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# From Electronic Government to Information Government

Viktor Mayer-Schönberger and David Lazer

Information is the foundation of all governing. Information guides decisions and processes large and small—from matters of war and peace to garbage collection. The last decade has witnessed unprecedented attention to the machinery of information in government—often categorized as “electronic government.” Information and communication technologies have been touted as the cure for everything from the rigid, silo-based architecture of government to the sagging rates of participation in our democracy. However, too often the focus of electronic government has been on technology—on the technically possible—rather than on the flows of information. This volume seeks to explore a deeper understanding of the role of information flows within government, between government and citizens, and (to a lesser extent) among citizens regarding government. Technology can only make certain types of information flows *possible*—it does not mean, as individual chapters in this book make clear, that they will or should occur. Given current technologies, the elasticity of human institutions and cognition is far less than that of bits.

This chapter first lays out the current state of understanding of electronic government, because most of the attention to information and government in the last decade has come under this rubric. We then present our vision of an “information government” paradigm, which focuses on the flow of information within, to, and from government. We conclude with an overview of the contributions to this edited volume.

## Electronic Government

Over the last two decades, computing power has spread to businesses and citizens in all developed countries. The availability of affordable networked hard- and software by the early 1990s made it possible for these computers to become connected to a

global information infrastructure most commonly referred to as the “Internet.” Combined with drastically reduced telecommunication costs, these developments have provided the foundation for delivering public services electronically.

Frequently termed “electronic government,” this online delivery of public services has been seen as the next step—following “electronic commerce”—toward the creation of an information society. By the late 1990s, many governments had devised electronic government strategies. Consultants busied themselves, helping governments implement ambitious strategies and benchmarking implementation successes. Electronic government, it was suggested, would evolve swiftly through defined stages, beginning with a web presence of public agencies (“information”) to a means for citizens to communicate with these agencies (“interaction”) to offering public services online to citizens around the clock seven days a week in the convenience of their homes (“transaction”) (Netchaeva 2002). This in turn would lead to a transformation of the public sector (Rais Abdul Karim and Mohd Khalid 2003). The sequence of stages was depicted as inevitable, fueled by technology, citizen demand, and economic realities in the public sector.

Electronic government so defined focuses on the interface between citizens and government, and on how it changes due to technology (Silcock 2001; West 2005). This flavor of electronic government promised to make it easier, faster, and cheaper for citizens (as customers) to transact with public agencies, responding to customer demand to “build services around citizens’ choices” (Curthoys and Crabtree 2003).

The attention given to this transaction-oriented view of electronic government has translated into a significant increase in public online services (although see chapter 2).

In the United States, for example, the U.S. Post Office contracted with a for-profit company to develop a one-stop shopping website for people moving from one location to another. The website—*moving.com*—offered citizens a way to file a change-of-address form, to notify utility companies of their move, and to buy packaging material and hire moving trucks from private-sector partners. *Moving.com* provided a customer-centric front office solution that reduced transaction costs for citizens by eliminating the need to go to the post office, file a change-of-address form, and notify separately utilities and others of the move.

Similarly, Singapore has integrated its online public services into an easily accessible web portal, through which citizens using a smart card can transact securely with their government, reducing citizen search and data entry costs (Ke and Wei

2004; Yong 2005). Electronic government 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 compared with the paper-based process.

Facilitating interaction with government lowers the cost of dealing with public authorities in terms of time and money—for citizens and the private sector. This benefits society at large by reducing overall transaction costs. As Edwin Lau describes in chapter 3, the OECD has highlighted this contribution of electronic government to economic policy objectives in its electronic government report, followed recently by another report on how electronic government is contributing to overall economic competitiveness (OECD 2003).

Such a transactional perspective on electronic government requires that citizens be willing to transact with their government online. Not surprisingly, electronic government so conceived faces two kinds of challenges. First, just as is the case with electronic commerce, a prerequisite to its success is that citizens have the equipment and skills and feel comfortable and safe transacting online. General ease of use, but also security, integrity, and privacy of transactional and personal data have to be maintained, as well as the authenticity of the transactional partners (Bannister 2005; Dutten et al. 2005; Holden and Millet 2005). Successful implementation may therefore require significant engineering, marketing, and education efforts. Second, the online provision of public services requires governments to address equity questions between the digital haves and have-nots in a way that is not true of private actors (Warschauer 2003). The position of the government to mandate certain behaviors by its citizens creates a reciprocal obligation on the government to not make those behaviors onerous. Thus, while it may be acceptable for firms to abandon brick-and-mortar outlets for cheaper online distribution channels, such a limited benefit-cost calculation is not appropriate for government agencies.

In contrast with this “narrow” perspective of electronic government that is focused on citizen-government transactions online, many commentators have suggested a much broader definition of electronic government, covering the entire use of information and communication technologies in the public sector (Janssen, Rotthier, and Snijkers 2004).

According to this view, electronic government is yet another step in a continuous process of achieving public-sector efficiencies through the use of technology, a process that began with filing cabinets, typewriters, and calculators and continued with the introduction of copy machines and word processors. In this sense, electronic

government is an extension of the long history of office automation in the public sector.

From this perspective, the purpose of electronic government is similar to the use of all information-handling technologies before: to save public resources and to make public-sector activity more efficient. Electronic government is seen as a mechanism with which a given level of service can be offered with a reduced budget, or an increased amount of work may be achieved with a constant budget. Either way, electronic government is the tool to “achieve better government” (OECD 2003).

While this broader definition of electronic government encompasses online public services—the “narrow” view of electronic government—the focus shifts from the interface between government and citizens to the inner workings of government. This shift reflects the belief that efficiency gains through the use of the Internet and related information and communication technologies are realized primarily within government rather than directly by citizens. Not surprisingly given this impetus, such a conception sees electronic government as a tool of or closely related to new public management, with its aim to improve performance of given public objectives at reduced cost (Osborne and Gaebler 1992).

In contrast to the narrow definition, the hurdles encountered when implementing electronic government writ large are not primarily about citizen privacy, security, user-friendliness, or equity, but track the more general hurdles of organizational and structural reform of the public sector, from rethinking hierarchies to cross-agency collaboration (Peters 2001). Such a perspective emphasizes the challenge to institutional change (cf. Steinmo, Thelen, and Longstreth 1993; March and Olsen 1989), highlighting the path-dependent nature of technology adoption and focusing on the role that existing institutions play in how technology is utilized within government (Fountain 2003; chapter 4; also see Orlikowski 2000).

Others characterize electronic government as explicitly incorporating democratic processes (Bekkers 2003; Esterling, Neblo, and Lazer 2005; Janssen, Rotthier, and Snijkers 2004; West 2005), asking, for example: How does technology create the potential for citizens to become more involved in the policymaking process (Thomas and Streib 2003)? How does the realization of that potential then exacerbate or ameliorate existing biases in the political participation (Bimber 2003; Mossberger, Tolbert, and Stansbury 2003; Norris 2001)?

Taken together, these views of electronic government are helpful in drawing attention to particular elements of the use of information and communication technologies in the public sector, from the online interface between government and citizens

to technology's role in reforming public administration. What the useful labels obscure, however, is the fact that commentators writing about narrow or broad electronic government look at a phenomenon from very different viewpoints. Despite its many merits, electronic government has thus become a catchall tag for the practice of using technologies in the public sector. In academic literature, electronic government has frequently turned into an epiphenomenal term, covering research that utilizes the entire spectrum of methods and theories to explain and analyze technology's impact on the functions of government.

This volume suggests that the eclecticism implicit in the term *electronic government* ought to be complemented not by another, or differing, definition of the term itself. Instead, we put forward the notion that examining the flows of information within the public sector and between the public sector and the citizens—what we term information government—provides a means to better understand the significant changes of governing and governance that occur in part facilitated by new technologies. Thus, information government is not another stage of electronic government—rather, it is a conceptual lens that offers a complementary perspective to understand the changing nature of government and its relationship to the citizenry.

### Information Government

Here are two images (figures 1.1 and 1.2). The first is an image of a Sumerian cuneiform tablet. It is a record of a transaction involving fresh reeds during the reign of Ibbi-Sin, approximately 2028 BCE.<sup>1</sup> The second is the logo the IRS has adopted for



**Figures 1.1 and 1.2**

Tax records: 4,000 years ago and today.

electronic filing of taxes by individuals. These two images encapsulate both the continuities and the changes with respect to information and governance over the millennia. All government is, in part, about acquiring, processing, storing, and deciding upon information—whether we are talking about the Sumerian government of millennia ago or the U.S. government of today. The premise of this volume is that it is useful to focus on *information government*, the flows of information within government as well as between government and citizens.

The need to enable particular information flows has been identified as arguably the key driver of organizational design (Mintzberg 1992; Thompson 1967). For centuries it has prompted organizations to place individuals with high levels of time-sensitive and reciprocal interdependence in close proximity to each other and to their informational tools. The private sector has long organized its structure around the necessities and constraints of information flows. The modern military, with its strict system of hierarchy, and the successful twentieth-century Weberian bureaucratic state are paradigmatic examples of organizational systems built around these informational principles, in terms of how both these flows and these authority systems are structured.

The ability to acquire and disseminate information, to control the flow of information, has often been described as a source of power. The further the nature of our society turns from industrial to informational, the stronger this source of power will become (Castells 1996, 18–22). Information government as a concept prompts us to examine these information flows, where, when, and why they change, and what the interaction is between these changes and public-sector activities.

We suggest that it is useful to examine these flows independent of the medium for the information—clay or silicon. To be sure, modern information and communication technologies frequently change the flows of information. So have many technological advances before, from the printing press to the typewriter, from microfilm to the Xerox machine. One must not, however, conflate technology and the agent of change. In fact, while technology often facilitates a change in information flows, it can happen even in the absence of technological change—for example, through institutional reorganization. Such change, too, is shaping the public sector and captured through the information government lens. This focus on information rather than technology also ensures that we are not too awed by technology and its potential capabilities, but instead keep in mind the arguably more important constraints of human information processing.

What technology-agnostic information government acknowledges is that digital information and communication technologies allow for a much greater malleability of how information might flow. Digital information and communication networks in particular have obviated several of the premises for organizational design on which many of our institutions, including government, have been based. Some tight grouping structures for certain types of informational interdependencies may always be necessary. However, in general, where organizational structure was driven by the presence of information in a particular location, that locational imperative may be much reduced.

The freeing of informational flows may thus undermine particular grouping and hierarchical principles. Organizational structures that were necessitated by a desired flow of information—grouping people together and with their information resources, as well as putting them in defined hierarchies to steer the flow of information a particular way—may lose their legitimacy as digital networks facilitate people as well as organizations to rethink the direction of their information flows. Broadly viewed, information about policy increasingly becomes a global public good (Lazer 2005; also Mossberger 2000). More concretely, people as well as organizations gain a newfound *flexibility* (Castells 1996, 62).

It is no coincidence that the availability of new technologies occurs at the same time as calls for networked governance, which involves moving functions both outside government and away from hierarchy within government (e.g., Goldsmith and Eggers 2004; Meier and O’Toole 2006). This reflects the possibility of moving from pyramidal, silo-based structures, to more decentralized, networked (in terms of information flows) systems. Commentators from Drucker to Castells have written about the fundamental consequences this change will bring for corporations (Drucker 1988). Terms such as “horizontal corporation” and “network enterprise” have been proposed (Boyett and Conn 1991, 23; Castells 1996, 168–170). As organizational units focus at least in part on processing information, government agencies, indeed government as a whole, may equally be transformed. Information government analyzes this transformation process by examining the “who,” “what,” “when,” and “which” of information flows.

A word of caution is in order. Currently there may be a general trend to transform hierarchical structures into more networked, horizontal ones, although it may be stronger in the private sector driven by profit maximization and pressures for efficiency gains. It is not inevitable, however, that all or even most organizational change will be in this direction. The evolution of issuing passports in Austria offers

a cautionary tale. For decades, citizens would apply for a new passport by filing an application together with birth certificate, citizenship record, and related documents at a local government office. A few weeks later, the passport would be available for pickup. In 2003, network technology combined with affordable printing devices facilitated the on-demand issuing of passports at numerous local government offices throughout the country. Linking previously separate government databases, citizens would not have to show birth certificates and similar documentation each time they applied for a new passport. Instead, showing the old passport was sufficient. Local government offices could validate the information through their linked database, and print the new passport on the spot, most of the time within ten to twenty minutes. Government agencies had moved from hierarchical information flows to integrated and decentralized ones, empowering the periphery of the system and increasing efficiency for citizens.

However, in 2005, these information flows were once again centralized. In the wake of 9/11 and related international trends, the Austrian federal government adopted passports with biometric identifiers. This necessitated new infrastructure to facilitate the flow of (passport) information from government databases into passports. Due to cost concerns, the government centralized this infrastructure, requiring citizens to wait weeks for their passports to be centrally produced (using linked databases) and then physically sent to the local passport agency. The decision did not simply burden citizens. It changed the flow of information, from a decentralized networked structure to a linked and centralized one. All information is available at the center, while the periphery (the local passport offices) has lost informational access—not even able to tell citizens when their passports will be ready.

As this example shows, technology-enabled flexibility of information flows does not imply development of organizational structures in only one particular direction. The case also underscores the fact that technology may facilitate change but does not cause it (Bijeker 1995; Fischer 1992; Jasanoff et al. 2001). The decision to decentralize and recentralize was a political one, based on preferences, values, and available resources, not dictated by technology. Finally, the case highlights the utility of the concept of information government; following the flows of information and looking at their changes sheds additional light on what is happening.

Information also flows between the government and citizens. Digital networks may change what kind, how much, and how easily government information is accessible to citizens, and (potentially) vice versa (Graber 2006). This has significant consequences for the balance not just between individual and the state, but also be-



tween government and society as a whole. The information government lens helps bring these changes into focus.

This volume is divided into three sections. Part I examines the interplay between technological change and evolving information flows within government over the last decade. Part II focuses on the implications of the blurring informational boundary between government and society. Part III discusses the issues in evaluating the impact of reengineering information flows. The chapters in each section are matched with illustrative cases. What follows is a brief synopsis of each chapter.

Leading off part I, Darrell M. West (chapter 2) canvasses the global electronic government landscape. He finds that the online provision of public services has not followed the impressive trajectory pundits predicted, despite the availability of basic technological resources in many jurisdictions.

Edwin Lau (chapter 3) argues that electronic government proponents have focused too much on the easily identifiable pecuniary gains for the public sector and for citizens transacting online with government. This fails to capture less visible, wider gains especially for citizens due to changed and enhanced information flows, which may yield both improved governance and greater private-sector growth.

In contrast to West and Lau, Jane E. Fountain (chapter 4) reconceptualizes the relationship between government organization and digital information and communication networks using the information government lens. Looking in particular at the issue of information flows between two hierarchical government agencies, she analyzes the hurdles that such cross-jurisdictional informational cooperation faces and examines how they may be overcome.

Building on the concept of information government, part II broadens the information government concept beyond the provision of public services to include transparency and participation—not necessarily in the form of electronic democracy envisioned by electronic government proponents. Rather, part II focuses on the role information flows play in connecting government outcomes to citizen activities.

Cary Coglianese (chapter 5) looks at electronic rulemaking, a case where the online provision of a public service (the formal commenting process in agency rulemaking) traverses into territory of electronic democracy. Contrary to some expectations, Coglianese finds that while electronic rulemaking may have lowered transaction costs for civic engagement, it has not resulted in massive democratic involvement by citizens. Instead of creating a “strong” deliberative democracy, he sees the rise of a new “information class”—individuals and organizations that are particularly well suited to gathering, manipulating, and presenting information.

The net positive result of e-rulemaking, Coglianese argues, is not dramatically more citizen engagement and democratic deliberation, but better rules due to a more comprehensive and inclusive information gathering and commenting process—enhanced information flows. E-rulemaking, in short, engages a broader range of organized interests, ones with resources to overcome the costs of expertise, but not of having a presence in Washington.

Herbert Burkert (chapter 6) adds a normative dimension to Coglianese's analysis. Focusing on freedom of information legislation, he shows why conventional transaction-centered electronic government conceptions fail to capture the informational dimension. Asserting the power and importance of information flows, Burkert argues that freedom of information laws are necessary complements to the online provision of public services. Burkert discusses the historical trajectory of information access legislation, arguing that much of the existing legislation across the world does not meet certain minimum standards that he enumerates. Similar to Coglianese, he does not anticipate the emergence of strong, deliberative democracy. Instead, he underscores the necessity of civil society organizations to fulfill the role of information intermediaries, keeping government accountable through access to information about government.

While strong, deliberative democracy will likely remain an impossibility, Monique Girard and David Stark (chapter 7) show that for specific issues, carefully crafted online deliberation may work if the role of information and its flow is understood correctly. Emphasizing the interpretative dimension of information, they argue that the most important result of such processes is the creation of an information repository of shared experiences.

Matthew Hindman (chapter 8) examines the relationship between political mobilization and the evolving flows of publicly relevant information among citizens. While much of the rhetoric of electronic democracy suggests that the doors to political voice have been blown open by the gales of the information age, Hindman finds that such a view is not supported by the data. Instead, Hindman argues, we see a new (but still narrow, elite) information class that is now plugged into the information stream. For example, he finds that the most well-known bloggers in the United States represent a fairly thin slice of American society—disproportionately young, male, urban, and trained at elite private universities. The quality they share is primarily informational: they have excellent sources, process information swiftly into eloquent prose, and disseminate information faster than the organized press. In short, the civic sphere has been rewired, but not fundamentally broadened.

The three chapters in part III tackle the challenge of evaluating the consequences of changes in information flow within government and between government and citizens. As Robert D. Behn (chapter 9) points out, conventional electronic government—making services available online—can be evaluated using cost-benefit analysis most easily when there is little change in information flows, or when these changes are well aligned with changes in monetary gains or losses. Assessment, however, is much more challenging when changes in information flows cause informational gains and losses that are not easily translatable into dollars and cents.

Martin J. Eppler (chapter 10) suggests an additional evaluation framework, complementing conventional cost-benefit analysis. In addition to attempting to monetize changes in information flows, as Behn proposes, he suggests measuring the quality of information and adding changes in informational quality to the evaluation balance sheet.

David Lazer and Maria Christina Binz-Scharf (chapter 11) look at the process of evaluation from within the system. Rather than offering another method of evaluation, they examine the mechanisms and structures that may help spread evaluation information on the use of information and communication technologies in the public sector. Utilizing network theory, they highlight the role that a variety of inter-governmental organizations play in connecting otherwise distant parts of the informational ecosystem regarding information technology and government.

In chapter 12, we shift the analysis from the role that information plays in governing to thinking about the challenges of governing information. In particular, we delve into three issues: (1) the balance of individual and collective interests in the potential increase in the informational power of government; (2) the role that information from the government plays in enabling the deliberative sphere within society, and (3) the institutional (as compared to technological) limitations in reengineering information flows.

## **Conclusion**

The objective of this chapter has been to provide an overview of *information government*—a conceptual framework focusing on the information flows within government and between government and citizens. We purposely separate the framework from particular technologies—a handwritten note may convey the same information as an e-mail—while asserting that digital networks in particular

facilitate the rewiring of information flows. Most electronic government rhetoric (and research) has focused on the potential use of information and communication technology (ICT) for efficiency gains, reducing costs to the government or reducing costs (and/or increasing services) to citizens. The objective of this volume is to highlight the informational dimension, focusing on the interaction among information flows, information intermediaries, citizens, and government actors. Understanding of the informational dimension, we hope, will in turn inform the implementation of technologies and policies to structure information flows that simultaneously increase the efficiency of government and the deliberative capacity of our institutions and citizens.

## Note

1. [http://www.brown.edu/Facilities/University\\_Library/lib/hay/focus/cuneiform/](http://www.brown.edu/Facilities/University_Library/lib/hay/focus/cuneiform/).

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