

DEVELOPING TRUST RECIPROCITY IN ELECTRONIC- GOVERNMENT: THE ROLE OF FELT TRUST

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Abstract

At the present time, most people limit their use of government websites to downloading and printing forms while relying on other modes of communication (such as phone, face-to-face, and mail) for important transactions with the government. Many factors contribute to peoples' reluctance to use online government tools. Privacy and security concerns are often cited as the two major reasons for lack of trust and cited as an important impediment to increased utilization of e-government. Although many studies have examined users' trust in electronic media and examined information technology (IT) artifacts that can increase users' perception of website trustworthiness, no studies have examined the impact of "felt trust" on e-government, or even on electronic business (e-business) in general. In other words, no study has yet examined how IT artifacts on websites make users feel trusted by the government and how that in turn could affect website trustworthiness. This study attempts to fill that gap by analyzing feedback collected from participants in a field study using an online survey. The results demonstrate the importance of felt trust as another way to build trust in e-government.

Keywords: trust, felt trust, e-government, adoption.

1 INTRODUCTION

E-government is public managers' utilization of web technology within the public administration domain to facilitate the exchange of services between government and different stakeholders like citizens (Sharma & Gupta, 2003; Welch, Hinnant, & Moon, 2005). Filing taxes, passport renewal, and paying parking tickets are some of the applications of e-government services over the internet.

Although governments have invested heavily in e-government systems, citizens' adoption of e-government has been low and the majority of adopters use e-government only to look up information rather than engage in the full range of government services available (Webber, Leganza, & Baer, 2006). Many people fear that using e-government will make them vulnerable to identity theft and that governments may not use information they collect about citizens appropriately, such as sharing information with third parties without their consent. As a result, lack of trust has long been recognized as an influential impediment to adoption of e-government (Gefen, Pavlou, Warkentin, & Rose, 2002; Gefen, Rose, Warkentin, & Pavlou, 2005; Hung, Chang, & Yu, 2006; Lee, Braynov, & Rao, 2003; Wu & Chen, 2005). The literature on e-government adoption shows trust in e-government to have an impact on perceived usefulness (Gefen et al., 2005; Wu & Chen, 2005), ease of use and perceived risk (Gefen et al., 2002) and intentions to use (Bélanger & Carter, 2008; Lee et al., 2003)

Because trust is based on *interactions* between parties, it is inherently reciprocal in nature (Butler, 1991; Fox, 1974; Zand, 1972). However, most literature on trust over electronic media has assessed trust in a unidirectional manner only, such as studying the effect of IT artifacts on website

trustworthiness. No study has examined other sides of the trust relationship such as how IT artifacts on a website can promote felt trust (users' attitudinal belief that they are trusted) and how users' felt trust affects e-government trustworthiness. The relationship between users' felt trust and intentions to use e-government has also never been studied. This paper addresses the following research questions:

- What is the impact of an individual's felt trust on his/her trust in e-government?
- What is the impact of an individual's felt trust on his/her intentions to use e-government?

2 LITERATURE REVIEW

2.1 Theoretical background

Examining the different trust frameworks in the literature has revealed a variety of categorizations. For example, trust can be studied in a cross-sectional sense by examining the characteristics of referent trustees at certain points in time and it can be studied in a longitudinal sense by examining relationships with trustees over time in what is termed "characteristic based trust" or "relational based trust" (Dirks & Ferrin, 2002; Lines, Selart, Espedal, & Johansen, 2005). Lewis & Weigert (1985) and McAllister (1995) showed that cognitive based trust is built on proof/evidence while emotional/affective based trust is formed by establishing a relational bond with a trustee, irrespective of perceived outcome. Upon examining all of these frameworks it becomes evident that cognitive based trust is similar to character based trust in which the trustor examines trustworthiness attributes of the trustee, while emotional based trust is the same as relational based trust, in which trust is the outcome of the interaction history and bond established with the trustee.

Another framework categorizes trust according to the size of trustee (i.e., interpersonal vs. general) and hierarchy. Fox (1974) distinguishes between horizontal and vertical trust in the following sense: horizontal trust is between peers or equals, whereas vertical trust is between those who are not equal with respect to their relative power or influence (such as employees and employer). In addition, Powell & Heriot (2000) defined holistic trust as "that generalized assumptive trust we hold in our societal institutions and culture," whereas dyadic trust is defined as "an individual's regard of another individual as cooperative, reliable, honest, and altruistic" (p. 388).

Researchers within the field of public administration tried in the 1970s to explain what trust in government stood for. At that time, the Citrin-Miller debate tried to unravel the mystery of people's evaluation of "trust" in government. Miller (1974) argued that people's general evaluation of government followed a holistic view. Individuals' level of trust in government reflected their evaluation of system performance and regime legitimacy. On the other hand, Citrin (1974) challenged that perception by showing that trust in government was a sign of people's evaluation of the incumbent leaders' and other individuals' (e.g. politicians') performances. Even people who did not trust the government still believed that the system was legitimate (Citrin, 1974). Studies conducted by Maeda & Miyahara (2003), Ulbig (2002), Miller & Borrelli (1991), Rahn & Rudolph (2005), and Rafalowska (2005) all corroborated Citrin's (1974) conclusions.

Thus, generally speaking, trust in "government" is dyadic (i.e., citizens evaluate *officials* working for the government, not the overall system), vibrant (i.e., it fluctuates with time), and contingent on citizens' evaluations of officials' trustworthiness attributes. It can also be classified as a vertical type of trust due to the hierarchical nature of the government-citizen relationship. By the same token, users' level of trust in "e-government" reflects their evaluation of government officials responsible for developing, maintaining, and monitoring the information system consistent with Freidman, Kahn, & Howe (2000) emphasis on people behind the technology when it comes to virtual trust, not the technology itself.

Hence, the difference between trust in “government” and trust in “e-government” is the reference point. Trust in “government” is based on the trustworthiness attributes of public servants who operate front-end offices and interact directly with the people. Conversely, trust in “e-government” is based on trustworthiness attributes of public servants who are not visible to the public eye, those who run the e-government information system operations. A key distinction between public servants working in government and those working in e-government lies in their level of visibility and direct contact with the public, which in turn influences how much the public trusts them.¹ Nevertheless, one can influence the other, as we shall discuss later.

Trust in this paper is defined as an attitude shaped by evaluating e-government trustworthiness attributes, following scholars in the Information Systems discipline (Gefen, Karahanna, & Straub, 2003; Wang & Benbasat, 2005). Trustworthiness dimensions are trustees’ (i.e., e-government’s) perceived attributes that the public finds to be beneficial thereby warranting their trust (McKnight, Choudhury, & Kacmar, 2003). With definitions adapted from Mayer, Davis, & Schoorman (1995), the most salient dimensions when considering trust are: 1) ability defined as those skills that e-government has that enables it to perform its tasks in serving the public, 2) benevolence defined as the degree to which the public believes that e-government wants to help them, and 3) integrity defined as the degree to which the public believes that e-government adheres to certain standards and principles that the public finds acceptable.

An important concept in the trust literature is trust transference. When not enough information is available to assess trust, individuals count on proof sources to transfer trust between “known” and “unknown” parties (Doney, Cannon, & Mullen, 1998). Individuals use information furnished by the “known” party to predict how the “unknown” will behave. For example, Koufaris & Hampton-Sosa (2004) found that users’ level of familiarity with a company in the offline world shaped their level of trust in that company’s website that users did not know much about. That is, information that users had about company trustworthiness influenced their trust in the company’s website. As mentioned earlier, individuals are more familiar with government operation as opposed to e-government procedures due in part to government visibility and interaction history with these individuals. Thus as users evaluate e-government’s trustworthiness they in part rely on their personal experience with offline government. Put differently, they recall their experiences with public servants in the offline world to support their assessment of public servants trustworthiness in the online world. Therefore:

Hypothesis 1: Trust in government (offline) is positively related to trust in e-government.

In this study, for the *first time* in the e-government trust literature, we introduce **Felt Trust** as another construct that influences trust in e-government. We have adapted a definition of felt trust by Deutsch-Salamon (Unpublished dissertation): *a citizen’s perception of e-government’s general evaluation of the citizen’s trustworthiness attributes, as displayed through the design elements and processes of the website*. In other words, felt trust is the degree to which an individual believes that government (or e-government) trusts him/her. Many studies have shown that felt trust influences individuals’ trust in government, organizations, and employers (Braithwaite, Braithwaite, Gibson, & Makkai, 1994; Carnevale, Unpublished dissertation; Deutsch-Salamon, Unpublished dissertation; Fox, 1974; Lester & Brower, 2003; Levi & Stoker, 2000; Lines et al., 2005; McCauley & Kuhnert, 1992; Peel, 1995; Pettit, 1995; Deutsch-Salamon & Robinson, 2008). This study extends this line of research by examining the influence of felt trust on trust in an e-government context.

Deutsch-Salamon (Unpublished dissertation) identified theories supporting the relationship between felt trust and trust. Social exchange theory developed by Blau (1964) postulates that people seek balance in their exchanges with each other, thus eliminating dissonance or stress caused by

¹ For example, citizens’ level of trust in Vancouver Police is not conceptually the same as citizens’ level of trust in Vancouver Police website because those employed to “serve and protect” are not the same as those hired to administer the website. They have different goals, skills, and ways to serve the public.

imbalanced relationships. Stress caused by imbalanced relationships may appear in the form of debt or lingering obligation as a result of inability to reciprocate equally in a relationship. People avoid being in debt through equal reciprocation, or else risk losing the relationship. In other words, consistent with the norm of reciprocity developed by Gouldner (1960), a person who seeks benefits and receives them from the provider feels obligated to return benefits if they are sought by the provider, depending on the receiver's interest in maintaining a relationship (social association) with the provider.

Hence, if a user thinks that e-government trusts him/her, then he/she will be more likely to reciprocate that trust in e-government when it asks for it. People tend to reciprocate trust because, according to the view being advanced here, they seek balance in a relationship (e.g., they do not want to take advantage or be taken advantage of in a relationship).

Hypothesis 2: Felt trust by e-government is positively related to citizen's trust in e-government.

Trust in e-government and felt trust by e-government have something in common but differ conceptually. Both trust and felt trust by e-government are attitudes held by the perceiver (in this case, the user of e-government). Thus, it is the *user* who places trust in e-government and the *user* who thinks that he or she is being trusted by e-government. However, they diverge in terms of the object of trust. E-government attributes are the object of trust in e-government while it is the user's attributes that are the object of felt trust by e-government.

As we argued for Hypothesis-1, users who perceive felt trust by e-government but cannot assess whether this felt trust is genuine or not can rely on other sources to make that assessment, consistent with the line of argument in Doney et al. (1998) regarding trust transference. That is, users who feel trusted by e-government will reflect on their experience with government in the offline world to validate their judgement. If users find evidence that e-government is replicating what the government is doing offline, then users will most likely conclude that e-government's trusting actions are sincere, lessening any ambiguity surrounding e-government's true intentions. In other words, users' attitude about government in the physical world helps shape their attitudes about government in the virtual world.

Hypothesis 3: Felt trust in government (offline) is positively related to felt trust by e-government.

Trust in government is conditioned upon how the government treats its citizens (Kim, 2005). Levi (1998) argued that a government that trusts citizens helps restore or build trust. Other studies showed that people participate more in politics, voluntarily comply with regulations and rules, and trust the government more when they feel they are being trusted (Yang, 2005). Citizens break the rules or attempt to break them (e.g., avoid paying taxes), distrust and dislike the government and even resent officials when they sense they are being distrusted (Braithwaite et al., 1994; Levi & Stoker, 2000; Peel, 1995; Pettit, 1995). Thus, consistent with Social exchange theory (Blau, 1964) and the norm of reciprocity (Gouldner, 1960) and supported by the empirical results referred to earlier that substantiate the relationship between felt trust and trust in the offline world, we argue that the extent to which individuals feel trusted by government influences their evaluation of government trustworthiness.

Hypothesis 4: Felt trust in government (offline) is positively related to trust in government (offline).

Most research on the adoption of e-government is rooted in theories derived from theory of reasoned actions (TRA) developed by Fishbein & Ajzen (1975) in which object beliefs (information that one has about an object by linking that object to an attribute) form attitudes toward that object. Attitudes form intentions to engage in different behaviours with respect to that object. Since we conceptualize both trust and felt trust by e-government to be attitudinal beliefs and consider use of e-government to be a behaviour, we propose that both trust and felt trust in e-government can affect intentions to use e-government. However, the specific attitudes involved for trust and felt trust differ.

In the case of trust, having a trusting attitude towards the e-government is likely to lower the perceived negative outcomes and perceived complexity of engaging in online activities with e-government. Therefore, we pose a positive relationship between trust in e-government and intentions to use e-government:

Hypothesis 5: Trust in e-government is positively related to intentions to use e-government.

In the case of felt trust, we propose that its influence on usage intentions is partially mediated by trust in e-government. Our reasoning is based on social exchange theory (Blau, 1964) and the norm of reciprocity (Gouldner, 1960). Specifically, when individuals feel trusted, they will tend to respond in a way that balances the exchange taking place. The simplest, most direct response to balance trust bestowed is to give trust in return, hence the relationship between felt trust in e-government and trust in e-government posed earlier, in Hypothesis-2. However, the scope of possible responses is broader than this because feeling trusted could result in a positive 'halo' effect. That is, the user could reciprocate felt trust not just by bestowing trust in return (forming an attitude) but also by engaging in a behaviour that is desired by the party who bestowed trust, such as using the e-government website. Hence, in addition to the relationship between felt trust and trust in Hypothesis-2, we also pose a positive relationship between felt trust by e-government and intentions to use e-government:

Hypothesis 6: Felt trust in e-government is positively related to intentions to use e-government.

Figure-1 shows the theoretical model used in this study.

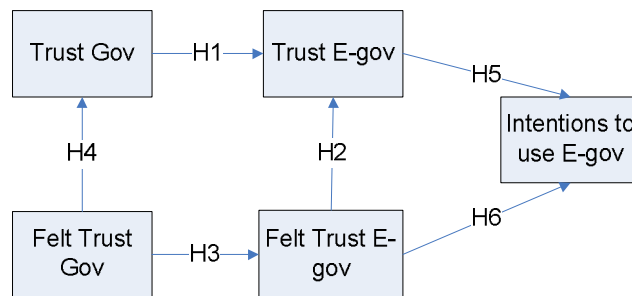


Figure 1. Theoretical model

3 METHODOLOGY

According to Carnevale & Wechsler (1992), three ways can be used to assess trust reciprocation:

- 1) The inferential approach when researchers infer trust reciprocation by observing the trustor's and trustee's behaviours,
- 2) The experimental approach using game theory and measuring output of interactions between trustor and trustee, or
- 3) The direct approach where trust reciprocity is measured through self report surveys.

We find the third approach (survey) to be the most suitable data collection option for this study because our unit of analysis is users (citizens) of e-government. In addition, it would be very hard to monitor government and citizens' behaviour or interaction output over e-government websites.

3.1 Measurement

Items for trust in government and e-government were adopted from McKnight, Choudhury, & Kacmar (2003). Items for felt trust constructs (i.e., felt trust government and e-government) were modified by switching the subject with the object in trust in government and e-government items (e.g., Canada's government is trustworthy vs. Canada's government considers *me* trustworthy). All items utilize a 7-point Likert scale (strongly disagree to strongly agree) and are included in the Appendix.

3.2 Procedure

The study was carried out online by a marketing research company that randomly selected and invited subjects who met the criteria we specified (i.e. Canadian residents over 19 years of age) for the sample size we needed (250 participants). Invitations were worded by company's professionals and sent via email. Their team conducted extensive research in the past on designing invitations in a way that optimizes response rates without increasing self-selection bias. There were about 375,000 subjects in the potential subject pool and 275 were randomly selected and invited². Invited participants were not professional survey takers (i.e. members of multiple panels across different companies). Two hundred and fifty four subjects participated in our study. Thirty-five percent of the participants were females. Most participants ranged in age from 36 to 45, had an average annual income of CDN 40K to 55K worked full time, and held college degrees. Participants' demographics are relatively similar to those obtained by surveys carried out by research companies (e.g. Forrester Research, Inc) and Stats Canada with regard to Canada's e-government websites usage (i.e. average age between 39 and 42, annual income between CDN 46K and 59K, employed full time, and graduated from college).

Participants viewed snapshots and a video clip of Service Canada website, a single-window access to government's online services for citizens. They then answered questions pertaining to that website. On average, it took participants about 30 minutes to answer the survey and view the message enclosed in the video clip. Participants received 50 electronic points for completing the survey, which are redeemable for merchandise on the marketing research company website. The incentives offered by the marketing research company was set after asking members of the subject pool to share their thoughts about what constitutes fair compensation for their time and thus the incentives should have not influenced the type of people who agreed to participate in our study.

The threat of self-selection bias that we did not control for was language. The survey was worded in English and a few participants voiced their discomfort about not being able to take the survey in a language of their preferences (e.g. French). Nonetheless, these participants were not different from other participants in terms of response patterns.

4 RESULTS

Structural Equation Modelling (SEM) employing Partial Least Square (PLS) analysis was conducted using SmartPLS 2.0(M3) Beta (Ringle, Wende, & Will, 2005). SEM assesses the measurement and structural models simultaneously thus running factor analysis and hypothesis testing at the same time (Gefen, Straub, & Boudreau, 2000). PLS was used rather than covariance-based SEM because it is particularly appropriate for exploratory theory-testing research (Gefen et al., 2000).

² The marketing research company invites 10% more than the required sample size to guarantee the number of participants sought

4.1 Measurement Model

To test the measurement model, we assessed both convergent and discriminant validities. Convergent validity was supported after examining Cronbach's alpha, composite reliabilities, Average Variance Extracted (AVE), and item loadings which all exceeded the recommended threshold values (0.70 for composite reliabilities (Fornell & Larcker, 1981), 0.70 for Cronbach's alpha, 50% for Average Variance Extracted (AVE), and 0.707 for items loadings (Hair, Black, Babin, Anderson, & Tatham, 2006)), as shown in tables 1 and 2.

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
FTEG	0.91	0.94	0.79
FTG	0.92	0.94	0.81
INT	0.96	0.97	0.92
TEG	0.93	0.95	0.82
TG	0.94	0.96	0.86

Table 1. Internal validity figures

	FTEG	FTG	INT	TEG	TG
FTEG3	0.841				
FTEG1	0.852				
FTEG4	0.932				
FTEG2	0.937				
ftg1		0.878			
ftg3		0.895			
ftg2		0.898			
ftg4		0.928			
Int1			0.934		
Int3			0.968		
Int2			0.977		
TEG3				0.873	
TEG2				0.900	
TEG4				0.918	
TEG1				0.939	
tg2					0.919
tg3					0.921
tg1					0.922
tg4					0.937

Table 2. Measurement item loadings

To establish construct discriminant validity, Fornell & Larcker (1981) state that the square root of Average Variance Extracted (AVE) needs to be higher for that construct than its correlation with other

constructs. The inter-construct correlation matrix is illustrated in table-3 with square root of Average Variance Extracted (AVE) presented in bold.

	FTEG	FTG	INT	TEG	TG
FTEG	0.892				
FTG	0.495	0.900			
INT	0.366	0.165	0.960		
TEG	0.656	0.340	0.547	0.908	
TG	0.356	0.519	0.299	0.489	0.925

Table 3. Correlation matrix

4.2 Structural Model

Nomological validity is assessed through standardized path coefficients and t-values produced by SmartPLS (Ringle et al., 2005). The standardized path coefficients shown in figure-2 indicate the relative strength of the statistical relationships (Gefen et al., 2000).

As illustrated by figure-2, all hypothesised relationships were significant ($p < 0.001$) except for the one between felt trust e-government and intentions to use e-government. Only trust in e-government had a direct impact on intentions to use e-government ($\beta = 0.538$, $p < 0.001$) explaining almost 30% of the variance in intentions to use. This result refutes our claim of partial mediation in Hypothesis-6. It suggests instead that users reciprocate felt trust simply by bestowing trust in return. That is, the effect of felt trust on usage intentions is fully mediated by trust in e-government. Figure-2 also indicates that felt trust by e-government has a larger affect on trust in e-government as opposed to trust in government in the offline world ($\beta = 0.552$, $p < 0.001$ compared to $\beta = 0.293$, $p < 0.001$ respectively). Both together explained 50% of the variance of trust in e-government.

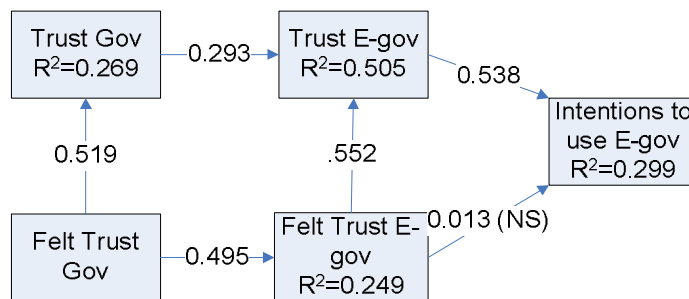


Figure 2. Structural model path coefficients (β)

Hypothesis Testing Results		
H1	Trust in government in the offline is positively related to trust in e-government.	Supported
H2	Felt trust by e-government is positively related to trust in e-government.	Supported
H3	Felt trust in government in the offline is positively related to felt trust by e-government.	Supported
H4	Felt trust in government is positively related to trust in government.	Supported
H5	Trust in e-government is positively related to intentions to use e-government.	Supported
H6	Felt trust in e-government is positively related to intentions to use e-government.	Not Supported

Table 4. Results summary

5 CONCLUSION

Past literature on trust in online service providers focuses on the role of trust in website adoption and mechanisms that can increase that trust. Despite empirical evidence that shows the influence of individuals' felt trust on trust and trusting behaviour in the offline world, felt trust has not been examined over the electronic medium (such as in e-government) nor examined together with trust and trusting behaviour in the same model. This study aimed to explore the applicability of felt trust over e-government and decipher the relationship between felt trust, trust, and behavioural intentions.

5.1 Implications for Theory & Research

Our empirical results demonstrate the relevance of "felt trust" over e-government. The results also support the contention that "trust" as a commodity is not only exchanged in face-to-face interactions but is also exchanged in the virtual world where parties are not visible to one another. Participants in our study distinguished between felt trust by e-government and felt trust by government as demonstrated by the convergent and discriminant validities of these constructs.

Moreover, the study provides empirical evidence of the relationships among felt trust by e-government, trust in e-government, and intentions to use e-government websites. The findings indicate that felt trust by e-government is a significant factor in the nomological network of government websites adoption. However, its role on adoption intentions is fully mediated by trust in e-government. In other words, being trusted by e-government does not directly instigate intentions to use its website. Rather, it augments users' faith in e-government trustworthiness. Only when users perceive e-government to be trustworthy will they intend to use its website.

5.2 Implications for Practice

The results of this study are ground-breaking because they suggest another way to build trust in e-government. Felt trust by e-government can now be regarded as an important way to build trust in e-government websites beyond the conventional mechanisms currently used to attain this goal. Bestowing trust upon users can be demonstrated through different web IT artifacts and processes and these artifacts and processes can, in turn, invoke users' reciprocal trust. Improving perceived e-government trustworthiness should explicate the adoption problems faced by many public managers who champion online initiatives to be devastated later by low adoption rates.

To illustrate the design implications of felt trust, consider the design of e-government websites. Such websites can have mechanisms that enable users to give suggestions to government officials (such as surveys and comments boxes) and that enable government officials to show how they acted on users' suggestions (such as frequently asked question pages). Adapting arguments by Zand (1972) and McKnight, Choudhury, & Kacmar (2000), such mechanisms are likely to convey designers' trust in users, thus increasing users' perception of felt trust. Our results suggest that this increase in felt trust will in turn lead users to have greater trust in e-government websites.

5.3 Limitations and Suggestions for Future Research

One of the limitations of this study was not including factors that were empirically shown to explain technology adoption such as Davis' (1989) Technology Acceptance Model constructs (i.e. perceived usefulness, perceived ease of use), Ajzen's (1985) Theory of Planned Behavior constructs (i.e. subjective norms, and perceived behavioral control) and other control factors (e.g. users level of innovativeness, satisfaction, etc). We intend to include these constructs in future research.

Future research also needs to identify the full range of mechanisms that can be used on websites to increase users' felt trust. Such work will enable researchers to provide practical advice to designers of

e-government websites and perhaps e-business websites in general. It will also enable researchers to test the causal link between felt trust and trust, which could not be achieved in this cross-sectional, survey-based study. Only through experiments can the causal link between felt trust and trust be tested. This endeavour is outside the scope of this study and shall be left for future investigations.

It is noteworthy that other antecedents could have played a role in building trust in e-government that were not included in this study. For instance, reputation was found to have a significant positive impact on trust in online vendors and it is possible that it would have a similar effect in an e-government context (Corbitt, Thanasankit, & Yi, 2003; McKnight et al., 2003; McKnight et al., 2000; Pavlou, 2003). We plan to include trust in e-government antecedents in future studies that will also use multiple governments' websites. Nevertheless, we believe that our results are still valid in line of the exploratory nature of our work.

6 APPENDIX (SURVEY ITEMS)

Intentions:

If I have to deal with the Canadian government (e.g. find information, interact and/or transact with the government):

- I intend to use Canada's e-government websites.
- I am likely to use Canada's e-government websites.
- I will use Canada's e-government websites.

Felt Trust Government:

Generally speaking, the Canadian government considers me:

- fair in my dealings.
- competent in obeying its laws.
- a person who sincerely wants to help it.
- trustworthy.

Trust in Government:

Generally speaking, the Canadian government:

- is fair in its dealings.
- is capable of doing its job.
- sincerely wants to help me.
- is trustworthy.

Felt trust e-government

Canada's e-government considers me:

- a user who sincerely wants to help it.
- fair in my dealings.
- capable of using the different design features on its website.
- trustworthy.

Trust in E-government

Canada's e-government:

- is fair in its online dealings.
- sincerely wants to help me.
- is capable of delivering services online.
- is trustworthy.

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