technology acceptance model, *Management Science*, 42, 1, 85-92.

49. Van Slyke, C., Belanger, F. and Comunale, C. L. (2004) Factors Influencing the Adoption of Web-Based Shopping: The Impact of Trust, *Database for Advances in Information Systems,* 35, 2, 32-49.

50. Venkatesh, V. and Davis, F. D. (2000) Theoretical extension of the technology acceptance model: Four longitudinal field studies, *Management Science,* 46, 2, 186-204.

51. Venkatesh, V., M.G. Morris, and G.B. Davis (2003). User Acceptance of Information Technology: Toward a Unified View, *MIS Quarterly*, 27, 3, 425-478.

52. Wang, Y. and H. Emurian (2005) Trust in E-Commerce: Consideration of Interface Design Factors, *Journal of Electronic Commerce in Organizations,* 3, 4, 42-60.

53. Wang, Y., Lin, H.and Luarn, P. (2006) Predicting consumer intention to use mobile service. *Information Systems Journal,* 16, 2, 157–179.

54. Warkentin, M. and D. Gefen (2002) Encouraging citizen adoption of e-government by building trust, *Electronic Markets*, 12, 3, 157-162.

55. Welch, E.W., Hinnant, C.C. and Moon, M.J. (2005) Linking Citizen Satisfaction with E-Government and Trust in Government. *Journal of Public Administration Research and Theory*, 15, 3, 371-391.

56. Zucker, L.G. (1986) Production of trust: Institutional sources of economic structure, *Research in Organizational Behavior*, 8, 1, 53-111.