E-Government Research: Reviewing the Literature, Limitations, and Ways Forward

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1 author:

Mete Yildiz
Hacettepe University
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E-government research: Reviewing the literature, limitations, and ways forward

Mete Yildiz *

Department of Political Science and Public Administration, Hacettepe University, Turkey

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Abstract

This article claims to be both a review and an agenda-setting piece. It is argued that e-government research suffers from definitional vagueness of the e-government concept, oversimplification of the e-government development processes within complex political and institutional environments, and various methodological limitations. In order to address these issues, the article reviews the limitations in the e-government literature, and it suggests ways forward. To do so, the study critically analyzes the development and various definitions of the e-government concept. After discussing the limitations of the concept, methodological and conceptual remedies such as (i) better examining and explaining the processes of – and participation patterns in – e-government projects within complex political environments, (ii) addressing the problem of under-specification in the e-government literature by the production of more grounded, empirical studies that would create new theoretical arguments and provide new concepts and categories so as to enhance our understanding of e-government policy processes and actors, and (iii) tying the subject of e-government strongly to mainstream public administration research are suggested in the final part of the analysis.

Keywords: E-government; Literature review; Public administration and management

* Fax: +90 11 90 537 6605410.
E-mail address: myildiz@hacettepe.edu.tr.

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1. Introduction: technology use in government

The objective of this article is to review the limitations in the e-government literature and provide suggestions regarding how to overcome those limitations and come up with methodological and topical suggestions in order to push the field further into innovative research. As such, it claims to be both a review and an agenda-setting article. Part of the problem that this article deals with arises from the vagueness of the e-government concept (Aldrich, Bertot, & McClure, 2002, p. 351; Hwang, Choi, & Myeong, 1999, pp. 277–278). What is also lacking in the treatment of the subject is a more in-depth analysis of the political nature of the e-government development processes, and a deeper recognition of complex political and institutional environments. However, e-government research up to date for the most part limited itself to the study of the outcomes and outputs of the e-government projects. Thus, understanding the political processes behind e-government development is vital for overcoming both definitional and analytical limitations. Such an effort requires a historical understanding of the relationship between technology and administration. The rest of this introductory section presents a brief review. Later sections present various definitions of e-government, the limitations of the concept, and methodological and topical suggestions for future e-government research.

Early students of technology[1] regarded technological issues in government as a peripheral concern rather than as a core management function. Technology was seen as a means to manage the limitations of bounded-rationality and provide the infrastructure for better decision making (Simon, 1976, p. 286). In other words, until the introduction of the Internet and widespread use of personal computers, the main objectives of technology use in government were enhancing the managerial effectiveness of public administrators while increasing government productivity. Until then, the main use of technology in government organizations was the automation of mass transactions such as financial transactions using mainframe computers (Schelin, 2003, p. 121). This was an era in which most government agencies are creating and operating their computer systems independent from each other, in 'stovepipe' fashion (Aldrich et al., 2002, p. 349) Technology was buffered from the core in order to manage the uncertainty. This was necessary since technology and environments were perceived to be the two basic sources of uncertainty that challenge rationality in organizational decision making (Thompson, 1967, p. 1). In addition, since information technology (IT) was used for the automation of backroom operations and improvement of the efficiency of clerical activities (Zuboff, 1988), government IT professionals were isolated from functional and executive oversight (Holden, 2003, p. 56). Perrow (1967) differed as he argued that technology is an important determinant of the structure and the strategy of the organizations that use it.

The diffusion of personal computers in the 1980s provided each public administrator with a personal information technology system, and thus opened a new period of IT use in government. At this point, technology management began to be decentralized in government agencies. Along with decentralization came the realization that IT issues should be integrated to the core functions

[1] "The concept of 'technology' is used rather loosely here. In addition to the meaning of 'machines and sophisticated devices', technology also generically means the study of techniques or tasks" (Perrow, 1979: 162).

in government. Three important events marked the movement towards the integration of technology and technology-related issues in public administration in the United States.

The first is the Urban Information Systems (URBIS) project, which was conducted from 1973 to 1978 at the University of California, Irvine, by a multidisciplinary team. This was the "first large, systematic, empirical study to focus specifically on policy and outcomes related to computer use in complex service organizations" (King, 2004, p. 97). It uncovered the "continuing social and political processes in which the technology is constrained – somewhat controlled and shaped – by its environment" (Danziger, Dutton, Kling, & Kraemer, 1982, p. 7). These researchers adopted an open systems theory perspective of technology and its environment and emphasized the continuous interaction between government organizations and their internal and external environments (Danziger et al., 1982, p. 8). They argued that, "computing will reinforce the power and influence of those actors and groups who already have the most resources and power in the organization" (Danziger et al., 1982, p. 18).

Second, in 1985, a National Association of Schools of Public Affairs and Administration (NASPAA) committee recommended that computing should be a main skill taught in MPA programs (Northrop, 2003, p. 2). The resulting NASPAA report introduced four important recommendations for Master of Public Administration (MPA) Programs (Kraemer & Northop, 1989). These recommendations included offering a prerequisite mandatory computer appreciation course for all students, a mandatory computer applications for management course for all students, an information-management concentration at several universities, and integrating computer skills and knowledge into core public administration courses.

Third, Bozeman and Bretschneider (1986) wrote a seminal article in the Public Administration Review, in which they argued that technology is transforming the government and more academic attention should be given to this area. Still, as mentioned above, one had to wait for the widespread of use of the Internet and the Web for the emergence of a full-fledged e-government concept. Before this, IT use in government was primarily internal and managerial (Ho, 2002).

Together with the introduction of the World Wide Web, the 1990s also witnessed the incorporation of IT to government reform with the National Performance Review (NPR) Report in 1993 and the resulting 'reinventing government' movement. One of the important results of the NPR movement is the creation of a one-stop all-inclusive government portal, currently named as 'firstgov' (Aldrich et al., 2002, p. 350). The enactment of some very important legislation during this decade supported the reform movement and the use of IT in government (Schelin, 2003, pp. 122–123). The 1995 amendment of the 1980 Paperwork Reduction Act (PRA) provided guidelines for government IT investments and encouraged more cross-agency information sharing. The 1996 Electronic Freedom of Information Act (EFOIA) clarified the rules for issuing of and public access to the government electronic records. The 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) mandated the social services agencies to test the promise of e-government applications on the field at intergovernmental levels. The 1996 Information Technology Management Reform Act, known as the Clinger–Cohen Act created the position of chief information officers (CIO) in every agency (Relyea, 2000, p. 382) and encouraged performance measurement as a proxy for

return on government technology investments and integration of IT into the strategic planning process (Westerback, 2000), although there are calls for a critical evaluation of the impact of creation of such a position (McClure & Bertot, 2000). All of these legislative efforts culminated in the enactment of the 2001 E-Government Act, which provided both the organizational and financial infrastructure of widespread e-government applications (Schelin, 2003, p. 124).

The tragic events of September 11, 2001, caused a major shift in the perception of e-government from a tool for increasing the convenience of government service provision, facilitating administrative reform and furthering democratic participation to a tool of defense against terrorist threats (Halchin, 2004, pp. 406–407, 416; Seifert & Relyea, 2004, pp. 400–401, 404). Among the changes brought by the post September 11 environment are the government's desire to promote information sharing among agencies (Halchin, 2004, pp. 409–410; Relyea, 2004; Seifert & Relyea, 2004, p. 402), merger and/or sharing of government databases (Halchin, 2004, p. 410), increasing the security of the government information systems against possible terrorist attacks (Halchin, 2004, p. 411), evaluation and if necessary withholding and/or elimination of the contents of the government Web sites that would compromise security, a practice known as 'Web scrubbing' (Feinberg, 2004, p. 445; Halchin, 2004, pp. 412–416; Seifert & Relyea, 2004, p. 404), an expansion of the quantity and scope of factual data analysis and data mining practices (Feinberg, 2004, p. 451; Seifert, 2004; Seifert & Relyea, 2004, pp. 402–403) accompanied by some negative externalities such as 'mission creep' (Gellman, 2004, pp. 499–500; Seifert, 2004, p. 467), reducing the safeguards against the collection, integration, and interagency sharing of private personal information, even including from the private sector (Regan, 2004; Seifert & Relyea, 2004, pp. 402–403), creation of new information classification categories such as 'sensitive but not confidential', 'critical infrastructure information' (Feinberg, 2004, pp. 443–444), and thus creating an alarming secrecy tendency in government and raising issues of privacy and legitimate information use (Feinberg, 2004, pp. 451, 454; Seifert & Relyea, 2004, pp. 402–403), among others. In addition to all these changes, the e-government system itself and its infrastructure became a potential target of terrorism (Halchin, 2004, pp. 410–411). Time will tell whether this major shift in focus will jeopardize the potential administrative and political benefits of e-government and its further development.

On the one hand, closely related to the change in e-government focus is the inherent incompatibility between a security-oriented perception of e-government and at least three of the original founding principles of the e-government phenomenon, namely fast and easy access to government information, open government, people's right to know, transparency, and responsiveness (Doty & Erdelez, 2002, p. 370; Halchin, 2004, p. 417; Hernon, 1998). On the other hand, regardless of the change of focus in e-government efforts, several critics warned the public against possible pitfalls of the e-government phenomenon. Jaeger (2002), for example pointed out that extensive cooperation and information-sharing among agencies may endanger some constitutional principles such as the separation of powers, and the distribution and balance of powers between the federal, state, and local governments (Doty & Erdelez, 2002).

2. Definitions of e-government

Information and communication technologies[2] (ICTs) were recognized to have tremendous administrative "potential" (for a discussion of limitations and failures of ICT in helping governments in information and service delivery, see Heeks, 1999a, 2001a). For example, ICTs could help create a networked structure for interconnectivity (McClure, 2000), service delivery (Bekkers & Zouridis, 1999), efficiency and effectiveness (Heeks, 2001b), interactivity (DiCaterino and Pardo, 1996), decentralization, transparency (La Porte, De Jong, & Demchak, 1999), and accountability (Ghere & Young, 1998; Heeks, 1998, 1999b; McGregor, 2001). Electronic government, or e-government, has emerged as a popular catch phrase in public administration to cover all of these functions.

There is not any universally accepted definition of the e-government concept (Halchin, 2004, p. 407). In order to cover the variety of uses and the nuances sufficiently, several definitions are presented below. E-government is defined as "utilizing the Internet and the World-Wide-Web for delivering government information and services to citizens" (UN & ASPA, 2002, p. 1). It may also include using other ICTs in addition to the Internet and the Web, such as "database, networking, discussion support, multimedia, automation, tracking and tracing, and personal identification technologies" (Jaeger, 2003, p. 323). Fountain (2001) prefers to call this phenomenon 'digital government' or 'virtual state' instead of e-government.

> Digital government … is a government that is organized increasingly in terms of virtual agencies, cross-agency and public–private networks whose structure and capacity depend on the Internet and Web.... The virtual agency, following the Web portal model used in the economy, is organized by client (2001, p. 4).

Means and Schneider (2000, p. 121) define e-government as the relationships between governments, their customers (businesses, other governments, and citizens), and their suppliers (again, businesses, other governments, and citizens) by the use of electronic means. Similarly, for Hernon (in Duffy, 2000) e-government is

> ... Simply using information technology to deliver government services directly to the customer 24/7. The customer can be a citizen, a business or even another government entity.

Brown and Brudney (2001, p. 1) define e-government as the use of technology, especially Web-based applications to enhance access to and efficiently deliver government information and services. They categorize e-government efforts into three broad categories of Government-to-Government (G2G), Government-to-Citizen (G2C), and Government-to-Business (G2B). One may include two additional categories in this list: Government-to-Civil Societal

[2] The use of "information and communication technology" (ICT) is a deliberate choice over using "information technology" (IT). How the information is used for communication among various stakeholders in government operations is as important as how information is collected, stored and shared among government agencies.

Organizations (G2CS) and Citizen-to-Citizen (C2C), if the interaction among citizens is related to the other three categories of e-government. These categories, along with their characteristics, definition, and examples, are displayed in Table 1. This table suggests that it is possible to perceive the concept of e-government very differently depending on one's focus.

E-government is also perceived differently in connection with its theoretical background. According to Garson (1999), there are four theoretical frameworks within which e-government is conceptualized. The first framework involves the potential of IT in decentralization and democratization. The second normative/dystopian framework underlines the limitations and contradictions of technology. Third, the sociotechnical systems approach emphasizes the continuous and two-way interaction of the technology and the organizational–institutional environment. The fourth framework places e-government within theories of global integration.

3. Models of e-government development

E-government development is studied by building models of its stages. The first model (presented by Layne and Lee 2001, p. 124), argues that e-government projects evolve through

Table 1
Subcategories of e-government

Parties of communication	Content	Dominant characteristics	Definition	Example
Government-to-Government (G2G)	Government information and services	Communication, coordination, standardization of information and services	E-administration	Establishing and using a common data warehouse
Government-to-Citizen (G2C)		Communication, transparency, accountability, effectiveness, efficiency, standardization of information and services, productivity	E-government	Government organization Web Sites, e-mail communication between the citizens and government officials
Government-to-Business (G2B)		Communication, collaboration, commerce	E-government, e-commerce, e-collaboration	Posting government bids on the Web, e-procurement, e-partnerships
Government-to-Civil Society Organizations (G2SC)		Communication, coordination, transparency, accountability	E-governance	Electronic communication and coordination efforts after a disaster
Citizen-to-Citizen (C2C)		Communication, coordination, transparency, accountability, grassroots organization	E-governance	Electronic discussion groups on civic issues

Source: Yildiz, M. (2003). A general evaluation of the theory and practice of e-government (In Turkish). In M. Acar & H. Ozgur (Eds.), *Cagdas Kamu Yonetimi-1* (pp. 305−328). Istanbul: Nobel Publications.

four stages of development as their integration and technological and organizational complexity increase. The first stage is cataloguing, providing government information by creating government agency Web sites. At this stage, only one-way communication between the government and the governed is possible. The second stage is transaction. Agencies at this stage can provide online transactions with government agencies. This makes two-way communications possible. The cataloguing and transaction stages focus on creating an electronic interface for government information and services. The third stage is the integration of government operations within functional areas in government. Agencies working in the same functional area integrate their online operations. For example, database sharing by the FBI, CIA, and the NSA. The final stage is horizontal integration. Different functional areas are integrated within the same electronic system and put to use through a central portal. The last two stages focus on the integration of the provision of e-government activities within the existing governmental structure.

The second model of e-government development was introduced in a study conducted by the United Nations and the American Society for Public Administration (UN and ASPA 2002, p. 2). It proposed a five-stage model of development. The first stage is the 'emerging' stage, in which an official online government presence is established. Second, the number of government sites increase in number and become more dynamic in this 'enhanced' stage. The third 'interactive' stage enables the users to download forms and interact with officials through the Web. In the fourth 'transactional' stage, users have the ability to make online payments for transactions. The final 'seamless' stage makes the integration of electronic services across government agencies possible.

The ASPA-UN model is very similar to that of Layne and Lee (2001, p. 124). The ASPA-UN 'emerging' and 'enhanced' stages roughly correspond to Layne and Lee's cataloguing stage. The 'interactive' and 'transactional' stages are comparable to 'transaction' stage of Layne and Lee. The 'seamless' stage covers both vertical and horizontal integration. Recognizing the overlap, (Schelin 2003, p. 129) organized a typology of e-government by using both models (see Table 2).

One can argue that both the Layne and Lee (2001) and the UN and ASPA (2002) models, as well as the Schelin (2003) typology are oversimplifications. In other words, the stagist approach to e-government is unsatisfactory. Stages of e-government development do not necessarily follow each other neatly in a chronological or linear order. Moreover, such models may not be applicable to e-government development in developing countries, as those countries have a chance to learn from the e-government successes and failures of developed countries. It may be argued that developing countries have a much faster learning curve; they can perform the requirements of all the stages almost simultaneously.

4. Technology enactment view of e-government

In addition to the development stages of e-government presented above, Fountain (2001, pp. 10–14) introduced the technology enactment framework. This framework has three main elements (see Fig. 1). First, application of IT to an organization changes the objective form of that technology due to its adjustment to the organizational form. Second, there is a two-way

Table 2
E-government typology

Stage	Orientation	Services	Technology	Citizens
Stage 1: emerging Web presence	Administrative	Few, if any	Only Web	Going it alone
Stage 2: enhanced Web presence	Administrative, information	Few forms, no transactions	Web, e-mail	Links to local agencies
Stage 3: interactive Web presence	Information, users, administrative	Number of forms, online submissions	Web, e-mail, portal	Some links to state and federal sites
Stage 4: transactional Web presence	Information, users	Many forms and transactions	Web, e-mail, digital signatures, PKI, portals, SSL	Some links to state and federal sites
Stage 5: seamless Web presence	Users	Mirror all services provided in person, by mail and by telephone	Web, e-mail, PKI, digital signatures, portal, SSL; other available technologies	Crosses departments and layers of government

Source: Schelin (2003), p 129, adapted from UN and ASPA (2002) and Ho (2002).

interaction between the existing institutional arrangements and organizational forms. Third, the first two elements, that is, adoption and implementation processes, transform the objective form of technology to its enacted form (Bretschneider, 2003, p. 738). In other words, technology is customized to the needs and the environment of a specific organization through the process of enacting.

Fountain's technology enactment framework is criticized for three reasons. First, Bretschneider (2003) argues that the framework is so abstract and generalized that it is

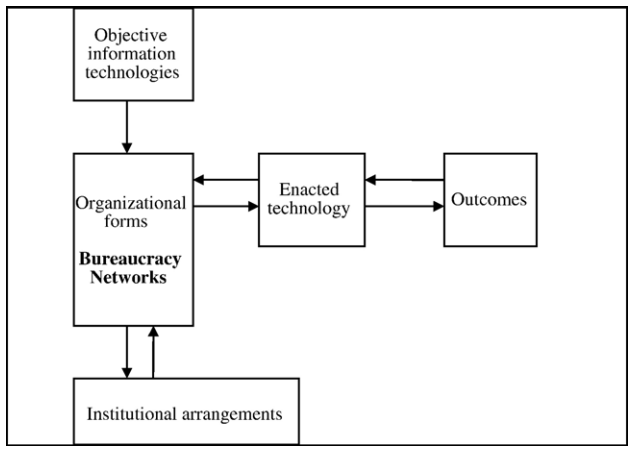

Fig. 1. Technology enactment framework (Fountain, 2001, p. 11).

difficult to use it for prediction. He also emphasizes the lack of numerous testable hypotheses in Fountain's work. Norris (2003) agrees with this argument and asserts that the cases do not present enough evidence to test the enactment theory. For example, both scholars think that Fountain exaggerates her case for inter-organizational alternatives to bureaucracies (Bretschneider, 2003, p. 741; Norris, 2003, p. 422). Norris (2003, pp. 421–422) even argues that Fountain's book is not about information technology and institutional change, but about organizational politics. Garson (2003, p. 430) reevaluates Fountain's leading case and presents evidence that the case evolved much differently than its presentation in the book. Yang (2003, p. 432) contends that Fountain's use of neoinstitutionalist theory fails to explain how agents overcome institutional barriers. Danziger (2004, p. 109), on the other hand, defends the technology enactment framework. He argues that the separation of objective and embedded technology, the richer examination of social networks, and a more nuanced discussion of institutional theory are useful.

A second criticism is that Fountain's research agenda is not well-linked to the previous literature in both public administration and IT (Bretschneider, 2003, p. 741; Norris, 2003, p. 418). Norris (2003, p. 738) argues that e-government is not that different from the uses of other technologies in government. Thus, previous lessons apply to e-government. Grafton (2003, p. 412) agrees with Bretschneider that the bulk of Fountain's work is "useful reformulation of conventional ideas." He also disagrees with Fountain's claims about the originality of her framework.

The third criticism is to Fountain's limited focus, as the book uses examples only from the U.S. federal government. While Bretschneider (2003, p. 741) sees this as a problem, Grafton (2003, p. 411) disagrees by stating that the discussion is applicable to state and local governments in the United States and elsewhere in the developed world. There is a more general criticism that much of the e-government literature focuses on the U.S. cases of national e-government implementation (Stowers, 2003); and much can be learned from the regional and local levels of e-government (Jaeger, 2003, p. 327) and from other national contexts.

5. Limitations of the e-government concept

In the light of the discussions presented above, the e-government concept is limited in four ways. The first limitation of e-government is that there is still no standard definition of the concept. In other words, it is difficult to define what exactly e-government is. This difficulty stems from a couple of reasons: First, e-government is a concept defined by the objective of the activity (transfer of government information and services among governments, their customers and suppliers), rather than by the specific technology used, provider of the service/information, or clear-cut activities of the related actors. Hence, many definitions of e-government are rather loose and gloss over the multiple meanings e-government might have depending on the specific context, regulatory environment, dominance of a group of actors in a given situation, different priorities in government strategies (Torres, Pina, & Acerete, 2005,

p. 218), etc. Heeks (2003) offers a contrary argument in an e-mail correspondence with the author of this article:

> ...There is a very important implicit debate/difficulty ... that some see e-government as a goal, some see it as a tool for achieving other, broader public sector reform goals.
>
> I would also add my own main distinction of definitions—some see e-government as the application of the Internet in government (and thus as something new and different); others – including us here in Manchester – see e-government as an application of digital ICTs in the public sector (and thus as something that has been going on for many decades even though we didn't used to call it e-government).

This makes one think whether it is wise to discuss e-government through the technologies employed in its making. Basically, technologies come and go. Technology is just a means to achieve e-government, which is a fundamental change in the way that governments do business with the stakeholders of government information and services. Certain technologies do not fundamentally define what e-government is and will be. Understanding the processes through which e-government end-products (government information and services) are determined saves us from unnecessarily focusing on the artifacts (contents of Web sites, use of certain technologies). A detailed understanding of the processes also helps us to recognize the key players in e-government policy making and the consequences of inclusion and/or exclusion of certain political actors during e-government policy making (Jonas, 2000, pp. 44–45). If we just focus on the technology or technological artifacts, it is not possible to appreciate the evolving nature of the e-government concept (Hwang et al., 1999, pp. 279–280) and understand that regardless of the technology employed to provide e-government services, the main issue is to make government work better, faster, more convenient to use for its stakeholders and provide administrative and democratic channels that were not possible to open with the old technological tools.

Second, e-government is one of those concepts that mean a lot of different things to a lot of different groups (Grant & Chau, 2005, p. 2). For instance, (Perri 6 2001, p. 7) identifies different parts of e-government as e-service delivery, e-democracy, and e-governance. Rapid technological changes also make it difficult to "fully grasp the meaning, opportunities and limits of the concept" (Prins, 2001, p. 1). Therefore, there are many alternative definitions that each emphasizes a particular subsection of these relationships, such as those pertaining to issues of accountability, transparency, interactivity, participation, cost-effectiveness, etc. For example, in their study of the U.S. Department of Energy's dissemination of electronic information, Whitson and Davis (2001, p. 79) defined e-government as "implementing cost effective models for citizens, industry, federal employees, and other stakeholders to conduct business transactions online. The concept integrates strategy, process, organization and technology." Such a seemingly limited definition of e-government is perfectly acceptable since this is the definition that reflects the characteristics of a certain context and application.

Third, as if it is not enough for the real substance of the concept to be ambiguous, poorly defined and/or context-dependent, e-government contains much hype and promotional efforts/literature as well, similar to the concepts of "knowledge management" (Lev, 2000; Lissack, 2000) or "management by objectives" (Miller & Hartwick, 2002). Hype is often accused of raising expectations above realistic levels, preventing people from seeing what is going wrong

in an area, and thus delaying corrective action. Hype is not always dysfunctional, though. It can be functional if it mobilizes interest and give people a shared (although sometimes a quite distorted) vision to act upon.

Finally, one might ask how substantial a change is required to meet the criteria for a government technology project to be titled as an e-government project. For example, are static Web sites or e-mail addresses of public managers enough? Or is some level of interaction required? Layne and Lee (2001) answer this question with their stages of e-government growth model. Projects at any of these steps could be defined as e-government projects. However, providing higher levels of conceptual clarity is necessary.

6. Suggestions

6.1. Topical suggestions: policy processes and political nature of e-government

This article aims to discuss possible solutions for the four problems in the e-government literature stated above. The first suggestion is to examine and better explain the processes of, and participation patterns in, e-government projects. The findings might help government planners and decision makers make better plans and decisions regarding e-government. In addition, students of public administration might have a finer understanding of the processes inside the black box of e-government policy making.

The phenomenon of e-government is seen by many as the latest episode of using technologies in government for government reform (Bretschneider, 2003, p. 739). Such an argument assumes that people who reform government will use technology for further rationalization of governmental processes. In order to clarify what has been being done in the name of e-government, future studies should test the claims of increasing rationality against the empirical data from e-government projects and produce alternative explanations when applicable. For example, it is possible for a project to be initiated partly because other organizations are preparing similar projects or because some vendor firm persuades top-level managers of government agencies that they "need" to implement such a project immediately. In addition, various deals, side-processes, and negotiations taking place within and among e-government policy actors might create an environment of "semi-rational" or garbage-can decision making models in e-government processes. Brown and Brudney (2003, p. 34) explain this non-rational mode of behavior with the uncertainty of organizational environment:

> Many of the empirical findings suggest that when faced with ill-structured environments (high uncertainty and task variability), decision-makers often prefer to rely on an intuitive, symbolic, political decision-making approach, rather than one based on systematic data and heuristics as incorporated in information and technology.

The second suggestion is to address the problem of underspecification in the e-government literature. This literature is still in its infancy (Aldrich et al., 2002, p. 354), with little grounded, empirical work (Danziger & Andersen, 2002) and what is being measured mostly being Web site deployment (Norris & Moon, 2005). Longitudinal studies such as Norris and Moon (2005)

are necessary to examine the evolution of e-government. The empirical data derived from future studies can also contribute to the literature by creating new theoretical arguments and providing new concepts and categories that would enhance our understanding of e-government policy processes and actors. Excellent examples to the creation of such new concepts and categories are the concepts of 'force field of competing forces' and 'vendor push' used by Yildiz (2004) to better explain the e-government policy-making process in Turkey. The main argument behind the 'force field of competing forces' concept is that in a given project, there are multiple and competing forces that initiate a project and help it to get on the decision agenda. Several forces Yildiz identified during field research are actual needs, that is, problems for which e-government projects are genuine solutions, government reform and administrative control needs, various kinds of isomorphic pressures (normative, mimetic, coercive), vendor push (IT vendor firms using their employees in the IT policy networks to influence the decision-making process that leads to the creation and/or shaping of an e-government project), and symbolic actions which are the 'ritualistic aspects of administrative behavior as it includes repetition, role-playing, stylization, order, staging, and creation of meaning' (Goodsell, 1997).

The third suggestion is to explain the policy-making processes in e-government projects in a complex political environment. The problem domains in which governments operate are ill-structured. Public administrators try to solve intractable and wicked problems that cut across agencies vertically and horizontally (Brown & Brudney, 2003, p. 33). Problems related to e-government are no exception. Gil-Garcia and Pardo (2005, pp. 188–189) argue that practitioners are not well-prepared to solve the technology-related problems as they can not make use of most of the research in this area. This complicates the planning and decision-making processes in government. Attitudinal perceptions of government decision makers also constrain these processes (Brown & Brudney, 2003, p. 36). A better understanding of these attitudes might help in making the complexity more manageable. This can be achieved by tapping into the experiences of e-government held by key policy makers since their perceptions constitute an important component of their actions in regard to agenda setting and policy formulation (Heeks, 2003). Only by understanding these processes can one verify the presence or lack of the technology-enactment framework (Fountain, 2001) in e-government and use this framework to optimize government decision-making and planning processes regarding ICT issues.

The final suggestion is to tie the subject of e-government strongly to mainstream public administration research. E-government is not limited only with the use of existing and emerging technologies in government operations. It is also linked with many old and new mainstream public administration concerns such as the politics–administration dichotomy (e.g., do the elected officials or the appointed ones dominate the process of e-government development?), intergovernmental relations (e.g., how do national e-government policies affect local e-government?), networks (e.g., what are the role of social networks in e-government development?), third party government (e.g., under which conditions should e-government efforts be outsourced and how do these firms be selected and monitored?), and governance (e.g., what are the appropriate roles of the citizens, civil societal organizations and private firms in e-government development?), to name just a few. The results of future studies

might make the connection between e-government and the traditional concerns of public administration stronger.

6.2. Methodological suggestions: from output to process

This section briefly explains why examining the political nature and policy processes of e-government projects, as suggested above, add value to the current e-government research. The main argument is that studies that explain process and political environment of e-government projects, studies that use primary data collected by extensive fieldwork and multi-site, multi-method approaches are needed in addition to the outcome-focused studies that dominate the literature.

E-government is a relatively new subject of academic interest in the field of public administration. Although earlier versions of the Internet and its accompanying subtechnologies (e-mail, file transfer, to name just two) were available for the last three or four decades, it was only during the last decade of the 20th Century, especially with the introduction of the World Wide Web, that use of the Internet in and around governments became increasingly popular among the citizenry, as well as among various levels of governments, their suppliers and customers, as explained in detail above.

The first decade of academic e-government research was dominated by studies that focused on the observation and evaluation of the output of e-government initiatives. These studies analyzed the contents of local, state, and federal government agency Web sites, listed the kinds of online services provided by government agencies, and presented the cases of best practices for benchmarking (Cohen & Eimicke, 2001; West, 2003a, 2003b). Although the studies were useful in practical terms, they were mainly descriptive in nature (Jonas, 2000, p. 45).

The processes of e-government development, however, have attracted limited attention among the members of the public administration research community. One frontier study examines technology use in American local governments and explains how technology was used to reinforce the existing power structure by examining the effects of political and organizational factors on the application of computer technology in American local governments (Danziger et al., 1982). In addition to such early studies, future research is needed so as to examine the processes that shape the management of e-government projects, not the processes of political and organizational change.

Fountain's (2001) book, *Building the Virtual State*, is significant, both methodologically and in other ways, in that it closely examines the processes of e-government development by conducting numerous interviews while performing three in-depth case studies. There are three other reasons for the methodological importance of Fountain's work. First, she generated her own data by interviews and case studies rather than by analyzing secondary data. Second, she performed theoretical sampling (Fountain, 2001, p. 16), while selecting the cases for in-depth study. Finally, she used grounded theory methodology as she aimed to "test propositions against empirical evidence to generate theory rather than to evaluate predictive theory" (Fountain, 2001, p. 16). Although her work is criticized for different reasons by some researchers as discussed above, her methodological approach is still the exception rather than

the rule. Most e-government studies still examine the outputs of e-government rather than the processes. They use secondary rather than primary data, and they rarely test previous theories, let alone adding to these theories and/or producing new theory.

The criticism of being atheoretical is not new for the field of public administration. For example, Bozeman (1993, p. 3) argues that the public policy (P) approach to public management is

> largely atheoretical,... oriented towards practice-based prescriptive rules. The preferred research method is also the preferred teaching method—immersion in case studies.

All the same arguments apply to e-government research. Most e-government studies are either descriptive or promotional, using such methods as content analyses of government Web sites or vendor marketing efforts. Moreover, case studies are by far the favorite research (if not teaching) method (Danziger & Andersen, 2002, p. 599).

This study makes two methodological suggestions for the study of e-government. First, whereas examination of the outputs and outcomes of e-government efforts constitute the majority of the e-government literature, examining and explaining the processes of e-government development are also necessary. Careful analysis of the e-government policy processes is essential to ensure that the resources are spent for projects with the highest priority, to prevent perpetuating previous mistakes, and to maximize gains while minimizing resources spent. Table 3 summarizes this argument. It should be noted that the categories

Table 3
A new categorization of e-government research

Dimensions	Orientation		
	Output	Outcome	Process
Focus	Web sites, online government services, front office	How does an e-government application affect a certain variable such as trust, accountability, transparency, corruption, government effectiveness, users' perceptions of service quality	Processes of decision making, planning, implementation, back office
Method	Content analysis, determining best practices, benchmarking, surveys, case studies	Content analysis, determining best practices, benchmarking, surveys, case studies	Interviews, archival analysis, discourse analysis, case studies
Data	Primary and secondary	Primary and secondary	Primary
Mode of analysis	Outside–in, deductive	Outside–in, deductive	Inside–out, inductive
Outcome	Descriptive, exploratory	Descriptive, exploratory	Theory generation, explanatory
Examples	Bauer and Scharl (2000); Cohen and Eimicke (2001); Hernon (1998); Stowers (1999); West, 2003a, 2003b	Cullen and Houghton (2000); Gant and Gant (2002); La Porte, et al. (1999); Mahmood (2004); Torres et al. (2005)	Bellamy and Taylor (1998); Fountain (2001); Jonas (2000); Yildiz (2004)

explained in Table 3 are products of generalizations. Therefore, these categories are not mutually exclusive.

As the titles suggest, output- and outcome-oriented e-government studies focus on a particular point in the development of e-government projects. They examine the output of e-government efforts, the artifacts, such as Web sites and online government services. Outcome-oriented studies, on the other hand, explain which government performance indicator (i.e., cost, transparency, efficiency) is improved as a result of a particular e-government effort. The limited focus of these two types of studies is generally accompanied by the purpose of determining best practices for benchmarking. They examine e-government efforts through the eyes of a scientific observer who examines the products of e-government efforts (i.e., Web sites, online services) externally and typically through secondary data. The objective is to find successful cases to emulate. Such external examination is a deductive, outside–in approach (Agranoff, 2004) to e-government. These studies are by and large exploratory and descriptive. They do not tell us what is happening inside the black box of e-government.

As stated above, study of e-government processes is not a new type of research. The Urban Information Systems (URBIS) project conducted in 1970s at the University of California, Irvine, produced some early process-oriented research (Danziger et al., 1982). More recently, Bellamy and Taylor (1998) and Fountain (2001) produced process-oriented studies. However, generally speaking, output- and outcome-oriented research has dominated the e-government literature.

Process-oriented studies typically use primary data provided by extensive fieldwork. They use data collection methods such as interviews, participant observation, and archival analysis to understand and explain the e-government processes and generate theory. One way that theory is created is that people who work for e-government projects tell their stories to a researcher. The researcher transforms their words into abstract thought as a result of systematic data gathering, data analysis, and triangulation. This is an inductive, inside–out process, "… a spy-like strategy of getting inside the organization … to understand how the forces of operation transform 'inputs' into 'outputs'" (Agranoff, 2004, p. 3).

The second suggestion is that certain methodological choices such as using primary data, triangulation of findings, and concepts with an analysis approach to produce theory are found rarely in the e-government literature. The use of such strategies significantly add value since they exemplify the more rigorous methodological choices observed in only a small fraction of the current research in e-government area. Many e-government researchers limit their analysis within the confines of the government agency employing the e-government application. Triangulation of the data and findings by using different data-sources, methods, researchers, and data types (Miles and Huberman, 1994, p. 267), which are collected at multiple sites increase the rigor of the studies. In addition, both government agencies and their environments should be analyzed at the same time by performing periphery sampling. Finally, attempts at testing or building theory are only a small part of the current e-government research effort. Studies that use grounded theory not only build theory by progressing from empirical data to hypotheses in an inductive way; but they also identify new variables and concepts through systematic analysis, and thereby generate additional avenues for research as new variables and concepts are identified through systematic analysis.

7. Conclusion

This article is written to discuss the limitations in the e-government literature such as definitional vagueness of the e-government construct, under-emphasis of the complex political and institutional environments that surround the processes of e-government development, and the lack of process-oriented e-government studies as opposed to output and outcome-oriented ones. In order to address these issues, remedies such as (i) better examining and explaining the processes of – and participation patterns in – e-government projects within complex political environments; (ii) addressing the problem of under-specification in the e-government literature by the production of more grounded, empirical studies that would create new theoretical arguments and provide new concepts and categories so as to enhance our understanding of e-government policy processes and actors; and (iii) tying the subject of e-government strongly to mainstream public administration research are suggested in the analysis section above.

The suggested topics and methodologies to examine and explain the non-technical and political nature and processes of e-government may help to protect the public interest when spending large amounts of government money on e-government projects. Only when we understand the processes of e-government policy making, we can evaluate the true merits of e-government initiatives. Moreover, this new understanding may enable public administrators to be ready to make the technical, managerial, and political adjustments to the policy-making processes. For example, academic exploration of the role of the media, private IT vendor firms, and policy networks, and the way these actors influence the government policy-making processes, is necessary for protecting the public interest. As Fountain (2001, p. 203) aptly puts it:

> A critical set of governance questions bears on the nature of public-private policy networks and their appropriate role in the design, development, management, control and in some respects ownership of the virtual state.... Governments must be careful, in their zeal to modernize, not to unwittingly betray the public interest.

For example, if non-governmental policy actors such as IT vendor firms are abusing their powers in the policy-making process and serving private interests rather than public interest, then public administration is faced with an alarming situation. If this is indeed the case, precautions that would increase the transparency of the policy-making processes and accountability of non-government policy actors need to be taken. This line of inquiry connects e-government research with those of newer research areas such as non-profit organizations, (policy) networks, third party government, governance, and globalization. This approach moves e-government research from the peripheries of public administration field, in which it is predominantly perceived as the "latest technology of government reform," and places e-government at the center of theoretical and practical discussions in the field.

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Mete Yildiz is an assistant professor at the Public Administration and Political Science Department of Hacettepe University in Ankara, Turkey. He worked as an associate instructor (2001–2003) and a visiting lecturer (2003–2004) at the School of Public and Environmental Affairs at Indiana University, Bloomington. His research focuses on the policy-making processes in government information and communication technology (ICT) projects, policy (social) networks, digital divide (especially the potential role of Internet cafes and cell phones in bridging it) and teaching ICT-related classes in public administration programs. Yildiz was the cofounder (with Jon Gant) and the organizer of E-government Workshop at Indiana University. During his stay at Indiana University, Yildiz attended the NSF-funded WebShop at the University of Maryland (Summer 2002), and worked as the managing editor of *The Information Society* journal (2001–2002). Yildiz holds a Master's degree in public administration from University of Southern California in Los Angeles, U.S.A., and Ph.D. in Public Affairs from Indiana University-Bloomington.