

A b s t r a c t

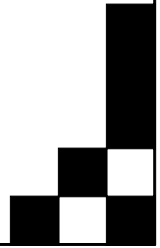
The growing interest in e-Government raises the question of how governments can increase citizen adoption and usage of their online government services. e-Government becomes especially important given its potential to reduce costs and improve service compared with alternative traditional modes. Citizen trust is proposed to be an important catalyst of e-Government adoption. By investigating online tax services, already available and used extensively in the West, we propose several ways in which governments can increase citizen trust and thus encourage the adoption of this new and potentially significant mode of government service. The proposed e-Government adoption model also takes in account issues of cultural variables, risk, control and technology acceptance.

Institution-based trust, such as an independent judicial system with appropriate legal powers, is proposed to be the major tactic to build trust in e-Government. In addition, among new users of online government services, characteristic-based and cognitive-based antecedents should be crucial; general psychological dispositions and knowledge of the process should also engender trust. Among experienced users, on the other hand, it is suggested that the nature of previous interactions with the e-Government system should be the major predictor of trust, and hence of continued use. These propositions are elucidated, as they apply to different cultures and to high-intrusive versus low-intrusive government services. This study has practical implications for the design of mechanisms for the adoption of e-Government.

Keywords: e-Government, trust, antecedents of trust, technology adoption, online intentions, tax filing

Encouraging Citizen Adoption of e-Government by Building Trust

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INTRODUCTION

Public governance in the twenty-first century can benefit enormously as IT and the Internet become prime drivers of New Public Management reforms, inspiring new visions, ventures and exciting activities. The advantage of providing many of these services online is unquestionable. Online services are cheaper, faster and more readily available, especially in remote areas. They also avoid a multitude of human errors that manual processing entails. The Florida voting fiasco during the 2000 US Presidential election is a prominent example of an opportunity for online services to improve public governance. e-Government encompasses applications of various technologies to 'provide citizens and organizations with more convenient access to government information and services; and to provide delivery of public services to citizens, business partners and suppliers, and those working in the government sector' (Turban *et al.* 2002).

This study looks at one key aspect of e-Government – filing tax returns. Paying taxes is a legal requirement in all the modern world. It typically involves providing an obligatory annual statement to the appropriate governmental agency – optionally, online. It is in the government's interest to encourage online tax filing because of its speed, efficiency

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and ubiquity. Despite the enormous potential, citizen¹ adoption of online government services has not been met yet.

Governments are unique in this case of online activity because they have the power to dictate the rules and regulations, and thus create a legal obligation. While such use of power can force citizen use through the introduction of legal regimes, it would probably frustrate citizens because of their dependency and lack of control over the government's actions. In such conditions, trust should be a preferred alternative, facilitating citizen choice to take advantage of the ability to file taxes online. Indeed, trust is a crucial enabler in e-commerce, where consumers are exposed to far lesser degrees of dependence and risk, affecting purchase intentions, inquiry intentions and sharing personal information (Gefen 2000, Jarvenpaa and Tractinsky 1999, Pavlou 2001). Accordingly, this study examines the effect of citizen trust in government on their intentions to file their tax returns online. Since trust is an important element of e-government, we also examine some actions that the government can introduce to engender this trust.

GOVERNMENT PROCESSES AND E-GOVERNMENT

Governments around the world are implementing a variety of e-Government initiatives to improve the efficiency and effectiveness of internal operations, communication with the public and engagement in transactional processes with individual and organizational constituents. In the US, the Internal Revenue Service (IRS), which is responsible for tax collection, has implemented an extensive initiative to replace postal communication with online communication. 'Since 1996, the IRS has offered taxpayers Web access to tax return forms and publications in Adobe Portable Document Format (PDF), a move that yielded impressive results: The agency saves

millions of dollars annually by decreasing the money it spends on printing, storing, and mailing tax materials' (Adobe 2002). This has dramatically reduced call volume, which had been previously increasing by 10% annually. Dramatic cost savings have come from this initial step – the cost of mailing a form is approximately US\$3, compared to about a penny for a thousand PDF files downloaded from the Web, saving taxpayers millions (Adobe 2002). In addition to electronic distribution of forms and information, the IRS, like revenue agencies in other countries, has recently implemented online tax payment protocols, which millions of Americans have utilized. Other services are already available. Accenture through its 'EasyTax' software (in USA and Australia) enables filing returns online (eFiling) and direct debit (ePayments). EzGov.com (www.ezgov.com) markets online payment for parking tickets, traffic tickets, permit and licence fees, vehicle taxes and property taxes.

Differences between traditional and e-Government processes

In contrast to traditional government processes, e-Government is notably characterized by (a) the extensive use of communication technology, (b) the impersonal nature of the online environment, (c) the ease by which information can be collected, processed (data-mined), and used by multiple parties, (d) the implicit uncertainty of using an open technological infrastructure for transactions, and (e) the newness of the communication medium. Specifically, citizens must interact with a government website. This increases the spatial and temporal separation between the citizens and the government, creating more uncertainty and concern about the reliability of the underlying Internet and related government infrastructure interfaces. Moreover, personal information can be easily collected, manipulated and used by multiple parties not directly linked to

the given interaction. Lastly, as with other new communication media, there might be resistance to the new medium. Overall, these unique differences increase uncertainty and reduce perceptions of citizen control, imposing a barrier to e-Government adoption.

Differences between e-Government and e-commerce

A major difference between commercial firms entering the e-commerce age and governments implementing e-Government is the mandatory, rather than voluntary, nature of the relationship. Law-abiding citizens have no choice but to file taxes, without the choices present among e-Commerce entities. Extrapolating from lesser cases of dependence and lack of control in the business environment (Fukuyama 1995), it should be imperative to establish citizen trust in e-Government if it is to succeed. Moreover, governmental agencies may be required by law to share information with other agencies or with the citizenry, further intensifying the need for trust in the maintenance of accurate citizen information. The Freedom of Information Act in the US enables journalists and others to gain access to such information. A final difference that is germane to the discussion of trust in e-Government is that governments are inherently political entities. Citizens have strong opinions about the fundamental fairness and even morality of various political parties and individual politicians. For a process that involves monetary transactions and information exchange to be accepted, it must be removed from the political arena in the minds of the citizens – they must inherently trust the online processes regardless of which party is in power at the time.

THEORETICAL BACKGROUND

The research model and propositions are shown in Figure 1.

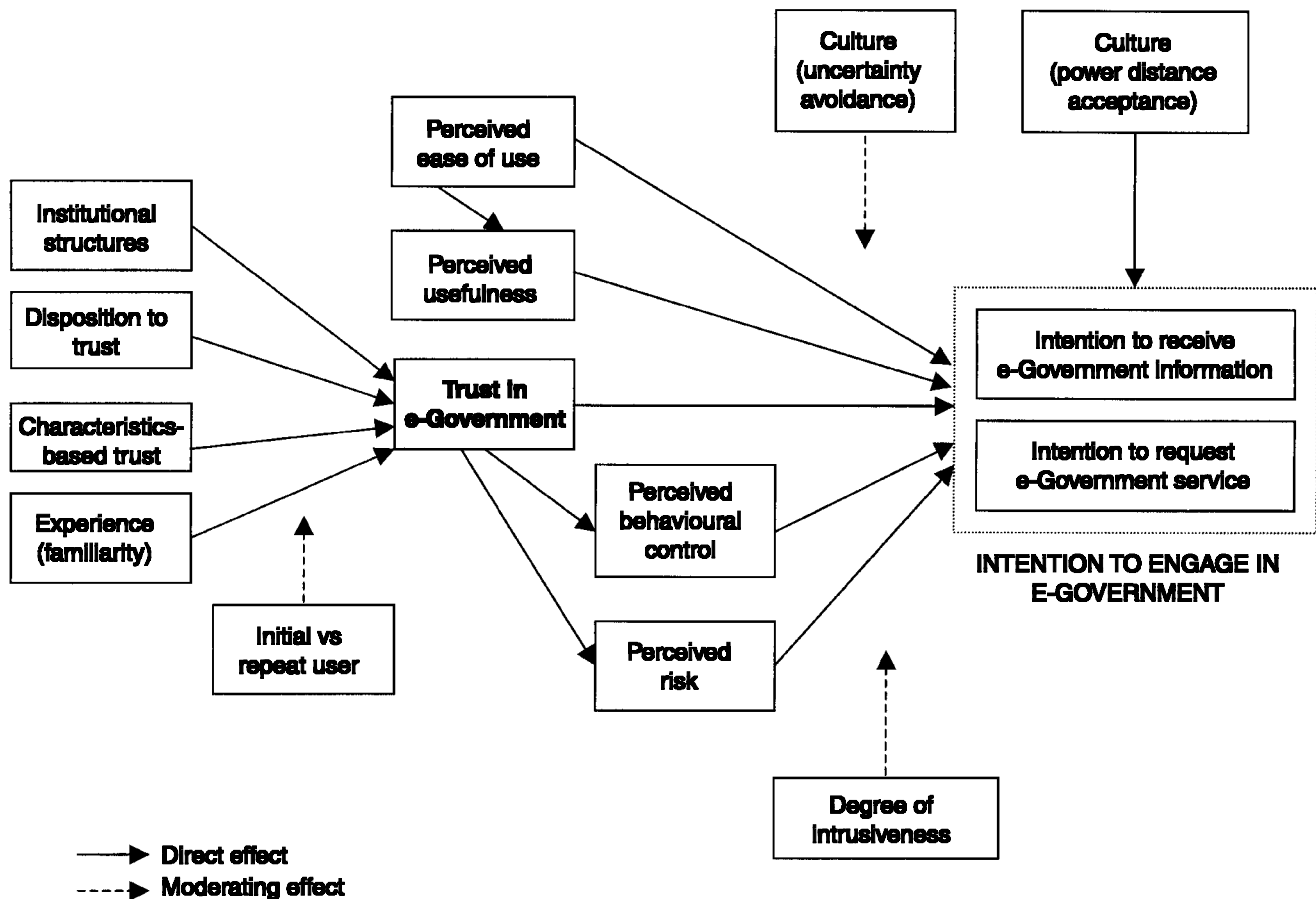


Figure 1. The proposed research model

Description and definition of the proposed dependent variable and its antecedents

To adopt e-Government processes, citizens must have the intention to 'engage in e-Government', which encompasses the intentions to receive information, to provide information and to request e-Government services. Will citizens exchange information electronically given the choice between an online process and a traditional method? The next sections summarize the proposed relationships, shown in Figure 1. The importance of these variables should be understood as a group, the interaction among them is critical to the overall e-Government adoption model.

Trust in e-Government

Trust is a central defining aspect of many economic and social interactions.

It is the belief that the other party will behave as expected in a socially responsible manner, and in doing so, it will fulfil the trusting party's expectations (Gefen 2000, Lewis and Weigert 1985, Luhmann 1979, Mayer *et al.* 1995). Hence, trust reduces the social complexity that is the result of people being independent agents whose behaviour cannot always be controlled or anticipated (Gefen 2000) and thus reduces the risk and uncertainty involved in interacting with them (Lewis and Weigert 1985, Luhmann 1979). Trust is crucial in economic transactions because it reduces the risk of falling victim to opportunistic behaviour (Fukuyama 1995, Williamson 1985). Presumably, the same should apply to tax payments, where the interaction is practically one-sided in favour of the government.

P1: Citizen trust positively influences intentions to engage in e-Government.

Building trust in e-Government. Zucker (1986) suggests that there are three basic modes by which trust engenders in an economic environment. These include (a) institution-based trust, (b) characteristic-based trust, and (c) process-based trust. These three modes should apply to e-Government, in general, and to online tax filing, in particular. Institution-based trust deals with third party guarantors that provide (1) certification about the trustworthiness and expected behaviour of a person, such as doctor licences, and (2) escrows that guarantee expected outcome of the interaction. Citizen trust of the agency managing the online tax process should also be built by independent third party certification that it will behave in a certain manner, and that it is managed by trustworthy people. Such a mechanism is widely used when international observers monitor elections in conflict-prone areas. Escrows can also create trust. In the

case of online tax payments, a third party guarantor could verify that the money is not made available to the government until a third party verifies that the transaction is correct. Such mechanisms are widely used by consumer-related e-commerce sites such as eBay (Kollock 1999).

Characteristic-based trust deals with social similarity in issues such as gender, kin and nationality. These are actually quite rational assessments because they mean that all the parties have the same set of expectation as to what constitutes acceptable social behaviour (Zucker 1986) – which do indeed vary by culture (Fukuyama 1995). Applying this mode of trust creation may not be feasible in many cases because applying it explicitly may contradict the legal statutes.

Process-based trust is trust based on prior experience. This is probably the most important of the three modes (Zucker 1986). Governments can create trust this way by convincing their citizens that the same rigorous controls, which make government handling of traditional tax returns trustworthy (assuming that they indeed are perceived as such), also apply to online tax filing.

Lastly, trust is also the product of psychological dispositions that are beyond the short-term control of any government. These psychological dispositions deal with a life-long socialized tendency to believe in social entities and to believe that better results will occur if one trusts others (McKnight *et al.* 1998, Rotter 1971). Although government cannot readily manipulate these beliefs, it can take advantage of opportunities afforded by different cultural segments in the population, and aim at those segments that are more inclined to trust first, in an attempt to build a critical mass of users for an online tax system.

There is a distinction between *initial trust* and *ongoing trust* (McKnight *et al.* 1998) such that some antecedents will apply more to initial trust. For initial trust, dispositions, social norms, characteristics and cognitive processes would mostly apply; for

ongoing trust, process-based trust would matter most.

P2a: Institution-based structures positively influence citizen trust in e-Government.

P2b: Citizen disposition to trust positively influences citizen trust in e-Government.

P2c: Favourable social characteristics of the government positively influence citizen trust in e-Government.

P2d: Experience (familiarity) with online government services positively influences citizen trust in e-Government.

P2e: The relationship between citizen trust and institution-based structures, disposition to trust, and experience is more prominent for initial users, whereas the relationship between experience and citizen trust is more prominent for repeat users.

Perceived risk

When engaging in an online transaction process, consumers are rightfully alarmed about the different types of risks present (Jarvenpaa and Tractinsky 1999). However, since risk itself is difficult to capture as an objective reality, the established research literature has predominantly addressed the notion of *perceived risk*, which is defined here as the citizen's subjective expectation of suffering a loss in pursuit of a desired outcome. Following Jarvenpaa and Tractinsky, perceived risk is viewed as a belief that attenuates when trust is present. Risk is lack of behavioural control, involving in this case (1) economic risk, (2) exposure of personal information, and (3) imperfect monitoring. In e-commerce, perceived risk reduces intentions to exchange information and transact (Pavlou 2001).

P3a: Perceived risk negatively influences intentions to engage in e-Government.

P3b: Citizen trust in e-Government negatively influences perceived risk.

Perceived behavioural control

The Theory of Planned Behaviour (TPB) (Ajzen 1985) suggests that since citizens do not have full control over their online government transactions, perceived behavioural control should become a critical component of e-Government adoption. There are two components of perceived behavioural control: self-efficacy (confidence in one's ability) and facilitating conditions that provide the resources to engage in a behaviour (Triandis 1971). This study focuses on both dimensions. Behavioural control, in general, influences IT use intentions (Mathieson 1991, Taylor and Todd 1995). Applied to the e-Government context, behavioural control should facilitate information acquisition since citizens have the opportunity and resources to manage such behavioural activities. Similarly, in terms of providing information, a sense of control over how personal information will be managed and used is likely to encourage such behaviour. Finally, perceived behavioural control would also positively influence behavioural intent since citizens would not have fears of opportunistic behaviour if they perceived control over the situation.

Given that trust describes confidence in the behaviour of another party, it should give citizens a perception of control by reducing behavioural uncertainty about government actions. It is important to note that trust does not influence perceived behavioural control through self-efficacy, but through facilitating conditions (Triandis 1971).

P4a: Perceived behavioural control positively influences intentions to engage in e-Government.

P4b: Citizen trust in e-Government positively influences perceived behavioural control.

Since trust is needed more when risk is high (Koller 1998, Mayer *et al.* 1995), the need to create citizen trust to increase e-Government adoption will be greater with *intrusive activities*, such as filing a tax return, which involves the exchange of sensitive and personal data and the risk of identity theft. On the other hand, the role of trust should not be as pronounced for less intrusive activities, such as renewing a driver's licence.

P5: The positive relationship between citizen trust and intentions to engage in e-Government is greater for transactions that are perceived as more intrusive.

The Technology Acceptance Model

As with many technology-driven systems, the adoption of online government services should be predicted by the Technology Acceptance Model (TAM) (Davis 1989, Davis *et al.* 1989). TAM also applies to website use (Gefen and Straub 2000), where perceived usefulness and perceived ease of use influence Internet adoption. The practical relevance of these variables stems from the fact that they can be influenced by the actions of the government through external variables. Perceived usefulness is the degree that users believe that a particular system facilitates their activity. Perceived ease of use is the degree that users believe that using the system is easy, and that it directly increases perceived usefulness. Applied to the e-Government context, a Web interface that is perceived to facilitate the interaction process while being easy to operate is likely to increase citizen's intentions to use it.

P6a: Perceived usefulness positively influences intentions to engage in e-Government.

P6b: Perceived ease of use positively influences intentions to engage in e-Government.

P7: Perceived ease of use positively influences perceived usefulness.

The role of culture

In addition to the aforementioned factors, culture is likely to contribute to the adoption or resistance to e-Government. Hofstede (1997) identifies five cultural factors that affect how people interact. Of these five, power distance is the most likely to differentiate e-Government adoption and use. Power distance is a measure of how much people at the lower castes of society differ from those at the top. In high power distance societies (such as those in non-white Africa), 'whoever holds the power is right and good' (Hofstede 1997: p. 43) and members of the non-ruling class are more likely to obey instruction from those who rule. In contrast, lower power distance cultures like the US view government as serving them. Therefore, holding all other factors equal, citizens in societies with greater power distance are more likely to adopt available e-Government services.

P8: Higher power distance positively influences intentions to engage in e-Government.

The second culture factor that should influence e-Government adoption is uncertainty avoidance. The greater the cultural tendency to avoid uncertainty, hence risk, the greater the impact of trust on e-Government adoption: cultures that are less concerned about uncertainty should rely less on trust as a method of avoiding uncertainty. Indeed, in cultures that tend to avoid uncertainty, trust is more important as a precondition of joint business ventures (Fukuyama 1995).

P9: Higher uncertainty avoidance will reinforce the positive effect of citizen trust on intentions to engage in e-Government.

RESEARCH METHODOLOGY

To test these propositions, citizens will be surveyed to collect data regarding the variables presented above. This study will employ a sample of over 1,000 taxpaying citizens in several nations, including the United States, Latin America, Africa and others. To control for same population type in these countries, the study will survey individuals from similar cross-cultural populations. This sample will thus be diverse with regard to socioeconomic classes, urbanization and national culture. The research instrument has been pilot tested, revised, validated and administered to hundreds of taxpayers in the US. It will soon be administered to thousands more in Europe, South America and the Middle East. While we propose no longitudinal approach to determine if measured perceptions are altered after specific experiences with online tax filing, we are asking participants about their previous experience with e-Filing so that we can assess such differences.

DISCUSSION

Successful implementation of e-Government in all its forms will be an important issue for the coming decade. For national and local governments to cut costs, improve services, and become more responsive to their citizenry, it is imperative that they establish trust in the online services they provide or will be providing. There are many facets to this issue, and the role of culture, risk and control is fundamental to the adoption process. As with e-commerce adoption, technology acceptance is also likely to be an important factor. Government officials and the private companies that assist them must be aware of the role of the proposed variables and their antecedents in the online environment, and must take in account the prospective findings of this research in their technical and organizational plans.

The implementation of online tax-paying may not work equally well everywhere. It might be advisable to

start in communities that have a strong sense of community, and it may be advisable to seek individuals who may be more open to adoption first, which may include high power distance segments, technology-savvy users or risk takers. Each success story can help the process grow by 'word of mouth' communication. Governments can also take many actions that can facilitate the success of these initiatives by building trust. For example, they can enact institutional guarantees, improve their social characteristics, and make the public knowledgeable about them.

The adoption of e-Government processes is a critical component in the creation of an efficient and responsive New Public Management. With widespread adoption of electronic interactions throughout national and local government agencies, a process of reengineering can ensue that can create a 'fundamentally different sort of government that provides much more value to citizens' (Leigh and Atkinson 2001). This will help reinforce a customer-focused government that will transmit to the offline world as well. Empirical research is imperative to understand the role of trust and other critical factors in enabling this transformation.

Notes

1. The term 'citizen' is used in this paper to indicate all constituents of e-Government, including resident aliens, businesses and other potential users of e-Government. All residents interact with various governmental entities. (In most jurisdictions, non-citizens also pay taxes.)

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