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Trust and e-Government projects – An exploratory study

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Abstract. Trust forms an important part of the discourse on e-Government. E-Government adoption involves trust relationships amongst three important entities: government, citizens and the enabling technology, forming a trust triad. An important link in this trust triad that has not been studied much in the literature on e-Government is the role of the trust reposed by the government in the citizens. This relationship has enormous potential to simplify the control mechanisms used in e-Government transactions. This in turn, significantly enhances citizens' perceived usefulness of the system. Hence, trust in citizens by the government is expected to eventually lead to higher adoption of the concerned e-Government system. This paper seeks to explore the issue of government trust in citizens using the case study methodology. We identify potential causes of disruption of the government's trust in citizens and mechanisms of production of trust in the same con-text. We emphasize the role of information processing capability in the production of the government's trust in the citizens. Further, we demonstrate that production of trust results in an opportunity for trust-based governance leading to higher adoption of e-Government projects.

Keywords: Trust, E-Government; Government to Citizen; Qualitative research; Case study research.

1 Introduction

Trust has been recognized as a critical factor for the success of e-Government projects (Carter & Bélanger 2005). It is regarded as a catalyst for e-Government adoption as it is instrumental in helping citizens overcome perceived risks and making them more comfortable in engaging with the system. The adoption of Government to Citizen (G2C) e-Government projects involves trust relationships amongst three important entities: government, citizens and the enabling technology. We term the combination of these three entities along with the interlinking trust relationship as the "trust triad". Citizens' trust in government and in enabling technology are together termed as trust in e-Government (Carter & Bélanger 2005). The general experience of citizens in its engagement with the government, apart from the overall responsiveness of government officials and their empathy towards individuals, contributes to the development of citizens' trust in the government (Tan, Benbasat & Cenfetelli 2008).

The adoption of technology in government services requires that the government has trust in enabling technologies (Pavlou 2003). Lack of government's trust in enabling technology often results in the project getting aborted.

An important link in the trust triad that has not been studied in adequate detail in the existing literature on trust in e-Government is the role of the trust reposed by the government in citizens (Yang 2005). This relationship has enormous potential to simplify the control mechanisms used in e-Government transactions. The relaxation of control mechanisms would contribute to process simplification which, in turn, would significantly reduce citizens' transaction costs and thus enhance their perceived usefulness of the system. Thus, the trust in citizens is expected to eventually lead to higher adoption of the e-Government system.

This paper seeks to address the issue of the government's trust in citizens. We explore three key aspects of trust. First, we identify the potential sources of disruption of the government's trust in citizens. Second, we explore possible mechanisms for the production of trust in the context of e-Government projects. Finally, we establish the role of trust-based governance in simplifying government processes leading to diffusion of e-Government projects.

2 TRUST AND E-GOVERNMENT

2.1 Definition of Trust

In literature, trust is seen as a multidimensional, multidisciplinary construct, whose definition is often guided by the academic anchoring of the researcher (Lewicki & Bunker 1995). Trust is defined in literature as "a set of expectations shared by all those involved in an exchange" (Zucker 1986), "an attitude which allows for risk-taking decisions" (Luhmann 1988), "the generalized expectancy that the statements of others can be relied on or promises will be fulfilled" (Rotter 1980), "trust is a social lubricant that reduces the friction costs of existing trade and/or serves to increase the scope of trade" (Carson, Madhok, Varman & John 2003) and so on.

2.2 Role of Trust

According to the technology acceptance model (TAM), the actual use of technology is driven by the perceived usefulness and the perceived ease of use of the technology (Davis, Bagozzi & Warshaw 1989). Subsequent researchers have extended this model for different technological environments. In the context of internet-enabled technologies like e-commerce, where uncertainty develops due to reduced or non-existent human interaction, trust is another driver of acceptance, besides perceived usefulness and perceived ease of use (Pavlou 2003; Gefen 2003). Similarly, trust is an important driver of adoption of e-Government services (Al-Adawi, Yousafzai & Pallister 2005). In a cross-country analysis comprising 140 countries, trust was found to have a major influence on e-Government usage (Das, DiRienzo & Burbridge 2009). In this paper, we further explore this role of trust in the context of the usage of G2C e-Government

projects. We propose a trust triad to capture the intricacies of the role of trust in this context.

2.3 The Trust Triad

Three entities form the core of G2C based e-Government transactions. These are citizens, technology, and the government, forming a trust triad (see Figure 1). Literature engages mainly with citizens' trust in e-Government, that is, government and technology. We posit that the implication of trust in the e-Government space is more broad-based. Since user attitude towards acceptance is critical for adoption to occur, the widespread interest of the researcher community in the citizen perspective is understandable. However, the government's trust in technology and in citizens are also important relationships that deserve further research.

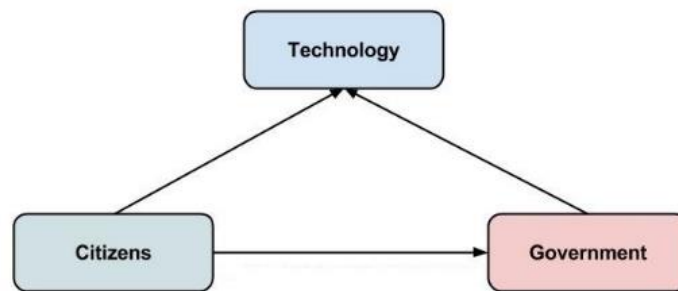


Fig. 1. The trust triad

2.3.1 Citizens' trust in e-Government

Trust in e-Government literature, for the most part, refers to the citizens' trust in the government and technology. Taking these as two independent dimensions of a two-dimensional trust grid, levels of trust can be classified into one of four quadrants: Adversarial, Competitive, Cooperative, and Collaborative (Srivastava & Teo 2009). Some of the measures that governments can take to move into quadrants with greater trust include soliciting citizen feedback, increasing the nation's IT literacy, demonstrating commitment and support, and building institutional trust (Srivastava & Teo 2009). The presence of trust increases the adoption of e-Government services by making citizens feel comfortable while sharing personal information and performing government transactions over the internet (Alsaghier, Ford, Nguyen & Hexel 2009).

For citizens, the perceived usefulness of e-Government services is high as it makes information access easier and increases the government's accountability, efficiency and cost-effectiveness (Carter & Bélanger 2005). Moreover, ICT has the potential to increase transparency and reduce corruption and hence play a transformative role in governance (Bertot, Jaeger & Grimes 2010). Due to these possible benefits, success-

ful e-Government initiatives can increase citizens' trust in the government (Parent, Vandebek & Gemino 2005). Citizens' trust is thus a driver and an outcome of e-government.

However, the level of trust and perceived risk also varies with the type of e-Government service. Perceived risk is higher at the transactional level of e-Government services as compared to the informational level (Horst, Kuttischreuter & Gutteling 2007; Chandler & Emanuels 2002). While the convenience of information access and/or transaction acts as an incentive for the adoption of e-Government services by citizens, privacy concerns act as a deterrent (Cullen & Reilly 2008).

2.3.2 Government's trust in technology

The introduction and use of technology in governance affect both the citizens and the government. Hence, technology's impact on the political and bureaucratic administration is also important and should be considered in managing e-Government projects (Bolgherini 2007). A government that is distrusting of technology will be reluctant to implement e-Government initiatives. In a study comparing the attitudes of citizens and bureaucrats towards e-Government, it was found that public officials in the United States of America were on the whole more positive about the success and impact of e-Government than the citizens, and were keen on a faster pace of implementation of e-Government projects (Moon & Welch 2005). This is because while the governments believed in their ability to provide suitable technological solutions to the citizens' needs, the citizens faced privacy and security concerns and often lacked sufficient awareness regarding e-Government initiatives. They also had general distrust towards the government. Another study found that the proactiveness of American municipal governments towards e-government initiatives was low in terms of strategic planning and expansion of service offerings (Moon 2002). However, among the municipal governments studied, the larger ones were more proactive than their smaller counterparts.

2.3.3 Government's trust in citizens

Yang (2005) highlights the importance of trust reposed by public administrators in citizens. In a survey-based analysis, he finds that it is a valid and relevant construct that affects citizen involvement. In more trusting societies, the level of trust between police and citizens has been found to be higher (Kääriäinen & Sirén 2012). Government's trust in citizens shapes its attitudes towards the citizens, and thereby influences citizen participation. "Felt trust", that is, citizen perception of being trusted by the government impacts citizens' trust in e-Government (Dashti, Benbasat & Burton-Jones 2009). The trust reposed by the government and government institutions in citizens can thus play a large role in the success of e-Government. In this paper, we explore this trust relationship in more details.

3 RESEARCH QUESTIONS

Government's trust in the citizens plays an important role in governance (Yang 2005). We explore this relationship further in the context of the diffusion of e-Government projects. In this context, we study three broad research questions.

1. What are the possible situations of disruption of the government's trust in citizens in the course of G2C service delivery?
2. What are the mechanisms of production of the government's trust in citizens?
3. What role does the government's trust in citizens play in the diffusion of an e-Government project?

This paper provides empirical evidence for the importance of the role of trust in government to citizen relationship through the case of the Profession Tax Digitization project in West Bengal, India.

4 METHOD

We adopt a case-based method to seek answers to our research questions. The unit of analysis is the e-Government project – Profession Tax Digitization. This project has been selected based on theoretical sampling (Eisenhardt 1989). Theoretical sampling, in case of a single case study, means that the case is chosen for being usually revelatory, extreme exemplar, or for providing an opportunity for unusual research access (Yin 2009).

The primary mode of data collection was semi-structured interviews and field visits. A total of 13 people participated in the semi-structured interviews conducted over a period of three months. There was a single round of interviews with the end-users and the participants from the Profession Tax unit. The average duration of an interview was one hour. Three rounds of interviews were conducted with the senior leadership of the project, including the head of the State National Informatics Centre (NIC) and the head of the Department of Commercial Taxes. The field visits involved one trip to a Profession Tax unit and three trips to the department headquarters. The secondary sources of data include internal office communications, annual administrative reports, finance commission reports and legal documents describing the Profession Tax Act. Such use of multiple sources of data collection facilitates triangulation of data which ensures the reliability of the study (Yin 2009). In case study research, Yin argues for the adoption of analytical generalization and the use of explanation building for ensuring internal validity of the study. This is done in the analysis and discussion section of this paper.

5 THE PROFESSION TAX PROJECT

At the core of a trust-based system is a design that rests on a belief that compliance, and not evasion, is the norm. This allows for significant simplification of the process

of compliance and other rules. In keeping with this logic, the processes in the Profession Tax system have been reengineered, and several simplifications have been introduced. The Profession Tax Schedule - the document detailing exact rules to calculate the amount of tax payable for each type of end-users - has been simplified (the number of categories was reduced from 23 to 4). The frequency of filing of returns has been changed from quarterly to annual. The document requirements have been abolished. The process of registration and enrolment is now online and requires no submission of physical documents. The online process requires a valid Permanent Account Number (PAN) but does not require scans of any documents. The PAN data is automatically verified from the National Securities Depository Limited (NSDL) - an agency responsible for issuance of PAN. Payment of taxes is allowed only through Government Receipt Portal System (GRIPS). The GRIPS system, an integrated payment portal for transactions related to government services, facilitates online payment using internet banking, credit card or debit card and counter payment in banks. The existing methods of digitization of processes in Profession Tax project suggest that a paperless system is difficult to implement without trust in end-users and trust in technology. In this project, the department's trust in technology is demonstrated by its willingness to accept automated verification. The use of only digital records for storing and accessing registration, enrolment and payment data is also a manifestation of the department's trust in technology. The taxpayer's preference for the online mode of payment as against the counter-based payment system is a display of their trust in technology.

Most importantly, this application is a demonstration of the department's trust in the end-users (taxpayers). As per the new system, information filled into the enrolment or registration form is accepted at face value. An investigation is initiated only in the case of complaints or for defaulters. There is a future plan to use data analytics extensively for such fraud detection.

6 ANALYSIS AND DISCUSSION

For the purpose of our research, we borrow the definition of trust from Zucker (1986). He states that "trust is defined as a set of expectations shared by all those involved in an exchange". In the context of this paper, since we expound on the government's trust in citizens, we focus on the government's expectations from the citizens in G2C transactions. Using the case of the Profession Tax project, we demonstrate that in the context of e-Government, it is possible to create trust in citizens through formal mechanisms. We further argue that it is possible to design more efficient processes based on trust though we agree that trust may not always lead to efficiency maximization (discussed further in section 6.2). The government trusting citizens will not ensure that this trust is not violated. Further, according to Zucker, one's experience of such violations may not always result in distrust. He argues that distrust is a result of the suspicion of generalization of such disruption of expectations to future transactions. The underlying assumption in this argument is that "trust and distrust are not opposite ends of a continuum but rather different constructs altogether" (Zucker

1986). This means that “trust can be disrupted without producing distrust” (Zucker 1986). The remainder of this section is organized as follows. We first discuss four causes of disruption of trust in the context of the Profession Tax project. We identify two mechanisms of “production of trust” in PT. Such production of trust has a positive impact on project performance (Carson, Madhok, Varman & John 2003). Finally, we revisit the trust triad in the context of G2C e-Government projects.

6.1 Disruption of Trust

In any relationship involving two entities, there could be multiple sources of disruption of trust. Such disruptions may occur multiple times over a long period. At times this may result in the development of distrust. In this section, we identify four sources of disruption of trust in the context of the Profession Tax project. These four types of disruption may also be applicable to most of the other e-Government projects in India.

The first source of disruption of trust is the past experience of government interactions (or lack of it) with citizens. There are several instances of non-compliance of the Profession Tax Act by a large number of taxpayers. Such behaviour of a section of end-users causes disruption of the government’s trust in citizens (and also in businesses). The other key implications are loss of tax revenue for the state as a result of a large number of defaulters and increase in the work pressure of government staff as a result of increased litigations and supervision. The second source of disruption of government trust is the behaviour of its own officers. Some officers are known to indulge in corrupt practices. The third source of disruption is the encounter with ghost IDs and fake addresses. In the manual system, when a user was enrolled in the Profession Tax system, (s)he would submit a proof of identity and address. This proof would typically be an attested photocopy of a set of documents. In a typical scenario, the officer-in-charge for approval would not be in a position to authenticate these documents. The department would realize such mishaps during scrutiny of defaults. Finally, there was a concern of generally low levels of trust in India.

6.2 Production of Trust

The relationship between trust and efficiency is widely contested in literature. One perspective is to treat the trust as one of the most efficient mechanisms for governing transactions (Ouchi, 1980). Zucker (1986) argues against this perspective. He posits that since the production of trust involves several costs associated with it, it may or may not always lead to efficiency in governance and transactions. In this paper, we identify one such mechanism of trust that can also contribute to enhancing the efficiency of transactions. It has been observed that in the context of interfirm R&D collaboration, information processing capability of the firm positively contributes to the effectiveness of trust-based governance (Carson et al., 2003). E-Government projects also involve transactions between different stakeholders. The information processing capability of the concerned government department contributes to the production of government trust in citizens. Processes redesigned based on such trust would often result in more efficient systems owing to the requirement of less stringent controls.

In the Profession Tax department, the digitization project resulted in developing four distinct information processing capabilities. The first set of capabilities involves the automatic processing of the data in G2C transactions. This has enabled the Profession Tax department to remove human intervention in the process of registration, enrolment, tax payment and issuance of compliance certificate. The job of data entry has now been delegated to the end-users themselves. The automation and delegation of jobs facilitate the department in bypassing corrupt officers to a large extent. The second set of information processing capabilities is in the form of analytics. The department can now generate several reports from the data collected by the transaction processing system. These reports help them in identifying defaulters, potential fraud and in estimating growth in tax collection from various geographies. The third set of information processing capabilities has been achieved by deploying the Profession Tax officers in their new role of processing qualitative information collected from multiple sources in order to identify potential fraud and leakages. This eventually helps in expanding the tax net.

Finally, the Profession Tax department has acquired a more specialized information processing capability through integration with two external systems viz., GRIPS and NSDL. GRIPS facilitates payment of taxes and the automated generation of financial records concerning various types of transactions. It takes care of reconciliation of accounts with various payment gateways and banks. Integration with NSDL helps in the verification of the identity of end-users. Thus, it significantly reduces the concerns of ghost IDs.

These four information processing capabilities have contributed to the production of the government's trust in citizens. The processes of all the G2C services have been further redesigned based on trust in the end-users. In the next section, we discuss the outcome of these changes.

6.3 Outcome of Trust-based Governance

Lack of trust in citizens contributes to inefficiencies in governance mechanisms. In the Profession Tax Digitization project, trust has played an important role in the re-engineering of existing processes. Several controls were removed as an outcome of trust-based re-engineering. These changes, coupled with simplification of tax rules resulted in wider diffusion of government service and an increase in tax collection in general.

The responsibility of maintaining the current level of PT now rests on a small number of officers who are capable of handling a large number of transactions.

This has been made possible only through trust-based governance of G2C transactions. Further, we argue that the information processing capability of the government department acts as a mechanism for the production of trust, leading to efficiency in the government's transactions with various stakeholders, particularly citizens.

7 CONCLUSION

A large majority of e-Government projects are designed based on the assumption that the government has a lack of trust in the citizens. Yang (2005) highlights the absence of this theme in the e-Government literature. In this paper, we explore three important aspects related to trust in an e-Government project viz., disruption of trust, production of trust and benefits of trust-based governance. Yang's proposition relates to the importance of trust in citizens with respect to policymaking. We extend Yang's argument by proposing that trust in citizens can facilitate simplification of control mechanisms. This would, in turn, enhance the net benefits of digitization, thereby increasing the rate of adoption of e-Government services.

Trust plays an important role in increasing the efficiency of a process (Ouchi 1980). However, early adopters of trust-based mechanisms benefit more than the late adopters (Zucker 1986). The inefficiency creeps into the system through external organizations involved in the production of trust between two independent entities (Zucker 1986). We contribute to this debate about the impact of achievement of trust on the efficiency of a process. We observe that if the production of trust is achieved through building information processing capability of the trusting firm (in this case, the government), then the resultant governance mechanism is more efficient in nature (Carson, Madhok, Varman & John 2003). The Profession Tax case has helped us in demonstrating the effectiveness of trust-based governance in G2C e-Government transactions.

Finally, we revisit the trust triad proposed in this paper. The three existing popular trust relationships (as shown in Figure 2) in the context of G2C e-Government projects are citizens' trust in technology, government's trust in technology and citizens trust in the government. To this, we add a new trust relationship – government's trust in the citizens. We believe that this new trust relationship has the potential to significantly impact existing governance mechanisms by radically simplifying existing processes.

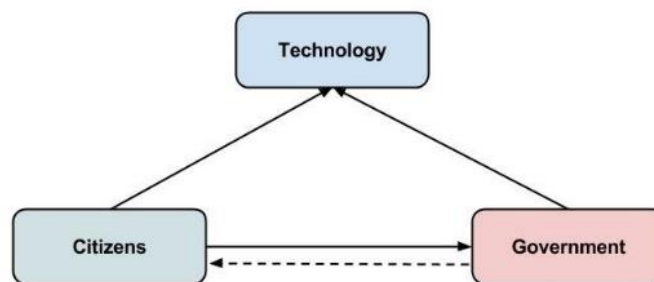


Fig. 2. The revised trust triad

The use of a single case is one of the key limitations of this paper. This has been partly necessitated by the general lack of projects where trust forms the basis of govern-

ance mechanisms and limited access to such e-Government projects. Future work in this area can look at other possible mechanisms for the production of trust in government and citizen relationship. Further, it is also possible to extend this theory by incorporating the role of other stakeholders in the trust triad. Some such important stakeholders are private implementation partners, other government departments and businesses.

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