E-government research: Reviewing the literature, limitations and ways forward

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Annotation

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[1].

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[2].

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

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[1] Agranoff, 2004Agranoff, R. (2004, March). Inside the operation: Building grounded network theory. Paper presented at the American Society for Public Administration National Conference, Portland, OR.

[2] Aldrich et al., 2002J. Aldrich, J.C. Bertot, C.R. McClure E-government: initiatives, developments, and issues Government Information Quarterly, Volume 19, 2002, pp. 349–355 Bauer and Scharl, 2000

public interest.[3]

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. 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.[4] In order to address these issues, the article reviews the limitations in the e-government literature, and it suggests ways forward.[5] 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.[6]

Introduction: technology use in government

E-government (short for electronic government, also known as e-gov, Internet government, digital government, online government, or connected government) consists of the digital interactions between a citizen and their government, between governments and government agencies, between government and citizens, between government and employees (G2E), and between government and businesses/commerce (G2B). Essentially, e-government delivery models can be briefly summed up as:

- G2G (government to governments)
- G2C (government to citizens)
- G2E (government to employees)
- G2B (government to businesses)

The objective of this article is to review

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[3] C. Bauer, A. ScharlQuantitative evaluation of web site content and structur.Internet Research: Electronic Networking Applications and Policy, Volume 10, Issue 1, 2000, pp. 31–43 View Record in ScopusCiting articles (89)

[4] Bekkers and Zouridis, 1999V.J.J.M. Bekkers, S. Zouridis.Electronic service delivery in public administration: Some trends and issues.International Review of Administrative Sciences, Volume 65, Issue 2, 1999, pp. 183–196

[5] Bellamy and John, 1998 C. Bellamy, A.J. Taylor. Governing in the information age 1998, Open Univ. Press, Buckingham

[6] Bozeman, 1993 B. Bozeman Introduction. Public Management: State of the Art, Barry Bozeman, 1993, Jossey-Bass, San Francisco, pp. 275–293

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.[7] 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. 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.[8]

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 relation ship 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.

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.[9]

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).[10]

Definitions of e-government

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[7] Bozeman and Bretschneider, 1986 B. Bozeman, S. Bretschneider.Public management information systems: Theory and prescription. Public Administration Review, Volume 46, 1986, pp. 475–487. View Record in Scopus | Full Text via CrossRefCiting articles (1)Bretschneider, 2003

[8] S. Bretschneider Information technology, e-government and institutional changePublic Administration Review, Volume 63, Issue 6, 2003, pp. 738–741

[9] Brown and Brudney, 2001Brown, M. M., & Brudney, J. L. (2001, October). Achieving advanced electronic government services:. Paper presented at the National Public Management Research Conference, Bloomington, IN.

[10] Brown and Brudney, 2003 M. M. Brown, J.L. Brudney Learning organizations in the public sector? A study of police agencies employing information and technology to advance knowledge.Public Administration Review, Volume 63, Issue 1, 2003, View Record in Scopus | Full Text via CrossRefCiting articles (59) Cohen and Eimicke, 2001

There is not any universally accepted definition of the e-government concept. 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".[11] 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" Fountain (2001) prefers to call this phenomenon 'digital government' or 'virtual state' instead of e-government.[12]

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.[13]

Means and Schneider 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 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.[14] Brown and Brudney 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 Organizations (G2CS) and Citizen-to-Citizen (C2C), if the interaction among citizens is related to the other three categories of e-government.

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

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[11] S. Cohen, W. Eimicke The use of Internet in government service delivery.E-Government 2001. The Pricewaterhouse-Coopers endowment for the business of government, M. Abramson, G.E. Means, 2001, Rowman & Littlefield Publishers, Inc., Oxford, pp. 9–43.View Record in ScopusCiting articles (9)Cullen and Houghton, 2000

[12] R. Cullen, C. Houghton Democracy online: An assessment of New Zealand government Web sites Government Information Quarterly, Volume 17, Issue 3, 2000, pp. 243–267.Article | PDF (640 K) | View Record in ScopusCiting articles (28)Danziger, 2004

[13] .J.N. Danziger Innovation in innovation: The technology enactment framework Social Science Computer Review, Volume 22, Issue 1, 2004, pp. 100–110 View Record in Scopus | Full Text via CrossRefCiting articles (11) Danziger and Andersen, 2002

[14] J.N. Danziger, K.V. Andersen The impacts of information technology on public administration: An analysis of empirical research from the "golden age" of transformation International Journal of Public Administration, Volume 25, Issue 5, 2002, pp. 591–627 View Record in Scopus | Full Text via CrossRefCiting articles (87)

and two-way interaction of the technology and the organizational – institutional environment. The fourth framework places e-government within theories of global integration.

Models of e-government development

E-government development is studied by building models of its stages. <u>The first model</u> (presented by Layne and Lee 2001, p. 124), argues that e-government projects evolve through four stages of development as their integration and technological and organizational complexity increase.[15] 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.[16] 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.[17] 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.[18]

The last two stages focus on the integration of the provision of e-government activities within the existing governmental structure.

<u>The second model</u> of e-government development was introduced in a study conducted by the United Nations and the American Society for Public Administration. It proposed a five-stage model of development. The first stage is the 'emerging' stage, in which an official online government presence is established.[19]

Second, the number of government sites increase in number and become more dynamic in this 'enhanced' stage. The third

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[15] Danziger et al., 1982 J.N. Danziger, W.H. Dutton, R. Kling, K.L. Kraemer Computers and politics: High technology in American local governments1982, Columbia Univ. Press, New York
[16] DiCaterino and Pardo, 1996 DiCaterino, A., & Pardo, T. A. (1996). The World Wide Web as a universal interface to government services. Available at: http://www.ctg.albany.edu/resources/abstract/itt96-2.html. Accessed May 10, 2003.
Doty and Erdelez, 2002

[17] P. Doty, S. Erdelez Information micro-practices in Texas rural courts: Methods and issues for E-government.Government Information Quarterly, Volume 19, 2002, pp. 369–387.Article | PDF (93 K) | View Record in ScopusCiting articles (19) Duffy, 2000
[18] Duffy, D. (2000). Q&A: Balancing the role of e-Government: Interview with Mike Hernon, vice president of e-government for New York City-based GovWorks. [Online] Available at: http://www.cnn.com/2000/TECH/computing/11/13/qna.egov.idg/. Accessed January 7, 2001.Feinberg, 2004
[19] L.E. Feinberg FOIA, federal information policy, and information availability in a post-9/11 world Government Information Quarterly, Volume 21, 2004, pp. 439–460
Article | PDF (189 K) | View Record in ScopusCiting articles (30) Fountain, 2001

'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. 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, organized a typology of e-government by using both model.

Technology enactment view of e-government

In addition to the development stages of e-government presented above, Fountain introduced the technology enactment framework. This framework has three main elements.[20]

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 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 In other words, technology is customized to the needs and the environment of a specific organization through the process of enacting.[21]

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.[22]

Hence, many definitions of e-government are rather loose and gloss over the multiple meanings e-government might

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[20] J.E. Fountain Building the virtual state: Information technology and institutional change 2001, Brookings Institution Press, Washington, DC
Gant and Gant, 2002 Gant, J. P., & Gant, D. B. (2002). Web Portal Functionality and State Government E-Services, Proceedings of the 35th Hawaii International Conference on Systems Sciences, 2002.

[21] Garson, 1999 G.D. Garson.Information systems, politics, and government: Leading theoretical perspectives Handbook of public information systems, G.D. Garson, 1999, Marcel Dekker, New York.View Record in ScopusCiting articles (8)
[22] Garson, 1999 G.D. Garson. Information systems, politics, and government: Leading theoretical perspectives Handbook of public information systems, G.D. Garson, 1999, Marcel Dekker, New York.View Record in ScopusCiting articles (8)

have depending on the specific context, regulatory environment, dominance of a group of actors in a given situation, different priorities in government strategies, 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 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. If we just focus on the technology or technological artifacts, it is not possible to appreciate the evolving nature of the e-government conceptand 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 Rapid technological changes also make it difficult to "fully grasp the meaning, opportunities and limits of the concept" .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 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" or "management by objectives". 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 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.

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.[23]

The second suggestion is to address the problem of under specification in the e-government literature. This literature is still in its infancy, with little grounded, empirical work and what is being measured mostly being Web site deployment. 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.[24] 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

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[23] Garson, 2003 G.D. Garson. Technological teleology and the theory of technology enactment. Social Science Computer Review, Volume 21, Issue 4, 2003, pp. 425–431.

[24] Garson, 2003 G.D. Garson. Technological teleology and the theory of technology enactment. Social Science Computer Review, Volume 21, Issue 4, 2003, pp. 425–431.

which are the 'ritualistic aspects of administrative behavior as it includes repetition, role-playing, stylization, order, staging, and creation of meaning.

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.

Problems related to e-government are no exception. Gil-Garcia and Pardoargue 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.[25]

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.[26]

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

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[25] Garson, 2003 G.D. Garson. Technological teleology and the theory of technology enactment. Social Science Computer Review, Volume 21, Issue 4, 2003, pp. 425–431.

[26] Garson, 2003 G.D. Garson. Technological teleology and the theory of technology enactment. Social Science Computer Review, Volume 21, Issue 4, 2003, pp. 425–431.

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.

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.

Disadvantages

The main disadvantages concerning e-government is the lack of equality in public access to the internet, reliability of information on the web, and hidden agendas of government groups that could influence and bias public opinions.

There are many considerations and potential implications of implementing and designing e-government, including disintermediation of the government and its citizens, impacts on economic, social, and political factors, vulnerability to cyber attacks, and disturbances to the status quo in these areas. See also Electronic leviathan.

Advantages

The ultimate goal of the e-government is to be able to offer an increased portfolio of public services to citizens in an efficient and cost effective manner. E-government allows for government transparency. Government transparency is important because it allows the public to be informed about what the government is working on as well as the policies they are trying to implement. Simple tasks may be easier to perform through electronic government access. Many changes, such as marital status or address changes can be a long process and take a lot of paper work for citizens. E-government allows these tasks to be performed efficiently with more convenience to individuals. E-government is an easy way for the public to be more involved in political campaigns. It could increase voter awareness, which could lead to an increase in citizen participation in elections. It is convenient and cost-effective for businesses, and the public benefits by

getting easy access to the most current information available without having to spend time, energy and money to get it.

Whilst e-government has traditionally been understood as being centered around the operations of government, e-governance is understood to extend the scope by including citizen engagement and participation in governance. As such, following in line with the OECD definition of e-government, e-governance can be defined as the use of ICTs as a tool to achieve better governance.

Conclusion

According to the head of Azerbaijan Control Agency Namik Khalilovit was reported that the authorities plan to integrate infrastructure "of e-government" services based on the State Insurance Supervision Service of the Ministry of Finance .As the representative of the Office's electronic services will be available soon. Currently on the official website of the Ministry of Finance it is available to apply for licenses to insurance and reinsurance activities as well as for perpetual permits. It should be noted that the development of the site "Electronic Government" principle was used system X-Road, which combines information database and system state institutions created based on various platforms. It is expected that e-government will provide up to four hundred of public services online. By 2020, access to these services will be 80 percent of citizens.