E-Gov and the Coming Revolution of Information Government

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This paper is one of a series of works in progress sponsored by the Belfer Center for Science and International Affairs (BCSIA), its Governance Initiative in the Middle East, and the Dubai School of Government. All papers in the series are available on the BCSIA web site, www.belfercenter.org, and the Dubai School of Government's web site, www.dsg.ae.

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"Electronic government" (or E-Government) is often viewed as simply the integration of information and communication technologies (ICT) into government. Following this construction, E-Government is but the utilization of ICT to achieve pre-existing goals of government. Thus, just as the private sector has witnessed enormous productivity gains over the last decade due to utilization of ICT, E-Government should result in the offering of more services at reduced burdens on society, including a reduced tax burden (Lau 2005). While this is certainly an important part of E-Government, it leaves out fundamental differences between the public and private sector (Fountain 2001b). The relationship between consumer and producer is about satisfying consumer wants and maximizing producers' profits, whereas the relationship between citizen and state is not simply about the provision of services but about rights, duties, and the existence of a deliberative space to construct policy. From this view, the critical importance of ICT is how it *may* enable rewiring the connections within and between state and society. E-Government is thus not about a means to a particular end, but, rather, involves rethinking the processes by which society collectively decides how to pursue certain ends. That is, in short, *we need to move toward a construction of E-Government to I(information)-government.*

This paper provides an analysis of E-Government, integrating both perspectives in turn. The first two sections of the paper examine what have been the dominant strands of E-Government initiatives and research to date: (1) the use of ICT to achieve existing governmental services at lower cost and (2) the use of ICT to reduce burdens on the consumers of those services. The third section focuses on what we argue is the critical third dimension to e-government—the potential role of ICT in reshaping state and societal connectedness.

1. Two Views of Electronic Government:

In the literature, electronic government has been described as a tool for achieving various goals, like public sector efficiency, citizens' welfare gains, and macroeconomic competitiveness. Electronic government has been conceptualized to achieve these goals around two distinct views, the resource-centric view and the customer-centric view, which we will discuss in sequence in the following part.

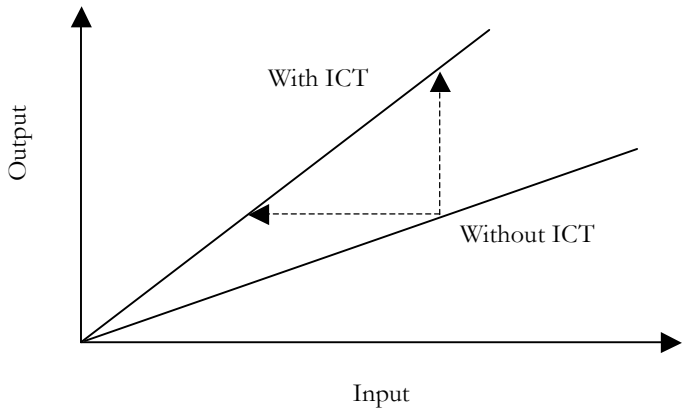
A. The Resource-Centric View:

Modern information and communication technologies enable users to speed up routine and repetitive tasks. Word processing facilitates the efficient production of documents, which can be stored and accessed easily and efficiently by utilizing affordable digital storage devices. Electronic case management and similar applications aid agencies in fulfilling their tasks. More work can be accomplished in less time with less money. For decades public sector automation has been seen from this resource-centric viewpoint.

It is not surprising therefore that electronic government has been described as a means to further this resource-centric goal—functioning as yet another step in a continuous process of achieving public sector efficiencies through the use of technology. In this sense, electronic government is a continuation and extension of the office automation in the public sector.

According to the resource-centric view, the purpose of electronic government is to save public resources and to make public sector activity more efficient. Electronic government is seen as a mechanism with which either a given level of service can be offered with a reduced budget or an agency may achieve an increased amount of work with the same budget (see diagram 1).

Diagram 1 – The Resource-centric View



As one focuses on resource efficiency, web-based electronic government services become important not because they permit citizens to interact with government twenty-four hours per day, seven days per week from the comfort of their homes. Web-based service interaction is useful because citizens enter their information themselves, saving the public sector the human resources needed for data entry and validation. Electronic authentication mechanisms, as part of an electronic government infrastructure, are helpful because they spare bureaucrats from checking the identity of the citizens before them. Electronic case management systems are lauded not for their ability to foster procedural transparency and substantive accuracy, but rather for their contribution to less resource intense decision-making. Additionally, E-Government tools to further citizen engagement and deliberation are accepted only insofar as moving processes to the digital realm reduces procedural transaction costs.

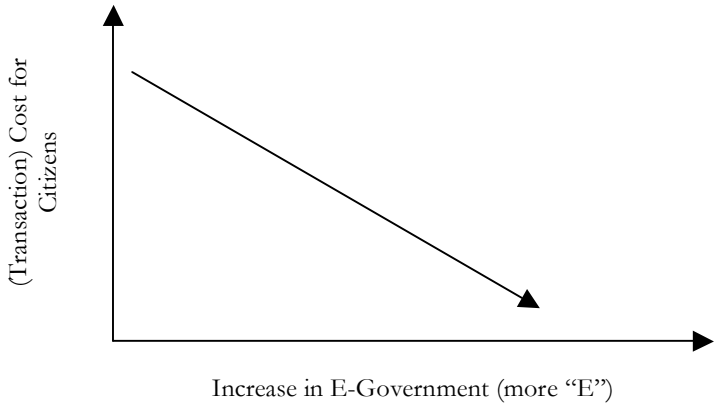
Promises of efficiency and public sector savings have been cited most frequently as justifications for electronic government. Efficiency is the powerful goal to which the means of electronic government contributes. Given recurring budgetary constraints for much of the public sector in many states and the prevalence of a market-driven public sector reform agenda, this emphasis on efficiency is unsurprising.

A resource-centric view focuses on how the work is done within the public sector, and how with the help of technology, it can be done more efficiently. Often times, this leads to an emphasis on back-office initiatives, suggesting ways by which intra-agency processes can be streamlined. Back-office initiatives are, however, not synonymous with the implementation of a resource-centric view of electronic government. Not all back-office initiatives are aimed at efficiency increases, while public sector resources may also be saved through front-office initiatives, as the example of online forms indicates.

B. The Customer-Centric View:

The customer-centric focuses on welfare gains by customers of electronic government services. The goal is to make it easier, faster, and cheaper for customers to interact with public sector agencies, "to build services around citizens' choices" (Curthoys and Crabtree 2003). Electronic government services offered over the Internet are accessible every day around the clock from the customer's personal computer. Paying for traffic congestion charges through a short message from one's mobile telephone, as recently implemented in London, reduce the transaction cost burden on the customers, as do systems of automatic road pricing by eliminating the need for customers to pay tolls in cash at toll booths.

Diagram 2 – The Customer-centric View



For the customer-centric view, the goal of electronic government is to provide a simple, easy, fast, and transparent mechanism of interacting with citizens, reducing the transaction costs that citizens face (diagram 2). Whether or not this leads to efficiency gains or losses within the public sector is of secondary importance.

The customer-centric view has received more attention than the resource-centric view in the public debate. This is not surprising, given that how governments interact with citizens is of significant interest to society. The "dotcom" frenzy, the advent of ecommerce, and the "sexiness" of the Internet and the Web have all contributed to attract attention. This attention does translate into a significant increase in the offering of electronic government services online, as well as in the number of agencies that have opened a web-presence, as for

example West (2004) for the United States and the European Commission (eEurope 2004) for Europe have shown.

Advocates of a customer-centric view scrutinize how, with the help of technology, public agencies interact with their customers, citizens, and businesses for example. The goal is to make the interaction as seamless and straightforward as an ecommerce transaction. Commonly, this means targeting the front-office side of electronic government. Yet here, too, front-office E-Gov services are not necessarily furthering a customer-centric view, and vice versa.

A customer-centric view also conceives of transactions from the customer's perspective, suggesting one interface for a specific service request even if processing the request may involve more than one agency. This in turn may require agency cooperation and may even, if agencies fail to coordinate their processes, lead to additional transactional costs for maintaining the illusion of an integrated process for the customer.

In the United States, for example, the U.S. Postal Service contracted with a for-profit company to develop a one-stop shopping web site for people moving from one location to another. The web site – *moving.com* – offered citizens a way to file a change-of-address form, to notify utility companies of their moving, and to buy packaging material and to hire moving trucks from private sector partners.[1] *Moving.com* provides a customer-centric front-office solution that reduces transaction costs for citizens by eliminating the need to go to the post office and file a change-of-address form and to notify individually utilities and others of the move. It does not significantly alter internal governmental processes and only indirectly improves public sector efficiency.

Austria provides a customer-centric solution based on a back-office solution. Austrian citizens can get their passport renewed while they wait. It takes less than fifteen minutes from filing the application to receiving the passport. This saves citizens a separate trip to the passport agency to pick up the passport and provides them with passports much faster than they had previously been issued. To be sure, the local printing of passports at passport offices may save them some time when compared with the previous process of filling in passport information with typewriters, but such savings pale when compared with the value of customer convenience that this application has provided. Similarly, E-Gov services offered in Dubai's Internet City make it possible to incorporate companies or get a work permit in a matter of hours — a drastic cost savings for the private sector.

Making it easier to interact with government lowers costs in terms of time and money—for citizens and the private sector. This benefits society by reducing transactional costs. Moreover, it has been argued that private sector savings in one jurisdiction utilizing electronic government may lead to an increase in overall macroeconomic competitiveness when compared to another jurisdiction in which electronic government is not offered. Thereby, if true, electronic government contributes to the fueling of a society's economic agility, improving its position relative to other jurisdictions and assisting in achieving competitiveness reform agendas.

[1] The venture ultimately failed, but was partly resurrected by http://www.changeofaddressform.com

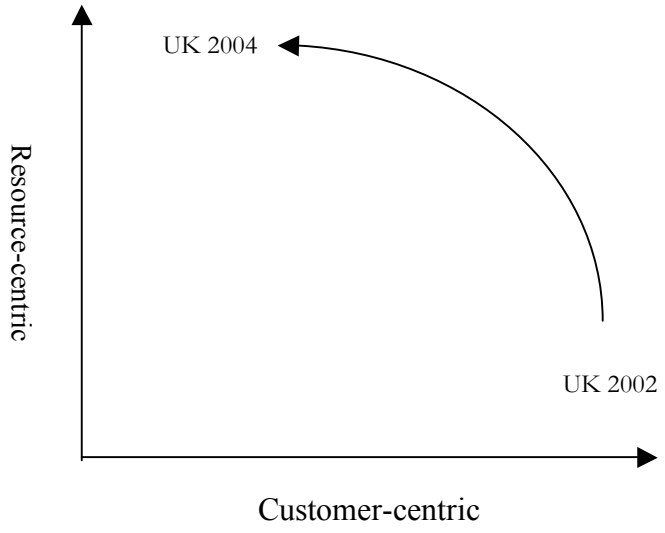
The former British e-envoy, the British government's person in charge of electronic government, was one of the early proponents of a customer-centric view to advance economic competitiveness. The Organization for Economic Cooperation and Development (OECD) has made explicit electronic government's contribution to economic policy objectives in its electronic government report and has recently followed up on the competitiveness issue. (OECD 2003; see also Lau 2005) The European Union in its Lisbon E-Europe reform agenda has adopted a similar stance. (Commission of the European Communities 2002)

2. The Electronic Government Plane:

The two views of electronic government (resource-centric and customer-centric) and the goals associated with them (public sector efficiency and macroeconomic competitiveness) are not mutually exclusive. They represent distinct dimensions of electronic government goals. Combined, they create what we term the electronic government plane, in which one can place the various electronic government strategies based on how the importance of these strategies ranks in public sector resource savings and private sector welfare gains.

States and jurisdictions may adopt an electronic government strategy that emphasizes one of the two dimensions or attempts to achieve both. Strategies may also change over time, due to a change in voter sentiment or governmental objectives as has happened, for example, in the United Kingdom.

Table 1. The Electronic Government Plane

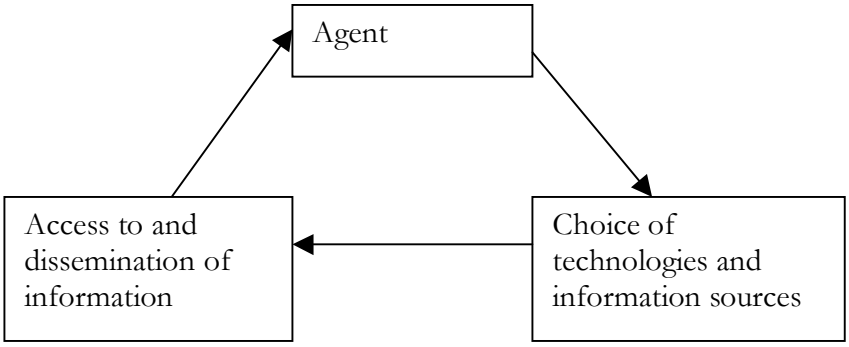


3. The informational dimension

The resource- and customer-centric dimensions of E-Government ignore some of the critical issues as to how changes in the structure of information flows will affect actors in the

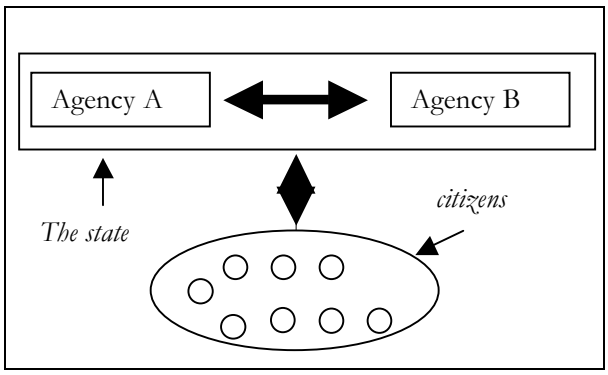
process. Here, we discuss the informational dimension, focusing, in particular, on how the changes in the information flow may change agents (public and private) in the system in a recursive fashion, where agents choose to develop and utilize (or not) certain technologies, which, in turn may be used to access and disseminate certain information. This information, in turn, affects the agents in the system, in terms of their policy and ICT choices (see diagram 3).

Diagram 3: The interplay of agents, technologies, and information flows



By this construction, developments in ICT are part of an ongoing reconstruction of information flows within the state and society. Here, we discuss the role of how information flows matter with respect to (1) cross-agency information flows and (2) information flows between state and citizens (see diagram 4). We consider each in turn below.

Diagram 4: State-citizen information flows



Cross-agency communication

Cross-agency communication matters for two reasons. First, given a set of objectives, information sharing may allow all agencies involved to better achieve their objectives. Second, communication may cause agencies to reconceptualize, through learning, what their objectives should and/or how to achieve those objectives.

Policy cooperation and coordination: Policy cooperation is simply the co-production of some desired set of policy outcomes, where different agencies are likely to have different objectives, but where the agencies working together jointly achieve a superior outcome to

what they would have otherwise achieved. Sometimes policy cooperation may simply be sharing information—thus, for example, in the criminal justice arena, a variety of databases—DNA, fingerprints, criminal histories, etc.—have developed. Law enforcement agencies all place data in those databases, which benefit both their mission, but, through the network, other agencies as well. In short, by pooling informational assets, law enforcement agencies are creating a joint resource that is more valuable than the sum of the value of their previously unconnected data.

Policy coordination refers to the possibility of network externalities when creating policy. That is, there may be benefits to jurisdictions in some policy arenas to having compatible policies. For example, in the area of trade, there are sometimes benefits to having compatible regulatory regimes so as to minimize transaction costs. Thus, in developing regulations, one input into those choices may be what other jurisdictions are doing—which presupposes that at least one jurisdiction does know what the other jurisdiction is doing.

Policy learning: Even in the absence of benefits from cooperation or coordination, information affects what lessons are learned across organizational boundaries. This idea has been most developed in the context of federalism in the United States, with the idea that the states are "laboratories for democracy"—that what happens in one state may offer lessons to other states as to what good policy is. This lesson-drawing can only take place, however, if there is some inter-jurisdictional flow of information. Thus, for example, the extensive media coverage of California's (failed) electricity deregulation has had a profound impact on the policy choices of other states. Developments and utilization of ICT can have fairly substantial effects on the diffusion of policy lessons. Even fairly mundane transitions from paper to digital representations can be fairly important—for example, in the United States, all regulations and proposed regulations (including justifications for those regulations) are issued by the Federal Register. The Federal Register is now online, enabling easier access for not only groups directly interested in the regulatory process in the United States, but also for policymakers abroad, who can now easily observe the rulemaking process in the United States. The Internet may make the activities of government vastly more transparent, greatly accelerating policy diffusion (Lazer 2005).

State-Citizen information flows

Citizen knowledge about governmental actions is critically important for several reasons. The first is simply that to follow state dictates (laws, regulations), knowledge regarding those dictates is a pre-requisite. The existence of effective institutions and technologies to disseminate information about state policy is thus essential in the modern state.

Secondly, access to information is essential to informed participation in the democratic process. This is manifested in a multitude of ways—through voting decisions, campaign contributions, providing input into rule-making, writing emails to public officials. These avenues of participation are the foundations of a democratic system. Further, they provide mechanisms for organizational adaptation (through accountability) and for information gathering for effective policymaking.

The Internet (and other ICT) creates technical possibilities for recalibrating the political and deliberative process in the United States (Girard and Stark 2005). Part of this recalibration

involves a series of decisions of how the agents of government decide to redesign their informational institutions in coming years—for example, do regulatory agencies solicit input into their rulemakings online (Coglianese 2005)? Do Members of Congress offer explanations of their voting decisions?

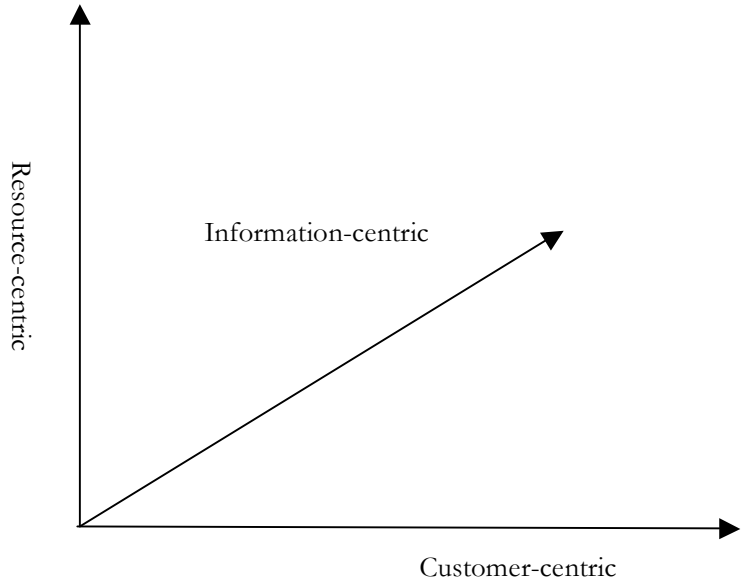
Unsurprisingly, however, there is resistance to putting the most politically sensitive information online. Thus, for example, while all Members of Congress have web sites (at www.house.gov), very few of them offer substantive policy information on their web sites (Esterling et al. 2005). Similarly, for an agency to make information freely available—either to other agencies or to the public— may undermine its control.

Further, as Hindman (2005) and Coglianese (2005) highlight, the lowering of transaction costs for involvement does not necessarily result in the involvement of the person on the street in the production of information or involvement in the political process. Instead, what we see is the rise of a new "information class"—individuals and/or organizations that are particularly well suited to gathering, manipulating, and presenting information. Hindman, for example, points out that bloggers in the United States represent a fairly thin slice of American society—disproportionately young, male, urban, and trained at elite private universities. Coglianese, in his examination of e-rulemaking points out that the substance of rules are typically well beyond the capacity of the vast majority of citizens upon which to usefully comment. That is, the easy availability of information does not mean that everyone has the capacity to process it. Instead, Coglianese points to the possibility of the involvement of a broader range of organized interests—ones with the resources to overcome the costs of expertise, but do not have the resources, for example, to have a Washington, D.C., office.

4. The Information Government Space

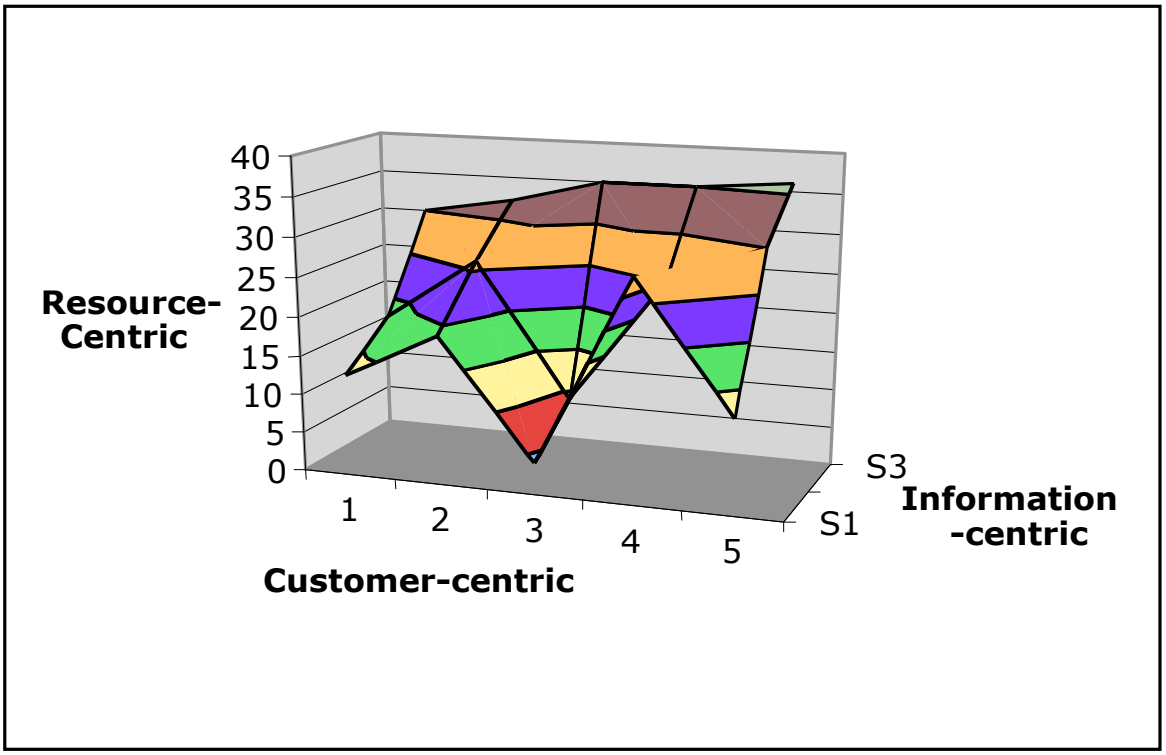
Adding the information view to the conception of what used to be the two-dimensional electronic government plane, created by the resource-centric and customer-centric dimension of electronic government, creates a three dimensional space in which public sector strategies and activities can be positioned. In much of the electronic government literature, this third information-centric dimension has played only a minor role, perhaps because of electronic government stemming from either public sector reform debates or fantastic visions driven by the simple mirroring of ecommerce onto the public sector. We believe that this understates the role of information flows between governments and society. Therefore, we suggest that the three dimensions taken together create a space that signifies a conceptual transition from two-dimensional *electronic* government (with an emphasis on the role of technology as an facilitators of change) to three-dimensional *information* government (with an emphasis on information and its flows as facilitators of change).

Diagram 4 – The Information Government Space



Information government strategies for individual governmental agencies can then be mapped in a three dimensional space, thus enabling the creation of a comprehensive information government landscape that depicts the I-Gov strategy across agencies, as shown in diagram 5.

Diagram 5 – A state's I-gov Landscape:



CONCLUSION

The objective of this paper has been to provide an overview of the ideas underlying E-Government. Most E-Government rhetoric (and research) has focused on the potential use of ICT for efficiency gains, either through achieving the same or more output of services for the same or more set of inputs (dimension 1), or through the reduction of burdens on citizens (dimension 2). This paper highlights, in particular, a third, informational dimension, which focuses on the interplay among information flows, citizens, and governmental actors. From this perspective, ICT at its foundation is about the rewiring of these informational flows.—The objective of "I-government" is thus to facilitate within government cooperation and coordination among agencies and between government and citizens andto create a citizenry that is more knowledgeable about its government, so that individuals can be more accountable to the state and the state more accountable to its citizenry.

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