



## Determining the type of e-government use

Taewoo Nam\*

Department of Public Administration, Myongji University, Geobokgol-ro 34, Seodaemun-gu, Seoul 120-728, Korea



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### ABSTRACT

This article aims to understand what determines the degree of e-government use for multiple purposes by analyzing the Government Online Survey data that the Pew Internet and American Life Project provide. Three main purposes of e-government use are identified as: service use, information use, and policy research. The degree of e-government use for a specific purpose is predicted by five sets of determinants: psychological factors of technology adoption, civic mindedness, information channels, trust in government, and socio-demographic and personal characteristics. Sociodemographic conditions influence usage level of various transactional services provided by e-government. Perceived ease of use facilitates the acquisition of general information through e-government. Civicness is a critical determinant of e-government use for policy research. Policy researchers who are more engaged with and concerned about society, neighbors, and government are emerging as a new class of e-government users.

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## 1. Introduction

### 1.1. Concerns beyond e-inclusion

The common definition of e-government refers to the use by government of information and communication technologies (ICTs) to deliver information and services to citizens, businesses, and public agencies (Carter & Belanger, 2005; Edmiston, 2003; Sipiør & Ward, 2005; West, 2004). For the delivery of information and services, public administration, with technological advances, has been experiencing a change from the bureaucratic, inward-looking approach to a citizen-centric, outward-looking approach that prioritizes the concerns and needs of users or customers (Ho, 2002; Thompson, Rust, & Rhoda, 2005). As Layne and Lee (2001) mentioned, government processes are being organized for citizens' convenience rather than the convenience of government agencies. More recently, according to International City/County Management Association (2011), e-government-driven changes identified by local government managers are the improvements in city/county governments' communication with the public and customer services more than such managerial impacts as re-engineering business processes, increasing efficiency, and reducing administrative costs. Nevertheless, there is a relative paucity of systematic research that investigates citizens' use of e-government (Gauld, Goldfinch, & Horsburgh, 2010; Helbig, Gil-Garcia, & Ferro, 2009; Reddick, 2005; Streib & Navarro, 2006).

For a government to move toward a citizen-centric, outward-looking approach, understanding citizens' use of e-government and identifying determinants of e-government use has a central importance for both researchers and practitioners. There is a concern beyond e-inclusion. With an increasing availability for a variety of e-government functions (e-service, e-information, and e-participation), the emerging concern about e-government becomes a question of why certain populations use those specific functions of e-government while others do not. In this regard, a research focus needs to address not only the existing divide between users and non-users, but the difference in the degree of using e-government with respect to the type of its functions and reasons for that difference. Hence a research inquiry should go beyond "whether or not to use e-government?" and instead consider "for what purpose does one use e-government?" and then "what determines the degree of e-government use for the specific purpose?"

The study empirically investigates the impact of various determinants (i.e., perception-based psychological factors, civic mindedness, information channels, trust in government, and socio-demographic backgrounds) on multiple types of e-government use. The U.S.-based survey data from the Pew Internet and American Life Project is employed for statistical examination. The paper unfolds in eight parts, including the foregoing introduction. The next section addresses the contextual background of e-government use. Then determinants of e-government use are derived from an expanse of relevant literature. After the description of data, measurements, and empirical strategy, the results of the multivariate regression analysis are presented. The following two sections discuss further implications for practitioners and researchers, respectively. The final section offers some concluding remarks.

\* Fax: +82 2 300 0654.  
E-mail address: [namtaewoo@mju.ac.kr](mailto:namtaewoo@mju.ac.kr).

## 2. The context of e-government use

### 2.1. Digital exclusion

Multidimensional issues of a digital divide provide the context of digital exclusion in e-government use. The digital divide is a complex, dynamic, and multifaceted concept (Bruno, Esposito, Genovese, & Gwebu, 2011). It captures the gap, separation, distinction, disparity, or gulf between the haves and have-nots in terms of various resources and competences related to ICTs, but its multidimensional, multifaceted nature denies a simple dichotomy between the haves and have-nots, connoting a more complicated, complex social phenomenon (Helbig et al., 2009). Access is fundamental and basic to the digital divide, and little else is possible without access. The concept of access evolves into successive types of access to digital technologies: motivational access, physical access, skills access, and usage access (Van Dijk, 2005, 2006).

Usage access can be further specified in the context of e-government adoption. Sipiior and Ward's (2005) multidimensional perspective highlights three facets of the digital divide: internet access, computer skills, and e-government inclusion. In Gurstein's (2003) more elaborate model, the dimension of access extends from access to ICT infrastructure to access to e-government (electronically enhanced service delivery and information dissemination) and e-governance (electronically enhanced decision-making process). The e-inclusion gap model of Becker, Niehaves, Bergener, and Räckers (2008) stratifies different levels: the gap between the total population and internet users, the gap between internet users and e-commerce users, the gap between e-commerce users and e-government information users, and the gap between e-government information users and e-government transactional service users.

The development of e-government may itself represent technical innovation from which certain members of society are inevitably excluded. Benefits from a new mode of e-government may mobilize only the technically savvy while disenfranchising those who have less experience and technical know-how. Regarding that, McNeal, Hale, and Dotterweich (2008) claim e-government becomes a double-edged sword: motivating e-government use for some while magnifying existing gaps for others. The new technological tools of e-government may hold benefits for only some segments of the population. With the digital exclusion, e-government has not lived up to its possibilities and potentials (McNeal et al., 2008).

### 2.2. Types of e-government use

Since e-government in definition provides its users with information and services (Carter & Belanger, 2005; Edmiston, 2003; Sipiior & Ward, 2005; United Nations, 2002; West, 2004), e-government use is basically the use of information and services offered by e-government. Beyond e-information and e-service, the loaded concept "e-government" has evolved to include e-democracy and e-participation. While service and information use remains as the major purpose of e-government use, participating in governmental decision-making can comprise one particular category of e-government use (Marchionini, Samet, & Brandt, 2003) but there are far fewer e-participants than there are service and information users. Moreover, not all e-governments offer opportunities for citizens to join in decision-making processes. In sum, according to Thompson et al. (2005), citizens and businesses can use e-government for three purposes: to access information; to engage in electronic transactions with government; and to participate in government decision-making.

There are other perspectives on the types of e-government use. Haller, Li, and Mossberger (2011) highlighted policy research as a newly emerging type of e-government use. The policy researchers are those who use e-government to look up information about policies. Their civic interest in policy-related information is distinguishable

from the personal interests of those who look up general and service-related information for their own purposes.

Recent papers pay attention to co-creation of policies, information, and public services with government and other fellow citizens as a new type of e-government use (Bertot, Jaeger, & Grimes, 2010a; Bertot, Jaeger, Munson, & Glaisyer, 2010b; Lukensmeyer & Torres, 2008; Nam, 2010, 2012a; Nam & Sayogo, 2011). Especially in paying attention to citizen needs, there is a critical need for governments to encompass modalities in working together with citizens in fulfilling service delivery (United Nations, 2012: 2). Through various platforms enabled by Web 2.0-based interactive and collaborative technologies, some people collectively create public information, provide service, and take part in policy processes. The new type of e-government use is emerging with government 2.0—the government's adoption of Web 2.0—as a new domain of e-government (Aichholzer & Strauß, 2010; Baumgarten & Chui, 2009; Chen, 2009; Cho & Hwang, 2010; DiMaio, 2009; Johannessen, 2010; Mintz, 2008; O'Reilly, 2010; Osimo, 2009; Tapscott, Williams, & Herman, 2008).

In short, it is possible to identify five types of e-government use from extant literature as follows:

- *Service use*: using transactional services.
- *General information use*: looking up general information.
- *Policy research*: looking up information related to government policies.
- *Participation*: participating in decision-making and discussion processes.
- *Co-creation*: co-creating policies, information, and services with government and other citizens.

While citizen participation via e-government is still not an experience prevailing around the world, more usual and frequent cases of e-government take-up are involved in the use of transaction-based services and (general and policy-related) information via e-government (United Nations, 2012). The co-creation type offers governments a new opportunity for engaging more citizens in government processes and collecting the wisdom of crowds (Nam, 2012a), but the dominant type of e-government use is the use of transactional services and information.

## 3. Determinants of e-government use

As a result of the extensive review, five main sets of determining factors are identified. Fig. 1 sketches a conceptual framework of e-government use. The framework further extends Dimitrova and Chen's (2006: 175) conceptual model, which includes four theoretical determinants, by adding "trust in government." This section discusses the five main determining components in detail.

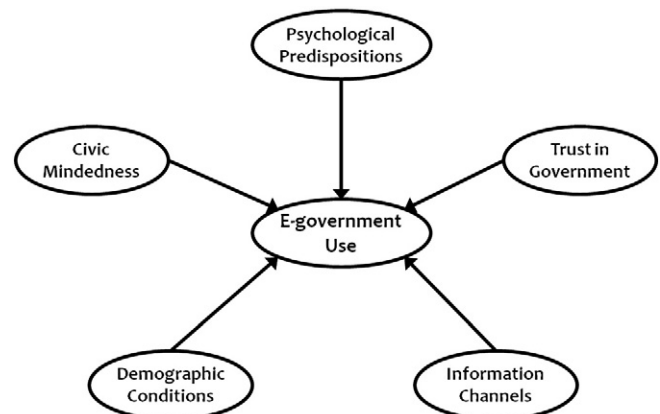


Fig. 1. A conceptual framework of e-government use determinants. Note. Adapted from Dimitrova and Chen's (2006) conceptual model.

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