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Misplaced Trust? Exploring the Structure of the E-Government-Citizen Trust Relationship

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ABSTRACT

A growing body of research focuses on the relationship between e-government, the relatively new mode of citizen-to-government contact founded in information and communications technologies, and citizen trust in government. For many, including both academics and policy makers, e-government is seen as a potentially transformational medium, a mode of contact that could dramatically improve citizen perceptions of government service delivery and possibly reverse the long-running decline in citizen trust in government. To date, however, the literature has left significant gaps in our understanding of the e-government-citizen trust relationship. This study intends to fill some of these gaps. Using a cross-sectional sample of 787 end users of US federal government services, data from the American Customer Satisfaction Index study, and structural equation modeling statistical techniques, this study explores the structure of the e-government-citizen trust relationship. Included in the model are factors influencing the decision to adopt e-government, as well as prior expectations, overall satisfaction, and outcomes including both confidence in the particular agency experienced and trust in the federal government overall. The findings suggest that although e-government

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may help improve citizens' confidence in the future performance of the agency experienced, it does not yet lead to greater satisfaction with an agency interaction nor does it correlate with greater generalized trust in the federal government overall. Explanations for these findings, including an assessment of the potential of e-government to help rebuild trust in government in the future, are offered.

INTRODUCTION

Over the last few years, a growing number of studies have examined the relationship between citizens' adoption and use of e-government and citizen trust and confidence in government (Bertot and Jaeger 2006; Furlong 2005; Khalil et al. 2002; Norris 2001; Parent, Vandebeek, and Gemino 2005; Tat-Kei Ho 2002; Thomas and Streib 2003; Tolbert and Mossberger 2006; Welch et al. 2005; West 2004). In many of these studies, e-government is regarded as a potentially transformational technological innovation, a mode of citizen-government contact that could improve the services delivered to citizens, boost citizen satisfaction with government, and possibly even help reverse the long-running decline in citizen trust in government. To date, however, the existing literature has left significant gaps in our understanding of the e-government-citizen trust relationship, as well as a number of other elements of citizen experiences with e-government. In fact, a recent review of the e-government literature found a general lack of statistical or empirical rigor and of formal testing of theory or robust model building (Norris and Lloyd 2006).

This study tests a model of citizen experience with government, with a particular emphasis on the link between e-government and trust and confidence in government. Using a cross-sectional sample of 787 end users of US federal government services (both online and off-line consumers of these services) from the American Customer Satisfaction Index (ACSI), this study examines the structure of the e-government-citizen trust relationship. Our conceptual and empirical models include factors determining the decision to adopt e-government, the prior expectations of consumers of government services, overall satisfaction, and outcomes including both confidence in the agency experienced and trust in the federal government overall. The findings suggest that although e-government appears to help *boost citizen confidence* in the future performance of the particular agency interacted with, it does *not lead to greater satisfaction with an agency interaction nor does it drive greater trust in federal government overall*. We offer explanations for these findings, including an assessment of the potential of e-government to help rebuild trust and confidence in government in the future, and the importance of e-government performance measurement and management.

LITERATURE REVIEW AND CONCEPTUAL MODEL

Literature Review

The relationship between e-government and trust and confidence in government is a topic of considerable interest (E-Government Act 2002; Furlong 2005; Khalil et al. 2002; Lucas 2008; Norris 2001; Parent, Vandebeek, and Gemino 2005; Tat-Kei Ho 2002; Thomas and Streib 2003; Tolbert and Mossberger 2006; Welch et al. 2005; West 2004). Most of the studies that focus on this topic investigate an important question: Can the proliferation of e-government as a mode of citizen contact and interaction with government help to improve citizen trust and confidence in government? The interconnected set of propositions or

causal mechanism motivating these inquiries is straightforward: Trust in government (in the United States as well as many other Western democracies) has been mostly on the decline since the 1960s (Nye 1997); one factor contributing to this decline is a perception of diminished government performance, particularly as it pertains to delivering services to citizens (Orren 1997; Peters 1999); e-government holds the potential for improved service delivery to citizens (Chadwick and May 2003; E-Government Act 2002); and *ergo*, the development and increasing use of e-government may improve citizen trust in government. Put differently, this causal mechanism suggests "that the use of government Web sites may lead to positive attitudes toward e-government, which, in turn, may encourage improved trust or confidence in government generally" (Tolbert and Mossberger 2006, 358).

The results and conclusions of these studies—at least those that formally test these propositions—have been mixed, with researchers expressing varying opinions on the ability of e-government to actually build citizen trust and confidence in government. Some have found reason for considerable optimism regarding the trust-transforming potential of e-government. In a study of e-government implementation in Canada analyzing a multiyear sample of citizen perceptions of Canadian e-government Web sites, for example, Furlong (2005) found that e-services appear to provide citizens with a more satisfying experience. As a consequence of this higher satisfaction, the author found that "the government of Canada can state, based upon quantitative data, that e-services do enhance citizen trust by providing a more satisfying user experience" (Furlong 2005, 65).

Similar to the findings from Canada, but utilizing a sample of citizen perceptions of experiences with e-government Web sites at the state and federal levels in the United States—a sample of 806 respondents collected in 2001 by the "Council for Excellence in Government"—Welch et al. (2005) found a positive association between satisfaction with government Web sites and trust in government. Based on these findings, the authors suggest that "those individuals who are more satisfied with e-government and government Web sites also trust the government more and those individuals who trust government more are also more likely to be satisfied with e-government" (Welch et al. 2005, 387).

A few studies report less positive results, or present results that partially support and partially undermine the linkage between e-government and increased trust in government. Using a 2001 sample of 815 e-government Web site users from the "Pew Internet and American Life Project," Tolbert and Mossberger (2006) found that although e-government is positively related to trust in local government through perceived process and transaction improvements, no such benefits are yet enjoyed by the federal or state governments. The authors suggest that this finding may have several explanations: "Perhaps it is the nature of local government and its proximity to citizens that leads them to place greater value on improved interactions with local government. . .. Distrust of federal government may be so high that even more positive attitudes toward e-government at that level do not influence these more generalized feelings" (Tolbert and Mossberger 2006, 366).

Finally, some researchers have failed to find any significant empirical link between e-government and trust or confidence. Using a data set of 418 users of e-government Web sites from 2000, also from the "Council for Excellence in Government," West (2004) discovers "no significant relationship between visiting federal government Web sites and views of trust, confidence, or government effectiveness" (22). Nevertheless, because e-government is still in its developmental phase, West remains optimistic about the future potential for e-government to help build or rebuild trust and confidence, highlighting

"e-government's ability to transform public-sector service performance, democratic responsiveness, or citizen trust in government *over the long term*" [italics ours] (24).

Although existing management information systems literature (see Ba and Pavlou 2002; Mithas, Jones, and Mitchell 2008; Mithas et al. 2006–07; Pavlou and Gefen 2004; Stewart 2003; Warkentin et al. 2002) that deals with trust and related issues in the context of e-commerce provides additional insight and a foundation for future research, and recognizing that all this literature is relatively new (and like e-government itself, still developing), existing studies have left significant gaps in our understanding of this relationship. Some of these shortcomings emanate from the data analyzed, whereas others are methodological in nature. For example, the literature has primarily examined a small number of variables surrounding the e-government end-user experience—primarily perhaps because of limitations of existing data. Further, because most of these studies are based on data collected primarily in the very early 2000's, these findings need to be revisited, given the rapid changes e-government has experienced in just the last few years.[1] The literature has also tended to analyze samples drawn only from the e-government user population, thereby preventing cross-sectional subgroup analysis of citizens that did and did not adopt e-government and the differences in these groups' experiences. Additionally, many of these studies have examined trust and confidence without differentiating among the different types of trust that citizens can hold and that might be impacted by the e-government experience.

Finally, and perhaps most importantly, the literature has tended to examine the various aspects of citizens' e-government experiences in isolation (i.e., as independent regression equations), ignoring the intrinsic complexities and the large number of potential relationships among variables. Yet, as in most citizen experiences, the full range of e-government user perceptions and attitudes are likely to exhibit characteristics and interrelationships that call for a more complex, structural approach to analysis. In short, more recent and more robust data, and more dynamic types of statistical tools, could greatly expand our existing knowledge of citizen experiences with e-government generally and the relationship between e-government and citizen trust and confidence specifically.

Although an interesting endeavor in its own right, broadening our understanding of citizen experiences with e-government by utilizing more robust models and more comprehensive data extends beyond mere academic curiosity. E-government has already become, it is fair to say, more than just one among many relatively equal modes of citizen contact with government. At the federal level in the United States, e-government has been "officially" advocated in legislation like the Clinger-Cohen Act and the E-Government Act (EGA), statutes that mandate the accelerated adoption and integration of IT generally and e-government specifically (E-Government Act 2002; Holmes 2006). In fact, the 2002 EGA identifies e-government as the channel through which *all* applicable federal government services will soon be offered. What is more, it seems clear that the administration of President Barack Obama is pursuing e-government far more aggressively than his predecessors, highlighting the importance of a more complete and nuanced understanding of the potential advantages of e-government to the future of government service delivery (Gross 2008).

1 For instance, all the studies of US e-government users mentioned above use data collected prior to passage of the 2002 E-Government Act, the single most important piece of legislation driving e-government development in the United States.

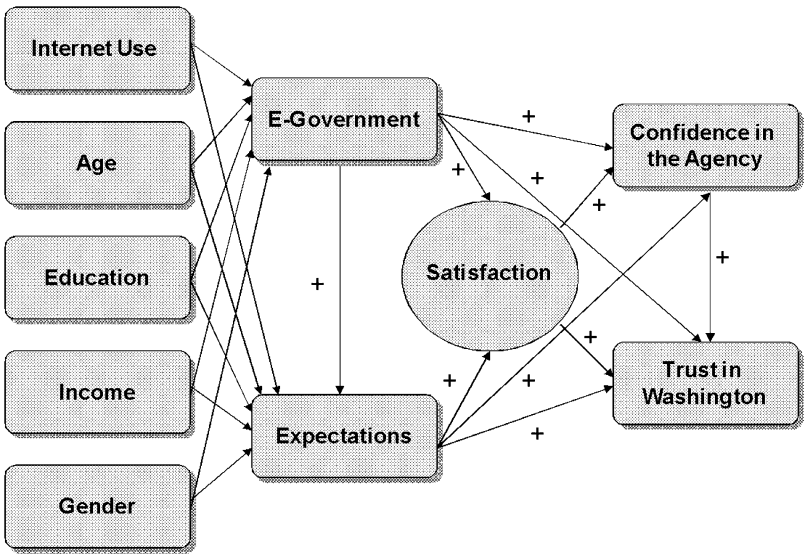
A Model of Citizen Experience with Government and e-Government

The marketing discipline has developed a host of theoretical models aimed at explaining consumer attitude formation (Bearden and Teal 1983; Cadotte et al. 1987; Churchill and Surprenant 1982; Fornell et al. 1996; Oliver 1980; Parasuraman, Berry, and Zeithaml 1991). Many of these models have been adapted and applied to government and used to investigate the formation of citizen attitudes regarding this subset of services (Donnelly et al. 1995; Fornell et al. 1996; Fornell et al. 2009a, 2009b; James 2009; Poister and Henry 1994; Van Ryzin et al. 2004b). Given the fact that many of these theoretical models have been well tested and validated, they can serve as useful guides in understanding citizen satisfaction, trust, and confidence with government as a whole and e-government specifically and in building a model that accurately reflects these experiences.

In what follows, we begin by defining the concepts of interest in our study and propose a model of the hypothesized relationships among these concepts, relying on the theoretical foundations of earlier studies and focusing specifically on the relationships between e-government (i.e., mode of contact with government), citizen satisfaction, and trust and confidence. Although driven in part by the data at our disposal, we suggest that the following model, shown below in figure 1 (which includes hypothesized relationships on the path coefficient arrows), captures the core features of citizen experiences with government and e-government as they relate to citizen confidence and trust.

The first substantive variable in our model is the citizen's decision to adopt e-government as a channel for interacting with government, as opposed to traditional (i.e., off-line) modes of contact (e-GOVERNMENT in figure 1). Several theoretical models have been proposed to explain the adoption and proliferation of e-government (and more generally, new technologies) among consumers, including the "diffusion of innovation"

Figure 1
A Conceptual Model of E-Government, Citizen Satisfaction, and Trust



(DOI) model and the "technology acceptance model" (TAM) (Carter and Belanger 2005; Dimitrova and Chen 2006). Although differing to some degree, these models—and previous empirical studies—suggest that certain groups of citizens are more likely to adopt e-government, including younger, better educated, and higher income citizens (Carter and Belanger 2005; Dimitrova and Chen 2006; Montoya-Weiss et al. 2003; Warkentin et al. 2002; Welch et al. 2005). As such, we include these three demographic characteristics, along with gender, as both model control variables and determinants of e-government adoption (AGE, EDUCATION, INCOME, and GENDER in figure 1). Furthermore, both the DOI and TAM models postulate, and prior research has found, that "compatibility" with a technological medium—that is, using the same technology for distinct purposes—will increase the likelihood a technology will be adopted for other purposes (Carter and Belanger 2005). Similarly, we hypothesize that recent Internet usage for purposes besides e-government (INTERNET USE in figure 1), such as purchasing goods and services online (i.e., Internet usage for e-commerce purposes), will increase the likelihood that a citizen will adopt e-government.

Furthermore, we include prior expectations of government services, that is, the quality or performance citizens anticipate receiving from a service encounter, in the model (EXPECTATIONS in figure 1). A considerable body of theoretical literature suggests a connection between expectations of performance prior to an experience—expectations which tend to frame the consumer's experience by providing a basis for comparative judgment—and a range of resultant perceptions of that experience across diverse contexts, including the provision of government services (Brown and Coutler 1983; Fornell et al. 1996; James 2009; Oliver 1980; Van Ryzin et al. 2004a, 2004b). In the model, we hypothesize that citizens' prior expectations will be determined by individual user characteristics, the same array of factors that influence citizens to select e-government discussed above. We also position e-government as a determinant of expectations and hypothesize a positive effect between e-government adoption and expectations. Our justification for this hypothesis is founded in the a priori assumption that the volume of positive "buzz" surrounding e-government will influence its users to form higher expectations than other users of government services (McGuire 2009).

Additionally, we include satisfaction as a central mediating variable in the model (SATISFACTION in figure 1). Undeniably, satisfaction represents the predominant concept in contemporary marketing research. Likewise, studies of citizen satisfaction with government services, including e-government, have become ubiquitous in recent years, corresponding roughly to the increased focus on government providing "citizen-centric" services (Callahan and Gilbert 2005; James 2009; Morgeson forthcoming; Morgeson and Mithas 2009; Roch and Poister 2006; Van Ryzin et al. 2004b; Welch et al. 2005). Although different measures of satisfaction have been developed, if measured as a cumulative concept (rather than a transactional one) it is typically employed to reflect the sum total of the consumer's sense of fulfillment with his or her experience. In most models, therefore, satisfaction is positioned as the key mediating variable between core consumer characteristics and attitudes and their resulting (or future) perceptions and behaviors (Fornell et al. 1996).

Within the model, we position both e-government and expectations as determinants of satisfaction. A positive relationship between expectations and satisfaction has been found across a range of different types of consumption experiences, including government services, as should be the case if expectations tend to frame the consumer's perceptions of their

actual experiences (DeHoog, Lowery, and Lyons 1990; Fornell et al. 1996; James 2009; Kelly and Swindell 2002; Roch and Poister 2006). Moreover, we propose a positive relationship between e-government and satisfaction, with e-government users expressing significantly higher satisfaction than off-line users. Given that e-government has been pursued as aggressively as it has in part because it is thought to provide a means for government to emulate the private sector and deliver high-quality services to citizens through a more satisfying, citizen-centric, and "reinvented" government experience, this hypothesized relationship follows (Morgeson and Mithas 2009; Tolbert and Mossberger 2006).

The model outlined above builds on existing applications in the literature pertaining to both private sector and government consumers. However, the role of citizen trust or confidence and their location in such a model, and even what these concepts entail in the first instance, are more complicated issues. These complications are exacerbated by the fact that our knowledge of the mechanisms by which trust and confidence are created (or diminished) by citizen contact with government institutions is limited (Thomas 1998; Tolbert and Mossberger 2006). Given these limitations, we must specify in advance what is intended by these concepts and the rationale for their positioning within the model.

In our model, we include two distinct perspectives on trust and confidence in the federal government, what we term *generalized* and *particular* notions of political trust. Starting with the lower right-hand side of the model, we include a measure of trust in the federal government in Washington overall (TRUST IN WASHINGTON in figure 1). This generalized, high-level perspective on citizen trust, which focuses on citizen perceptions of the entirety of the institutions of the federal government in Washington, is the dependent variable in most extant studies that examine the relationship between e-government and citizen trust, at least those examining the phenomenon at the federal level (Tolbert and Mossberger 2006; Welch et al. 2005; West 2004). The second notion of trust included in the model is a measure of the respondent's confidence that the particular federal agency experienced will do a good job providing services in the future (CONFIDENCE IN THE AGENCY in figure 1). Thus, rather than looking at generalized citizen trust in the broad construct "the federal government," this more particular perspective on confidence focuses on *the specific agency experienced* and the citizen's confidence that *that agency* will do a good job delivering services in the future.

In the model, we identify three determinants of the measure of confidence in the agency experienced. First, we hypothesize that those citizens who experienced an agency through e-government will indicate greater confidence in the agency than citizens who experienced the agency through alternative means. Consistent with other research, this hypothesis stems from the idea (sometimes termed the "entrepreneurial" perspective on e-government) that e-government reflects a more efficient, more citizen-oriented mode of contact that offers stronger service quality and satisfaction and is therefore likely to increase trust and confidence in government (Tolbert and Mossberger 2006). Furthermore, both expectations and satisfaction are hypothesized to positively predict confidence in the agency experienced as prior expectations are likely to frame perceptions of confidence in a manner similar to their framing of satisfaction and because higher satisfaction (i.e., a stronger sense of overall fulfillment with the experience) should logically lead to greater confidence in the agency in the future.

Finally, we posit four positive predictors of the generalized measure of trust in Washington. For essentially the same reasons outlined above, we hypothesize positive

relationships between all e-government, expectations and satisfaction, and trust in the federal government. We also hypothesize a positive relationship between confidence in the agency experienced and trust in Washington. The reason for this relationship is that feelings about particular aspects or specific parts of an entity should influence perceptions of the entire entity, or as one author has stated, "institutions are also components of the government, so feelings about them should help explain political trust [in the government overall] as well" (Hetherington 1998, 793). Similarly, we suggest that experiences with particular agencies and confidence in those agencies based on those experiences will positively determine generalized trust in the federal government as a whole.[2]

DATA AND METHODS

Data

The data we use to test the model outlined above comes from the ACSI. As part of the broader goal of measuring customer satisfaction with the goods and services produced and consumed across the entire US economy, the ACSI measures satisfaction with federal government services (Fornell et al. 1996, 2005). The 2008 ACSI federal government data set includes a total of 1,467 respondents, all of whom indicated having some interaction with a federal government department or agency in the past year (excluding the US Postal Service). The data were collected in July and August of 2008. Random-digit dial probability sampling and multiple call-back/refusal conversion techniques were used to identify respondents and collect a sample as geographically and demographically representative as possible. Computer-assisted telephone interviewing was the interviewing method used.

Prior to interviewing, potential respondents were screened for recent personal experience with a federal agency before being determined eligible to participate. Respondents indicating contact with more than one federal agency over the prior 12 months were asked to identify and respond to the survey items in regards to the agency they contacted "most recently." Across the sample, interviewees identified a total of 55 distinct federal agencies or departments, ranging from the Department of Agriculture to the Department of Veteran's Affairs.[3] Further, respondents were asked to identify the medium through which they experienced the agency's services. Respondents who indicated having more than one interaction with the same agency through more than one method were asked to recall how their "most recent" interaction was conducted.

Table 1 shows the mode of contact by frequency indicated by the respondents in the sample. Three categories of respondent were removed from the sample prior to analysis: respondents who indicated "Received printed materials or brochures," "Received a check or a benefit," and "Other" as their mode of contact with an agency. The first two categories were removed because they were deemed to reflect a more "passive" type of interaction

2 Although we propose this relationship between particular confidence and generalized trust for our model, we do not reject the notion that generalized trust in the federal government may act as a *determinant* of several of these constructs, *rather than as an outcome*. Below, we test an alternative model that treats generalized trust in this way.

3 To prevent collection of a sample based primarily on just a few agencies or departments, a distinct possibility when some (e.g., the Internal Revenue Service) tend to dominate in terms of which agency citizens experience, the Internal Revenue Service, Social Security Administration (SSA), and Medicare were each capped at $n = 250$ completed interviews (for the full sample). These three agencies nevertheless comprise $n = 258$ of the analyzed sample or about 33%. Appendix 1 provides frequencies for the most often mentioned agencies in the sample.

Table 1
Mode of Contact Frequencies (Customer Contact Type)

	Frequency	Percent
Web site[a]	289	36.7
E-mail[a]	35	4.4
Phone contact[b]	249	31.6
Visiting agency site or office[b]	214	27.2
Total	787	100.0

[a]Categorized as "e-government."
[b]Categorized as "non–e-government."

with a government agency that may confound interpretation of our results. The third was removed because it is impossible to know whether these respondents should be classified as e-government or non–e-government. Thus, in our final sample, any respondent who contacted an agency through the agency's Web site or via e-mail will be classified as "e-government," whereas any respondent who contacted the agency via phone or face-to-face (i.e., visited an office) will be classified as "non–e-government."[4] In total, the eliminated cases account for $n = 680$ of the total sample, leaving us with an amended sample for analysis of $n = 787$.[5]

During the survey, respondents were asked a battery of questions about their experiences—generalized for maximum applicability across all potential types of agencies and interactions with the federal government—including questions about their prior expectations, satisfaction with the experience, confidence in the agency or department experienced, and overall trust in the federal government. Consistent with the methodology used by the ACSI for the private sector, multiple questions were asked regarding satisfaction—overall satisfaction, confirmation of prior expectations, and proximity to an ideal experience (Fornell et al. 1996). Survey questions, full question wording, and measurement scales can be found in Appendix 2. Descriptive statistics for all the variables—for the entire sample, and for the e-government/non–e-government subsamples separately—are included in tables 2 and 3.

The Satisfaction Construct

To test the conceptual model linking e-government, satisfaction, and trust in government illustrated in figure 1, we employ structural equation modeling (SEM) techniques.

4 Although "e-government" signifies more than just *citizen* contact with government via e-mail exchange or use of Web sites and also includes things like government-to-government interactions (such as e-procurement), government-to-business transactions, and enhanced democratic participation (e-democracy), for the purposes of this essay, we follow most of the existing literature and focus on these important aspects of e-government and groups of e-government users (Tolbert and Mossberger 2006; West 2004).

5 To test for systematic (i.e., nonrandom) differences in mode of contact that might impact the analysis that follows, such as differences in mode of contact correlated with *both* the specific agency contacted *and* satisfaction, we conducted several tests of difference. Although we do not report the results here, we found that, as expected, a small number of agencies/programs were contacted predominantly online, and a few others predominantly off-line, and that satisfaction sometimes differed across these groups. However, for most individual agencies/programs, only small differences were found. Most importantly, by removing the "received a check or a benefit" mode of contact from the sample, an off-line mode of contact which included a large number of respondents who experienced generally more satisfying benefits-delivering agencies (SSA, Medicare, and Medicaid), we eliminated the portion of the sample most likely to complicate our analysis.

Table 2
Descriptive Statistics for All Model Variables (Full Sample)[a,b]

	N	Minimum	Maximum	Mean	SD
Internet Use (yes = 1)	785	0.00	1.00	0.63	0.48
Age (years)	765	18.00	97.00	51.08	14.85
Education (years)	784	3.32	18.76	15.21	2.94
Income (thousands of dollars)	689	0.14	158.11	75.34	54.54
Gender (male = 1)	785	0.00	1.00	0.41	0.49
e-Government (e-government = 1)	787	0.00	1.00	0.41	0.49
Expectations	780	1.00	10.00	6.99	2.46
Overall Satisfaction (η1)	785	1.00	10.00	7.39	2.50
Confirmation to Expectations (η1)	775	1.00	10.00	6.67	2.55
Close to Ideal Agency (η1)	748	1.00	10.00	6.42	2.68
Confidence in Agency	780	1.00	10.00	7.06	2.69
Trust in Washington	764	1.00	10.00	4.27	2.26

[a](η1) = Observed variables included in the "Satisfaction" latent variable.
[b]For the Education and Income variables, accepted techniques were employed to transform the ordinal measures into interval measures, creating estimated means for each of the underlying bounded categories, as well as the highest unbounded (or "top-coded") category (Kasturirangan et al. 2007).

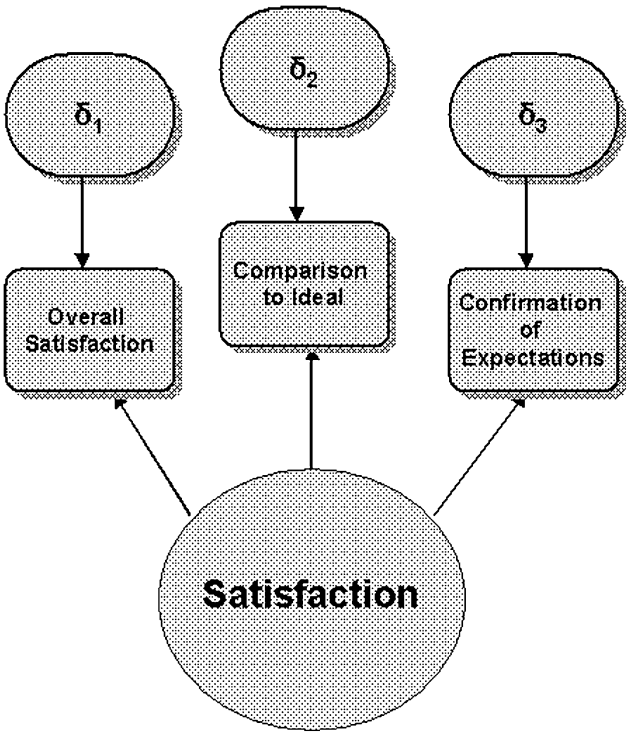
Although the presence of only a single latent variable in the model prevents some procedures common in SEM—such as preliminary model testing with exploratory and confirmatory factor analysis (EFA and CFA)—we begin by examining the properties of the single latent variable in the model, the satisfaction construct. This construct, measured as a reflective latent variable comprised of three manifest variables, is illustrated in figure 2.

Table 4 provides statistics for the construct, with unstandardized and standardized factor loadings (λ's), explained variance for each item (R^2), and a measure of construct validity (Cronbach's alpha).

Table 3
Descriptive Statistics for E-Government and Non–E-Government Samples

	E-Government			Non–E-Government		
	N	Mean	SD	*N*	Mean	SD
Internet Use (yes = 1)	323	0.79	0.41	462	0.51	0.50
Age (years)	314	47.95	12.92	451	53.25	15.70
Education (years)	322	16.02	2.23	462	14.64	3.23
Income (thousands of dollars)	283	86.43	51.34	406	67.61	55.43
Gender (male = 1)	323	0.43	0.50	462	0.39	0.49
Expectations	320	7.04	2.24	460	6.95	2.60
Overall Satisfaction (η1)	322	7.40	2.26	463	7.39	2.65
Confirmation to Expectations (η1)	319	6.61	2.26	456	6.71	2.74
Close to Ideal Agency(η1)	313	6.42	2.50	435	6.42	2.80
Confidence in Agency	323	7.28	2.45	457	6.91	2.85
Trust in Washington	314	4.34	2.14	450	4.22	2.34

Figure 2
The Satisfaction Latent Construct



The standardized factor loadings provided in table 4 indicate that all three manifest variables load strongly and significantly on the satisfaction construct (between $\lambda = 0.80$ and 0.93), providing evidence of adequate convergent validity. Furthermore, the Cronbach's alpha statistic of $\alpha = .896$ indicates strong construct validity; an alpha value greater than .700 is generally considered sufficient (and .800 very good) for establishing construct validity in SEM (Hair et al. 1998).

Finally, although traditional tests of discriminant validity among latent constructs (such as an exploratory factor analysis including all manifest variables for the unobserved variables included in the model) are not appropriate here, as we are measuring only a single latent construct, the two variables that might be most troubling from the perspective of discriminant validity—the unobserved satisfaction construct and the observed confidence variable—are found to correlate at $r = .80$. Although high, this correlation is still below the threshold of $r = .85$ sometimes considered the upper bound for establishing adequate discriminant validity among constructs.

Structural Equation Model

To estimate the full structural model, we obtained maximum likelihood (ML) estimates for the model coefficients using the SPSS AMOS software package (Arbuckle 2006).

Table 4
Statistics for the Satisfaction Latent Variable

	Unstandardized Factor Loading	Standardized Factor Loading	R^2	α
Overall Satisfaction	1.00[a]	0.93	.87	
Confirmation to Expectations	0.97	0.88	.78	
Close to Ideal Agency	0.91	0.80	.64	.896

[a]Parameter fixed at 1 for model identification purposes.

Specifically, we utilize the full information maximum likelihood (FIML) estimation procedure provided in AMOS, a technique that estimates multiple ML equations simultaneously and includes information on the conditional covariances among all model variables into the parameter estimates. The FIML technique provides robust estimates for both continuous and interval-level variables and accommodates models containing both observed and unobserved variables (Arbuckle 2006). Importantly, although OLS estimators should approach FIML (and ML) estimators for large samples under conditions of multivariate normality (Bollen 1989), the FIML procedure has been shown to be more efficient for analyzing data with missing observations (Enders 2001; Enders & Bandalos 2001). Given that several of our variables experience at least some missing observations (in the most extreme case, almost 12.5% of the sample for the income variable is missing), the FIML approach is preferred over alternative methods—such as principal component regression path analysis with several independent OLS equations using listwise or pairwise case deletion—that might have been employed. The zero-order correlation matrices for all observed model variables are provided in Appendix 1.

Results for the FIML analysis, including goodness-of-fit measures, standardized direct effects, standard errors, significance of the coefficients, and measures of explained variance (squared multiple correlations or R^2), are presented below in table 5.

In addition to direct effects, SEM techniques also allow for examination of the total effect of each predictor variable on any response variable in the model. Total effects are produced through path decomposition, where any direct path coefficient between two variables and any indirect effects between the two through other variables are multiplied through and summed, thereby showing the total relationship between two variables (Bollen 1989; Fox 1980). By extension, standardized total effects provide insight into which variables are relatively most important in determining an outcome, considering all direct and indirect relationships and in the context of the specified structural model. The chief advantage of total effects analysis is that it provides insight into the relationship between variables as they are mediated by intervening variables, variables that might significantly change the interpretation of a direct effect (Bollen 1989). Table 6 presents standardized total effects for each of the five response variables included in the model.

Beginning with the highest level detail reported in table 5, the model fit statistics, the data show a reasonably good fit to the model, lending empirical support to the model we have specified. The root mean square error of approximation (RMSEA) statistic indicates a good model fit (RMSEA = 0.053). An RMSEA between 0.05 and 0.08 is typically interpreted to represent between a "close" and a "reasonable" model fit (Arbuckle 2006). Further, all the baseline measures of fit, which compare the specified model to a "perfectly

Table 5
Structural Equation Model Estimation Results

	e-Government	Expectations	Satisfaction	Confidence in Agency	Trust in Washington
Internet Use	0.195*** (0.038)	0.014 (0.204)			
Age	−0.152*** (0.001)	0.119** (0.006)			
Education	0.169*** (0.006)	−0.072 (0.033)			
Income	0.017 (0.000)	0.044 (0.002)			
Gender	0.031 (0.034)	−0.116** (0.177)			
e-Government		0.052 (0.187)	−0.014 (0.152)	0.073*** (0.116)	0.009 (0.153)
Expectations			0.522*** (0.031)	0.034 (0.028)	0.137*** (0.036)
Satisfaction				0.815*** (0.033)	0.034 (0.069)
Confidence in Agency					0.235*** (0.055)
Squared multiple correlation (R^2)	.125	.029	.273	.699	.123

Note: Parameter estimates for each independent variable (going down the far left column) reflect standardized direct effects, followed by SEs (in parentheses). Model fit statistics: $\chi 2(33) = 105.52, p = .00$; $\chi 2/df = 3.185$; RMSEA = 0.053. Baseline model comparisons: NFI = 0.968; RFI = 0.937; IFI = 0.978; TLI = 0.956; CFI = 0.978.
*Significant at $p < .05$, **significant at $p < .01$, ***significant at $p < .001$.

Table 6
Standardized Total Effects for Structural Equation Model

	e-Government	Overall Expectations	Satisfaction	Confidence in Agency	Trust in Washington
Internet Use	0.195*	0.024	0.010	0.023	0.011
Age	−0.152**	0.112*	0.060*	0.042*	0.026
Education	0.169**	−0.063	−0.035	−0.018	−0.013
Income	0.017	0.045	0.023	0.022	0.012
Gender	0.031	−0.115**	−0.060**	−0.051**	−0.029*
e-Government	—	0.052	0.013	0.086*	0.037
Overall Expectations	—	—	0.522*	0.460*	0.263*
Satisfaction	—	—	—	0.815*	0.225*
Confidence in Agency	—	—	—	—	0.235**

Note: Bootstrap, bias-corrected two-tailed tests used to calculate significance of the total effects.
*Significant at $p < .05$, **significant at $p < .01$, ***Significant at $p < .001$.

fitting" (or saturated) model, register above the 0.90 threshold, reflecting an adequate to very good model fit (NFI [normed fit index] = 0.968; RFI [relative fit index] = 0.937; IFI [incremental fit index] = 0.978; TLI [Tucker-Lewis index] = 0.956; CFI [comparative fit index] = 0.978) (Arbuckle 2006). A final test of fit, the χ^2 test, indicates a significant difference between the implied and the observed covariance matrices, an unwanted—but not uncommon—outcome in SEM modeling implying a poor fit (Arbuckle 2006; Fornell and Larcker 1981). Nevertheless, the model does exhibit a reasonably low χ^2 to degree of freedom ratio (3.185), with a ratio of 5.00 or less usually considered satisfactory.

Turning now to an analysis of the model parameter estimates (focusing first on the standardized direct effects from table 5), for the dichotomous e-government dependent variable (where 0 = non–e-government and 1 = e-government), the five predictor variables—Internet use, age, education, income and gender—explain about 13% of its variance ($R^2 = .125$). Three of these five predictors are found to be significantly related to e-government. Although age (−0.152) is negatively related to adoption of e-government (i.e., as age increases, citizens are less likely to choose e-government over off-line modes of contact), education (0.169) and Internet use (0.195) are both positive predictors. The effect of gender is not significant (0.031), indicating that men and women are equally likely to adopt e-government, and no significant relationship is found between income and e-government adoption (0.017). These findings generally comport with intuition, with the results of earlier studies, and with enduring concerns about the existence of a "digital divide," where older citizens have been found less likely to adopt (or have access to) e-government, and better educated and more web-savvy citizens more likely to adopt e-government (Norris 2001).

For the expectations dependent variable, the six predictors explain 3% of its variance ($R^2 = .029$). Of these six predictors, two are found to be significant—age (0.119) and gender (−0.116). Although expectations of government performance increase with age, with older citizens holding higher expectations of their interaction with the government, they decrease among males, suggesting that male consumers have depressed expectations of their experiences with a federal agency. Income, education, and Internet use are not found to be significant predictors of expectations. Perhaps most interestingly, no significant relationship between e-government and expectations is discovered, meaning that users of e-government do not hold higher (or lower) expectations of the quality of federal government

services compared to customers using other modes of contact. In other words, it does not seem that those citizens who adopt e-government have been lead to believe they should expect more by adopting this technology.

For the latent satisfaction dependent variable, the coefficient for one of the predictors—expectations—is significant, and the two predictors together explain 27% of its variance ($R^2 = .273$). As anticipated, expectations (0.522) are a strong and positive predictor of satisfaction: higher expectations lead to higher satisfaction, consistent with the results of earlier studies. On the other hand, the effect of e-government on satisfaction is not significant (−0.014). In other words, and somewhat surprisingly, the data indicate that citizens who interact with federal government via e-government are *not* significantly more satisfied with their experience than citizens using other modes of contact, undermining suggestions that e-government is already a substantially more satisfying channel of citizen interaction with government.

For the first measure of trust in the model—confidence in the agency experienced—the three predictor variables explain about 70% of its variance ($R^2 = .699$). Only two of the three predictors are significant, however. Both e-government (0.073) and satisfaction (0.815) are found to be significant and positive predictors of confidence in the agency, as expected. This suggests that citizens who use e-government and citizens who are more satisfied with their experience express greater confidence in the particular agency experienced to perform well in the future. So although e-government does not yet appear to induce higher satisfaction, it does result in stronger confidence in the agency among those citizens who interact with it. We fail to find a significant relationship between expectations (0.034) and confidence.

The finding that e-government usage is insignificantly related to satisfaction but positively and significantly related to confidence in an agency is important. At first glance, this result might appear counterintuitive as it would seem that because e-government adoption is not positively related to satisfaction and satisfaction is a strong positive predictor of confidence, e-government adoption should not be positively correlated with confidence. However, this result seems to make sense and tell an important story. Although users of e-government indicate similar satisfaction with their experiences to users of off-line services, they are more confident that the agency they interacted with will "do a good job providing the services that [the citizen] used in the future" (as the confidence question is worded). In other words, although e-government may not yet be offering a more satisfying user experience, it does seem to provide citizens with an image of *how good government service could be through e-government*. We will discuss this finding and its implications more fully in the concluding section.

Regarding the measure of generalized trust in Washington, the four predictors explain roughly 12% of its variance ($R^2 = .123$). Only two of the four predictors are found to be significant, however. No significant relationship is found between e-government (0.009) or satisfaction (0.034) and trust in the federal government. In other words, neither the use of e-government rather than another mode of contact nor higher overall satisfaction with an experience are found to create stronger trust in Washington, contrary to our expectations. However, significant and positive relationships are found from both expectations (0.137) and confidence (0.235) to trust in Washington, as we anticipated.

Finally, a few comments on the standardized total effects for the model, provided in table 6, are worthwhile. Although these results offer further evidence for much we have

already discussed, they also offer further insight into what determines both confidence in an agency and trust in the federal government. As the results in table 6 indicate, in terms of total effect confidence in an agency is significantly related to five of the eight left-hand side variables in the model, with the exceptions being Internet use, income, and education. Satisfaction is the strongest predictor with the largest standardized total effect (0.815). Expectations (0.460), which has a direct effect and an indirect one through satisfaction, is also a strong positive predictor of confidence in terms of total effect, even though its direct effect was insignificant. E-government (0.086) is a positive and significant predictor, but its total effect is weak compared to satisfaction and expectations. The standardized total effect of e-government on confidence is only slightly larger (and essentially unchanged) when compared to the standardized direct effect from table 5 but would be much larger if e-government were found to positively influence satisfaction. In other words, the positive direct effect of the e-government channel on confidence is *not as powerful as it would be if e-government resulted in greater overall satisfaction*, a key finding (in-line with the e-government/satisfaction/confidence interrelationship discussed earlier) that we will discuss more in the concluding section of the article.

Similarly, trust in Washington is found to be significantly related to four of the nine left-hand side variables in the model. Confidence in an agency, which has only a direct effect on trust in Washington, has the second strongest total effect (0.235), just slightly smaller than the total effect of expectations (0.263), which has a direct and several indirect effects. The total effect of satisfaction (0.225) is relatively large as well, but e-government (0.037), which flows through both expectations and satisfaction, is again not found to be a significant determinant. Taken together, these last findings reinforce the importance of e-government providing stronger satisfaction if it is to positively impact generalized trust in the federal government. The rest of the significant total effects are comparatively small and nonsignificant.

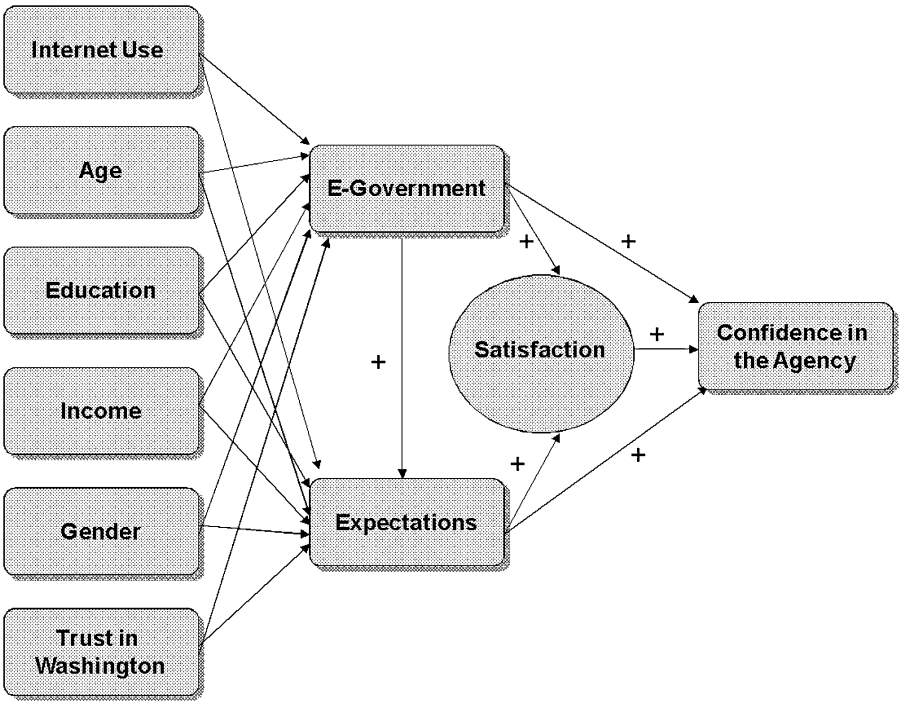
Alternative Model Specification

Although the model tested above is grounded in both prior research and theory and exhibits a good fit to our data, there are both empirical and theoretical reasons to test an alternative model. Indeed, it is common practice in SEM to test alternative models, to compare a chosen model to various alternatives in assessing model fit, for instance, and one of the chief strengths of SEM is the relative ease with which one can compare various model specifications (Bollen 1989). Furthermore, as mentioned earlier, an argument could be made that generalized trust in the federal government should be viewed as a left-hand side variable rather than an outcome in the model, as a preexisting set of beliefs and a predictor of expectations, satisfaction, and confidence in the agency rather than an outcome of these citizen perceptions.

In this instance, one particular alternative model stands out as most likely to provide a plausible empirical and theoretical alternative to the one we have specified. Figure 3 illustrates this alternative model.

Estimated using the same methods outlined for the original model (hereafter, Model 1), the results for this alternative model (hereafter, Model 2) are presented in table 7 (which for brevity's sake includes only standardized total effects and model fit statistics), with a brief discussion to follow.

Figure 3
An Alternative Model



Empirically, Model 1 is found to fit the data better than Model 2. Model 1 shows a lower χ^2 to degree of freedom ratio than Model 2 (3.185–4.619), and the χ^2 difference test (comparing the χ^2 statistics across the two models, with Model 1 exhibiting a χ^2 smaller by 33.05, with three additional degrees of freedom) is significant at $p < .001$. Model 1 also has a smaller RMSEA (0.053 versus 0.068) and smaller values for all the baseline measures of fit (NFI, RFI, IFI, TLI, CFI). From this purely empirical perspective, then, Model 1 is to be preferred over Model 2.

Beyond these model fit results, the standardized total effects in table 7 show very little change when compared to the same statistics for Model 1 (shown above in table 6). Changes in the size of the parameter estimates for the predictors of both e-government and expectations, where trust in Washington is now included as a predictor and where its effect should be most profound, are quite small, none of the parameters change sign, and nothing that was significant loses significance (or vice versa). The same can be said for the parameter estimates for the predictors of satisfaction and confidence in the agency. The changes here are small and insignificant, and beyond the theoretical differences across the two models, very little would change in our substantive interpretation of the results.

Table 7
Standardized Total Effects for Structural Equation Model (Alternative Model)

	e-Government	Overall Expectations	Satisfaction	Confidence in Agency
Internet Use	0.195*	0.029	0.013	0.026
Age	−0.151**	0.134*	0.072*	0.052*
Education	0.170**	−0.069	−0.038	−0.021
Income	0.017	0.027	0.014	0.013
Gender	0.031	−0.109**	−0.058**	−0.048**
Trust in Washington	0.004	0.274*	0.143*	0.126*
e-Government	—	0.051	0.013	0.085*
Overall Expectations	—	—	0.523*	0.460*
Satisfaction	—	—	—	0.815*

Note: Bootstrap, bias-corrected two-tailed tests used to calculate significance of the total effects. Model fit statistics: $\chi^2(30) = 138.572$, $p = .00$; $\chi^2/df = 4.619$; RMSEA = 0.068. Baseline model comparisons: NFI = 0.958; RFI = 0.908; IFI = 0.967; TLI = 0.927; CFI = 0.967.
*Significant at $p < .05$, **significant at $p < .01$, ***significant at $p < .001$.

Although these results cannot speak directly to the "truthfulness" of a theory underlying a structural model, or the correspondence between a theory and real-world processes, they do provide empirical evidence for choosing one model over another. In this case, the evidence suggests that we should support Model 1 over Model 2. Nevertheless, the correspondence between Model 1 and the real-world processes driving the results is always open to alternative interpretations like that found in Model 2—what Bollen (1989) has termed the model-data consistency versus model-reality consistency dilemma forces us to leave the question open to future research, theory, and model building.

FUTURE RESEARCH AND CONCLUSIONS

In this study, we explore the nature of the relationship between e-government and citizen trust in government using a cross-sectional sample of end users of US federal government services. Our findings suggest that citizens who adopt e-government do not have significantly higher expectations of their interaction with a government agency nor do these citizens experience greater satisfaction. Nevertheless, our findings indicate that e-government adoption may lead to improved citizen confidence in the future performance of the particular agencies with which they interact. Finally, we find that e-government adoption does not correlate to greater trust in the federal government overall.

As with all studies of this kind, a few caveats relating to its limitations, and how these limitations might inform future research on the topic, should be mentioned. First, the results presented here are based on one sample of citizens who interacted with a government agency at a certain point in time, and we must therefore be cautious not to overgeneralize from these results. E-government is still a relatively new mode of contact with government, and consequently, citizen perceptions of it are still fluid and evolving. Furthermore, the data analyzed look only at citizen experiences with federal government agencies, and other studies suggest that these results may not apply equally to all levels of government (Tolbert and Mossberger 2006).

Additionally, there are some shortcomings to a few key variables in our study that deserve mention. The e-government variable included in our study looks specifically at most recent agency experienced and the most recent medium by which that particular experience occurred. Because framed somewhat narrowly in this way, our results cannot speak to repeated citizen experiences over a longer period of time and across multiple agencies and modes of contact and how, under these circumstances, e-government might impact trust.

Finally, the trust and confidence outcome variables included in our model, because single-item measures, are more prone to measurement error than multiple-item measures would have been, suggesting further caution against too aggressively interpreting our results. Given these limitations, we suggest that future research analyze data that includes citizen interactions with multiple levels of government (local, state, federal), includes a mode of contact variable that permits analysis of user perceptions across multiple modes and over repeated interactions with various government agencies, and measures a variety of trust-related items designed specifically for the hypothesized structural model. It would also be useful for future research to employ larger samples when examining all these relationships as larger samples would enhance the statistical power of hypothesis tests and thus increase confidence in the results.

These caveats notwithstanding, the findings presented here provide insights augmenting earlier research, new directions for future research, and illuminate the potential for e-government to improve citizen trust in government. Beginning with the relation to existing literature, this study seems to lend support to some studies, whereas contradicting the conclusions of others. In the first instance, our findings lead us to reject the more optimistic perspective (e.g., Furlong 2005) that views e-government as a panacea, as a fully formed medium well on its way to rebuilding citizen trust in government. Although we find evidence that e-government adoption positively predicts citizen confidence in an agency, this relationship is relatively weak (in terms of total effect), primarily because of the nonsignificant (and nonpositive) relationship between e-government adoption and satisfaction. Further, we find no evidence that e-government is positively related to trust in Washington. In this sense, our findings caution against excessive enthusiasm regarding the potential of e-government, *at least as things stands now*.

On the other hand, our findings seem to mesh well in general with the more "moderate" perspective found in some other works (e.g., Tolbert and Mossberger 2006), studies that locate both positive and negative evidence regarding e-government's trust-transforming potential. Although Tolbert and Mossberger find e-government to be a positive predictor of trust at some (local) but not other (federal) levels of government, our findings suggest that e-government may help build or rebuild some but not other types of trust and confidence. But perhaps most pertinently, as some have concluded (e.g., West 2004), our findings paint an image of e-government as a "work-in-progress," one that does not yet but in the future *could* offer a platform for government to more significantly improve citizen trust. That is, our results show that although e-government does determine confidence in individual agencies, this relationship is weakened by citizen experiences that are not as satisfying now as they might be in the future. It is this finding that, in our estimation, can provide policy makers (and their information technology managers) with a path for helping e-government realize its potential.

Taken as a whole, these findings suggest that federal agencies must do a better job of providing high-quality e-government and a satisfying experience to users of the e-government channel. The positive effect of e-government adoption on confidence in an agency is diminished by its weak relationship with satisfaction and, thus, improving these areas will maximize the positive relationship between e-government and confidence. Similarly, the effect of e-government adoption on trust in Washington, which at present is nonexistent, could be augmented if this channel offered stronger satisfaction. Improving in these ways should form a primary objective of the federal government if this channel is to truly achieve its potential.

How can the federal government accomplish this goal? Certainly, there are challenges as federal agencies are constrained in the resources they can devote to any one aspect of their IT infrastructures. Other studies have shown that e-government lags private sector IT (i.e., e-business and e-commerce) in terms of satisfaction, and one straightforward explanation for this finding is that government lacks the resources of the private sector (Morgeson and Mithas 2009). In fact, one of the primary justifications for the accelerated development of e-government focuses not on enhancing satisfaction or citizen trust and confidence at all but on the fact that this channel is much less costly than alternative channels (E-Government Act 2002). These competing goals result in two very different images: e-government as a money saver and e-government as improved, more satisfying, and more trustworthy government. Can the two be reconciled?

One strategy for reconciling these competing perspectives involves *performance measurement* (Kouzmin et al. 1999; Osborne and Plastrik 2000; also see Mithas, Ramasubbu, and Sambamurthy forthcoming). Although it is unrealistic to expect the federal government to devote private sector–like resources to e-government development, one way agencies can improve their Web site offerings is by more rigorously measuring the performance of their Web sites and using the information gathered to make improvements. Our study has shown that there is considerable room for improvement for e-government, especially in terms of satisfaction. We only know this, however, because we measured the performance of federal e-government. With this in mind, a federal government-wide e-government performance measurement initiative—a coordinated and standardized system to measure citizen perceptions of e-government, mandated, funded, and directed by an agency like the Office of Management and Budget—could go a long way to help realize the goal of a transformational e-government.

APPENDIX 1

Table A1
Zero-Order Correlations for All Observed Model Variables

		1	2	3	4	5	6	7	8	9	10	11	12
1	Internet Use	1	—	—	—	—	—	—	—	—	—	—	—
2	Age	−.18**	1	—	—	—	—	—	—	—	—	—	—
3	Education	.30**	.05	1	—	—	—	—	—	—	—	—	—
4	Income	.36**	−.02	.40**	1	—	—	—	—	—	—	—	—
5	Gender	−.01	.02	.08*	.12**	1	—	—	—	—	—	—	—
6	e-Government	.28	−.18**	.23**	.17**	.04	1	—	—	—	—	—	—
7	Expectations	.00	.10**	−.04	.01	−.11**	.02	1	—	—	—	—	—
8	Overall Satisfaction	.01	.07	−.04	−.03	−.10**	.00	.50**	1	—	—	—	—
9	Confirmation to Expectations	.03	.10**	−.01	−.01	−.10**	−.02	.40**	.83**	1	—	—	—
10	Close to Ideal Agency	.02	.07	−.06	.00	−.15**	.00	.46**	.71**	.69**	1	—	—
11	Confidence in Agency	.02	.01	−.03	−.02	−.07*	.07	.46**	.77**	.71**	.71**	1	—
12	Trust in Washington	.03	−.08*	.04	.07	−.01	.03	.26**	.28**	.22**	.29**	.32**	1

*Significant at $p < .05$, **significant at $p < .01$.

APPENDIX 2

Table A2
Frequencies for Agencies Mentioned[a]

	Frequency
Citizenship and Immigration Services	18
Customs and Border Patrol	13
US Department of Agriculture	12
Department of Defense	18
Department of Homeland Security	11
Food Stamp Program	21
Health and Human Services	13
Internal Revenue Service	108
Medicaid	30
Medicare	65
National Parks Service	87
Passport Services (Consular Affairs)	14
Social Security Administration	85
Student Financial Assistance	45
Treasury Department	8
Transportation Security Administration	31
US Air Force	11
US Army	6
US Navy	10
Veterans Affairs	35
Total	641

[a]Only the 20 most mentioned agencies/departments included in the chart. These 20 represent almost 82% of the total sample.

Survey questions and variables used in analysis [with associated model variable/construct name in brackets]

Screening Question

Not counting the Postal Service, have you had experience with any US Government Federal agencies in the past year? By experience, we mean looking at the agency's Web site, talking with agency personnel by phone or in person, receiving the agency's printed materials or brochures, visiting an agency site or office, or receiving a check or a benefit.

1 Yes

2 No

Mode of Contact Question

[CONTACT TYPE] Did your experience with (the) (AGENCY/DEPARTMENT) in the past year involve using its Web site, communicating via e-mail with agency personnel, talking with agency personnel by telephone, receiving printed materials or brochures by mail, visiting the agency's site or office, or receiving a check or a benefit? If you contacted the agency more than once or using more than one of these methods, please indicate how your most recent interaction was conducted.

1 Web site

2 E-mail

3 Phone contact

4 Receiving printed materials or brochures

5 Visiting agency site or office

6 Receiving a check or a benefit

7 Other (SPECIFY)

Demographic Questions

[INTERNET USE] Within the past six months have you purchased any products or services via the Internet?

0 No

1 Yes

[AGE] What is your age, please?
[EDUCATION] What is the highest level of formal education you completed?

1 Less than high school

2 High school graduate

3 Some college or associate degree

4 College graduate

5 Post-graduate

[INCOME] What was your total annual family income in 2007?

1 Under $20,000

2 $20,000 but less than $30,000

3 $30,000 but less than $40,000

4 $40,000 but less than $60,000

5 $60,000 but less than $80,000

6 $80,000 but less than $100,000

7 $100,000 or more

[GENDER] [Gender measured by observation/interviewer recognition]

0 Female

1 Male

Expectations

[EXPECTATIONS] Before you used services from the (AGENCY/DEPARTMENT), you probably knew something about the (AGENCY/DEPARTMENT). Now, think back and remember your expectations of the overall quality of the (AGENCY/DEPARTMENT)'s services. Please give me a rating on a 10-point scale on which "1" means your expectations were "not very high" and "10" means your expectations were "very high."

How would you rate your expectations of the overall quality of services from the (AGENCY/DEPARTMENT)?

Satisfaction Questions [SATISFACTION LATENT VARIABLE]

First, please consider all your experiences to date with the (AGENCY/DEPARTMENT)'s services. Using a 10-point scale on which "1" means "very dissatisfied" and "10" means "very satisfied," how satisfied are you with the (AGENCY/DEPARTMENT)'s services?

Considering all your expectations, to what extent have the (AGENCY/DEPARTMENT)'s services fallen short of your expectations or exceeded your expectations? Using a 10-point scale on which "1" now means "falls short of your expectations" and "10" means "exceeds your expectations," to what extent have the (AGENCY/DEPARTMENT)'s services fallen short of or exceeded your expectations?

Forget the (AGENCY/DEPARTMENT) for a moment. Now, I want you to imagine an ideal organization that offers the same types of services. How well do you think the (AGENCY/DEPARTMENT) compares with that ideal organization? Please use a 10-point scale on which "1" means "not very close to the ideal," and "10" means "very close to the ideal."

Trust and Confidence Questions

[CONFIDENCE IN THE AGENCY] How confident are you that the (AGENCY/DEPARTMENT) will do a good job providing the services that you used in the future? Using a 10-point scale on which "1" means "not at all confident" and "10" means "very confident," how confident are you that the (AGENCY/DEPARTMENT) will do a good job in the future?

[TRUST IN WASHINGTON] Generally speaking, how much of the time do you think you can trust the government in Washington? Using a 10-point scale on which "1" means "almost none of the time" and 10 means "almost all of the time," how much of the time do you think you can trust the government in Washington?

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