INFORMATION TECHNOLOGY AND ADMINISTRATIVE REFORM: WILL E-GOVERNMENT BE DIFFERENT?

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ABSTRACT

This paper examines the theoretical ideal of information technology as an instrument of administrative reform, and examines the extent to which that ideal has been achieved in the United States. It takes a look at the findings from research about the use and impacts of information technology from the time of the mainframe computer through the PC revolution to the current era of the Internet and E-Government. It then concludes that information technology has never been an instrument of administrative reform; rather it has been used to reinforce existing administrative and political arrangements. It assesses why this is the case and draws conclusions about what should be expected with future applications of information technologies—in the time after E-Government. It concludes with discussion of the early evidence about newer applications for automated service delivery, 24x7 E-Government and e-democracy.

Key words: administrative reform, information technology, E-Government, United States, business transformation, reinforcement of existing arrangements

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INTRODUCTION

The past several decades have seen many studies of the impacts of information technology (IT) in business organizations, and comparatively fewer studies in government organizations. The concerns of researchers have been largely the same across both sectors—effects on efficiency and effectiveness, changes to organizational structure, and impacts on work. Studies in government, however, have been unique in their concern with whether IT is a catalyst or instrument of administrative reform.

We define administrative reform as efforts to bring about dramatic change or transformation in government such as a more responsive administrative structure, greater rationality and efficiency, or better service delivery to citizens. Towards these ends, governments historically have undertaken structural reforms such as city-manager government, budget reforms such as the executive, performance and program budgets, financial reforms such as unified accounting, personnel reforms such as merit-based employment and pay, and many others. Computing has been viewed as an instrument of such reforms, and also as a reform instrument per se. Such instruments are illustrated by urban information systems, integrated municipal information systems, computer-based models for policy making, geographic information systems and most recently e-government. The rhetoric of these computing-based reform efforts has been that computing is a catalyst that can and should be used to bring about dramatic change and transformation in government (Weiner, 1969; Reinermann, 1988; Gasco, 2003; Fountain, 2002; Garson, 2004).

The question of whether computers will bring significant organizational change is nearly half a century old. In a classic 1958 *Harvard Business Review* article, "Management in the 1980's, Leavitt and Whisler forecast that IT would replace the traditional pyramidal hierarchy in organizations with a lean structure resembling an hourglass, and productivity would soar through the elimination of most middle managers. Laudon's (1974) path-breaking *Computers and Bureaucratic Reform* raised the question of administrative reform specifically with respect to local government. IT is generally considered to have the *potential* to bring about administrative reform. For example, Fountain (2002) says "Technology is a catalyst for social, economic and political change at the levels of the individual, group, organization and institution." Yet others have argued that information technology does not tend to produce such reform, and that it is implausible that IT *could* cause such changes in the first place (Kraemer and King, 1986; Laudon, 1974, King and Kraemer, 1985).

The era of E-Government, which can be defined as the use of IT within government to achieve more efficient operations, better quality of service and easy public access to government information and services, is now underway. The IT world that surrounds public administration in the United States has changed markedly. Technology diffusion within the society has been pervasive, with personal computers and the Internet extending to the majority of American households. Internet-based e-business and E-Government services are rapidly connecting businesses, households and governments, thereby creating a much richer and more subtle IT environment. By 2002, 67% of adults using the Internet had visited a government website: 57% a federal site; 54% a state site; and 42% a local site (Dean, 2002). Nearly all federal agencies and most state governments provide some information or services on the web (Fountain, 2001). The vast majority of city and county governments (95%) had websites in 2004 (Norris, 2006), many offering non-

financial services (requests for services, government records, maps) and less than 10% offering financial services such as paying taxes, utility bills, parking tickets and licenses/permits (Norris and Moon, 2005; Norris, 2006). Thus, most of these services involve one-way, easy-to-implement information services; very few permit citizens to complete transactions with government. Forrester Research (2000) estimated that by 2006 governments would receive 15% of their total financial collections over the web.

Indeed, investment in information technology at all government levels has increased, new capabilities are more diffused throughout government agencies, technical expertise is stronger and also more widely spread, and governments have successfully institutionalized modern principles for management of IT. If anything, there should be greater "readiness" for administrative reform from IT than ever before.

It seems likely that these changes would be sufficient to trigger the long expected administrative reforms, but Machiavelli's admonition about the perils of dramatic change is as relevant in the 20th century as it was in the 15th century. This paper argues that IT remains a useful instrument of incremental administrative change, but it is no more likely to bring about administrative reform today than it was two decades ago. The paper recapitulates four key propositions of the reform hypothesis, discusses empirical evidence related to each, assesses the reform hypothesis in light of research results, raises relevant caveats, and concludes with a summary of the likely future relationship between IT and administrative reform.

REFORM THROUGH INFORMATION TECHNOLOGY

The main problem with the claim that information technology is an instrument of administrative reform is the lack of evidence to back it up.[1] Faced with this, proponents respond that the potential of IT to produce reform is thwarted because of top management failures to "distribute" the technology efficiently, to "empower" lower level staff, "re-engineer" the organization along with computerization efforts, and become hands-on "knowledge executives" themselves. Much of the benefit IT could bring to organizations is lost due to poor management, but this does not explain the failure of the reform hypothesis. It merely shifts the argument onto different grounds.

The reform hypothesis is fundamentally misguided because it assumes that organizational elites want their organizations to change, and that they are willing to use IT to accomplish such change. The empirical evidence suggests that IT has been used most often to reinforce existing organizational arrangements and power distributions rather than to change them (Attawell and Rule, 1984; Danziger et. al., 1982; Dutton and Kraemer, 1985; Dutton et al., 1987; King and Kraemer, 1986 a, b; Kling, 1974, 1980; Kraemer and King, 1979, 1987; Kraemer and Perry, 1979; Laudon, 1974; Perry and Kraemer, 1979; Holden, 2003).

Based on review of the research on E-Government (Fountain, 2001, 2002; Holden, 2003; Holden et al., 2003; Kaylor et al., 2001; Layne and Lee, 2001; Moon, 2002; Norris and Moon, 2005; Norris, 2005, 2006), we believe that this fundamental trend will continue into the foreseeable future. For example, Fountain (2002) initially assumed that the Internet "…would overwhelm organizational forms and individual resistance and…would lead to rapid organizational change." However, after researching the use of the Internet in U.S. federal agencies, she concluded that "…even the most innovative uses of IT typically work at the surface of operations and boundary-spanning processes and are accepted because they leave the deep structure of political relationships intact." Similarly, West (2004) concludes: "…the e-government revolution has fallen short of its potential to transform service delivery and public trust in government. Norris' (2006) review of multiple e-government studies finds that "Local e-government…remains mainly informational. …nowhere is

it achieving the potential positive impacts claimed by its most ardent advocates. …e-government is not transformational, at least yet. …e-government, like IT and government before it, is incremental. …the trajectory of local e-government that has been observed to date will likely continue into the foreseeable future."

Decisions about IT use are made by top managers and their direct subordinates. They use IT in the broad interests of the organization, but those broad interests usually intersect with their own interests. They use IT to enhance the information available to them; to increase their control over resources; to rationalize decisions to superiors, subordinates and clients; to provide "visible deliverables" with the aid of the technology; and to symbolize professionalism and rationality in their management practices. These aims do not necessarily work against the welfare of the organization simply because they work for the welfare of managers. Yet, such aims usually are not associated with, and are frequently antithetical to, administrative reform.

The following sections examine four key components of the reform hypothesis, and provide the contrasting results of research that call those components into question. These empirical results are drawn primarily from the experiences in the United States, and it is possible that the experience in other countries has been quite different. Nevertheless, given the traditions of administrative reform in the U.S., and the fact that the U.S. arguably leads the world in the levels of governmental and private investment in IT, one would expect the reform hypothesis to be strongly corroborated in the U.S. context. The fact that it is not corroborated bears consideration.

IT AND ADMINISTRATIVE REFORM: THE US EXPERIENCE

U.S. public organizations have been applying IT unabated since digital computers were first introduced in the early 1950's. Picking only one era for closer examination – the mid to late 1980's – it is possible to see the magnitude of US investment in the technology. Federal agencies had over 20,000 mainframes and minicomputers, and even in those early days of the microcomputer had over 200,000 installed. Federal agencies alone employed more than 100,000 IT specialists, and spent over fifteen billion dollars annually on computerization (GSA, 1986; OTA, 1985). State and local governments had well over 3,000 mainframes and minicomputers and more than 40,000 microcomputers, employed 35,000 IT specialists, and spent over eight billion dollars annually on IT (Kraemer et al., 1986, NASIS, 1989, Caudle and Marchand, 1989). That level of investment has grown substantially in the years since.[2] In short, U.S. public administration has been an enthusiastic user of IT.

U.S. public administration also has been a fertile ground for research into the extent and effects of IT use (Bretchsneider, 1990; Caudle, 1990; Caudle and Marchand, 1989; Danziger et. al., 1982; Danziger and Kraemer, 1986; Dutton and Kraemer, 1978; Dutton and Guthrie, 1991; Kraemer and King, 1986; George and King, 1991; Kling, 1980; Fountain, 2002; Holden, 2003). The empirical findings are somewhat fragmented and sometimes contradictory, but they nevertheless can be brought together for how they bear on the four reform propositions listed below.

- *Computers have the potential to reform public administrations and their relations with their environments.*
- *Information technology can change organizational structures, and thus is a powerful tool for reform*.
- *Properly used, information technology will be beneficial for administrators, staff, citizens and public administration as a whole.*
- *The potential benefits from information technology are under-realized due to a lack of managerial understanding of what the technology can do, and*

unwillingness of managers to pursue the potential of the technology when they do understand it.

The following four sections examine each proposition in turn.

Reform Proposition 1. *Computers have the potential to reform public administrations and their relations with their environments.*

A good example of this was Gibson and Hammer's (1985) claim that "...today's applications of information technology can dramatically change the way individuals, functional units, and whole organizations carry out their tasks." As a case in point, computer technology was seen as an instrument of administrative reform at the federal level in projects of the U.S. Department of Health, Education and Welfare, and in many state and local governments as well in the mid and late seventies (Kling, 1980). These were efforts to create Information and Referral (I&R) systems to consolidate the many public and private local agencies that served large urban areas. I&R systems were believed to help by sharing information about clients, needs, resources, and performance among all participating agencies, improving both service delivery to clients and the allocation of social service resources. Additionally, such systems might facilitate administrative consolidation, central budgeting, and performance monitoring in ways that administrative reforms had failed to accomplish. Despite huge investments, however, this strategy for services integration failed because the local social service agencies failed to see the benefits to them from the reforms. The I&R systems had no power to bring about services integration indirectly, and they expired along with the whole reform effort.

IT can help effect some reforms such as centralization of budgeting and accounting systems that allow greater citizen and elected official control over government resources (Kraemer et al., 1981). Computerization often required recalcitrant finance directors and department heads to reveal long-established practices that did not meet the expectations of professional financial controls. Also, second generation financial automation brought sophisticated capabilities for cost accounting and billing on a fee-for-service basis, and have helped government managers enact new means of enhancing revenues in the face of fiscal limitations set by citizen referenda. Administrative practices such as centralized accounting and budgeting and services integration might have failed in the face of organizational growth and decentralization if not for application of IT, but IT was not the cause of such reforms. They were grounded in the early 20th century efforts to increase professionalism in government management, and at best, IT was an enabler of these reforms.

Finding on Reform Proposition 1: Experience with information technology and administrative reform has shown the technology to be useful in some cases of administrative reform, but only in cases where expectations for reform are already well-established. IT application does not cause reform, and cannot encourage it where the political will to pursue the reform does not exist.

Reform Proposition 2. *Information technology can change organizational structures, and thus is a powerful tool for reform*.

This proposition is grounded in the belief that information technology can directly impact the data structures of public administration enforcing or relaxing traditional hierarchical forms. Mainframe-based computerization was seen as reinforcing hierarchical organizational structures by consolidating data and expertise, while microcomputers were seen as facilitating organizational decentralization through distribution of data and expertise throughout government.

The empirical evidence suggests that the main impact of IT application has been to reinforce existing structures of communication, authority and power in

organizations, whether centralized or decentralized (Laudon, 1974; Dutton and Kraemer, 1977, 1978; Robey, 1981; Danziger et al., 1982; George and King, 1991; Kraemer, 1980; King, 1983; Attewell and Rule, 1984; Pinsonneault, 1990; Pinsonneault and Kraemer, 1997, 2002). This finding is consistent in research on computerization in both cities and federal agencies. In the case of local governments, it is true regardless of the form of government. Computerization in city manager governments reinforces the power and control of the professional manager; in strong mayor governments it reinforces the elected mayor; in commission governments it reinforces the power of individual commissioners.

The reform proponents argue that these findings are mainly based on the era of centralized mainframe computing. Yet the research shows that even in the mainframe era decentralized government organizations had decentralized mainframe computing arrangements (King, 1983). Moreover, even when focused on microcomputers, the data do not support the proposition (Kraemer et al., 1992; Kraemer et al., 1986). Microcomputers have been used extensively for local text processing and other functions that do not support core government functions. To the extent that microcomputers do relate to core functions, it is through their use as intelligent terminals providing user access to centralized servers that support the large-scale processing tasks central to the government's operations.

Even if IT itself is indifferent to power distribution, senior organizational leaders are not. Recent research suggests that use of IT is correlated with both increases and decreases in the number of middle managers in organizations, but the changes are contingent on particular organizational conditions that influence the views of senior leadership (Klatsky, 1970; Pinsonneault, 1990; Pinsonneault and Kraemer, 1997). For example, when middle managers in government organizations control IT deployment decisions they tend to use the technology to increase their numbers. In contrast, when top managers are in control, they tend to use the technology to reduce the number of middle managers, especially when environmental triggers such as fiscal stress stimulate the need for change (Pinsonneault and Kraemer, 2002).

IT has had little discernible effect on organization structure, and seems to yield somewhat greater centralization in already centralized organizations in support of existing organizational arrangements. Other organizational structures also appear to be compatible with IT application, including matrix organizations involving dual authority arrangements. There is no good evidence to support or refute this idea in government organizations, but one would assume that IT application in the context of these newer organizational forms would also be used to reinforce those structures--it would not change them (Vitalari, 1988).

Finding on Reform Proposition 2: IT application has brought relatively little change to organization structures, and seems to reinforce existing structures.

Reform Proposition 3. *Properly used, information technology will be beneficial for administrators, staff, citizens and public administration as a whole.*

Proponents of this proposition argue that information technology has the potential to decentralize administration, reintegrate and enhance work life, open access to data within the government and with citizens outside, and rationalize decision making on complex problems through computerized modeling. Such changes, it is hoped, will further democratize government by bringing citizens more fully into planning and administration activities of the government itself, especially in areas of citizen concern.

There is little dispute that IT is beneficial to the organizations that use it, especially in the area of productivity (Lehr and Lichtenberg, 1998; Lee and Perry, 1998; Jorgensen et al., 2003). In the case of government, such benefits come mainly

from long-standing applications to structured and repetitive tasks at the core of government operations: the day-to-day transaction-oriented information processing of administrative agencies concerned with producing bills, recording payments, paying vendors and employees, recording public documents, answering citizen inquiries, and so forth (Danziger and Kraemer, 1986). These applications meet real needs of public agencies and they represent substantial investments. They are not bold, innovative moves to reform public agencies; they are simply useful adaptations of the technology to improve administrative performance. They reinforce the conservative values of governmental efficiency and social control inherent in U.S. governments for decades. However, they do not serve the needs of special citizen groups such as the poor, the homeless, the aged, or the handicapped (Kraemer and Kling, 1985).

There have been relatively few examples of IT applications aimed at broader, more liberal citizen service provision. An interesting example is Santa Monica, California's PEN system -- a public information utility designed to provide information, electronic mail, and conferencing among citizens and the city government through networked microcomputers located in public places and via remote links from people in their workplaces and homes. In many ways, the PEN system did achieve its goals, but it did so in the context of a city with legendary biases of political liberalism. In their case study of the PEN system, Dutton and Guthrie (1991) describe it as "reinforcing the values and interests of a liberal democratic community supportive of citizen participation." The technology was used to reinforce community values – in this case liberal democratic values – not to reform them.[3] Once again, the empirical evidence suggests that those who control IT deployment and application determine whose interests are served by the technology.

Finding on Reform Proposition 3: The benefits of information technology have not been evenly distributed within government organizational functions: the primary beneficiaries have been functions favored by the dominant political-administrative coalitions in public administrations, and not those of technical elites, middle managers, clerical staff, or ordinary citizens.

Reform Proposition 4. *The potential benefits from information technology are under-realized due to a lack of managerial understanding of what the technology can do, and unwillingness of managers to pursue the potential of the technology when they do understand it.*

There is no question that some managers are more effective than others at applying IT successfully, but this has little to do with the reform hypothesis. The proposition states that managers lack the understanding necessary to motivate application of IT. In fact, IT is being widely applied in government with the full approval of all levels of the managerial hierarchy. Moreover, governments with professionalized administrations are actually more likely to adopt and apply IT (Danziger et al., 1982; Dutton and Kraemer, 1977). The issue is not that managers fail to understand the potential of IT: they understand that potential perfectly well when it comes to their own interests, and they exploit it aggressively in the pursuit of those interests. Those interests are in line with more traditional and conservative values of government in the U.S., as noted above. In the occasional instances in which a government organization pursues a different political agenda, such as in Santa Monica, IT is applied toward those ends.

Findings on Reform Proposition 4: Government managers have a good sense of the potential uses of IT in their own interests, and in cases where their interests coincide with government interests, they push IT application aggressively.

PROBLEM WITH THE REFORM HYPOTHESIS

The US experience with IT in government fails to support the reform

hypothesis. The benefits of IT use are largely focused on administrative efficiency, and not on reform of administrative organization, practices, or behavior. Two underlying assumptions govern the reform hypothesis as it has been articulated: that reform is required in government, and that IT can be used to carry out such reforms. Both of these assumptions are questionable.

The reform hypothesis suggests that reform is necessary without specifying why. Government organizations may be flawed and subject to improvement, but that does not mean that they are doing a poor job at their objectives. Most government organizations are bureaucracies with hierarchically organized distributions of authority, resources and responsibility flowing downward to work units, and information about organizational performance flowing back upward as a means of control. Most government managers want to keep organizations that way, for good reasons. The bureaucratic form is highly refined from many decades of continuous study and improvement. It has evolved a comprehensive set of conventions that work quite well at doing complicated tasks with reasonable performance on a sustained basis over many years. Government managers understand this form of organization, which makes them experts at using it to accomplish governmental objectives. None of this suggests that managers are averse to performance improvements – indeed, the U.S. research clearly shows senior government managers are strongly supportive of efforts to improve efficiency, productivity, and organizational control. What about the current system is broken? The reform hypothesis does not say.

IT application in the U.S. actually fits the agenda of improved government within the established bureaucratic model. For example, computerization in financial systems provides new information and control mechanisms simultaneously to senior executives, central financial managers and department heads. Subordinates using such systems might find themselves under greater financial surveillance from their supervisors, but they also gain greater control over the details of their budgets, especially with respect to patterns of spending through real-time, accurate information about current balances. These systems allow managers at any level to enact immediate and across-the-board changes affecting subordinates, such as the elimination of funds for all "open" positions, enactment of budget cuts, assignment of overhead expenses, and so forth (Kraemer et al., 1981). This effect of IT use is not power-neutral: it reinforces the general hierarchical structure of bureaucratic organization even while giving managers at each level greater leverage over the operations below.

Even in cases where there are good reasons to reform government, the application of IT has a poor record as a lever for change. The short-run impacts of IT use have been far less pervasive and dramatic than forecast. Orientations, tasks, and interactions among managers and workers might change, but the changes in standard operating procedures tend to be modest. It is more common that IT is made to conform to existing behavior and practice than to change such practice. Case studies covering thirty years of computing in cities (Kraemer et al., 1986) and federal agencies (Westin and Laudon, 1986) indicate that reform has been limited mainly to the information processing function within organizations, and not to the broader aspects of organizations. The indirect influence of information technology to achieve genuine reform within the political-administrative system is far less powerful than the direct intervention of executive, legislative or judicial change. In theory, IT might lead to new administrative structures; in practice, it does not and it probably should not.

IMPLICATIONS AND CONCLUSION

Proponents of the reform hypothesis might respond to the foregoing

analysis with the objection that much of the evidence presented in the analysis is from studies of government IT application prior to the 1990's, when the Internet became a major force. The potential of the Internet to alter the prospects of E-Government dramatically can be inferred from the transformation of business organizations using IT and especially the Internet during and after the dot.com boom. This is a fair observation, and deserves careful response.

It is true that much of the research cited in the arguments above was done in the 1960's, 1970's and 1980's, and that important changes in technology occurred between the 1990's and the present. Nevertheless, the studies cited were careful to account for the actual changes that might be associated with the application of IT to specific tasks in government organizations, and not to changes that were specific to particular technologies. The reform hypothesis was an explicit focus of much of this research, and every effort was made to find evidence for the hypothesis. The most systematic of these studies refuted the hypothesis in fundamental ways that are relevant not only for the thirty-year period of the studies, but more generally into the 1990's and today. More important, studies done since the 1990s (Fountain, 2001, 2002; Holden, 2003; Holden et al., 2003; Kaylor et al., 2001; Moon, 2002; Norris, 2005, 2006), corroborate the basic findings of the earlier work—IT has not reformed or transformed government administration. The facts of today do not necessarily dictate the reality of tomorrow, but in the absence of evidence to the contrary, it is safe to assume that IT use will not result in the reforms that proponents of the reform hypothesis claim.

The role of the Internet bears attention because the Internet (by which we refer to computer networking broadly) is a fundamental enabling component of E-Government. Indeed, one might argue that the experience of the pre-Internet period is irrelevant to E-Government, because without the Internet there would be no E-Government. Again, the focus of this paper is not on the broad question of whether IT affects government organizations; it is on the narrower question of whether IT use is likely to result in government reform. The Internet permits computers to communicate with each other, and humans to communicate with computers and with each other via computers. It affects how tasks can be done and how work can be organized, but that does not mean that those tasks or the nature of the work itself will be altered in fundamental ways.

Use of IT has dramatically affected many business organizations and sectors in the past decade. Some business organizations and even whole sectors of business have undergone radical change since the Internet arrived. IT has brought major productivity gains to business organizations (Jorgensen et al., 2003), and in most cases those gains are specifically tied to changes in the ways organizations do business (Brynjolfsson and Hitt, 2003). A good example is seen in the personal computer industry (Dedrick and Kraemer, 2005). Competitive market forces required firms to change the organization of their activities from vertical, supply-driven models to virtual, demand-driven models to better match supply and demand and avoid the cycles of excess inventory and product shortages that had plagued PC companies. Dell Computer pioneered this change, which happened to fit well with the capabilities of the Internet, and was soon copied as it took market share from the other vendors. PC makers reorganized their activities around information processes--order management, planning and coordination, and customer relationship management. This allowed them to

substitute information for inventory and to respond to market signals more quickly and effectively. IT did not directly create new value in the PC industry; it allowed information processes to be redefined in ways that improved efficiency and added value to the customer.

While this dramatic example is compelling, it is important to note that the catalyst of industry change was a company – Dell Computer – that was a relative newcomer to an industry that had already been destabilized by eroding profitability and intense competition. Dell did not so much reform the PC industry as create an entirely new and superior model for the industry. And despite considerable effort and investment, no other personal computer company has yet been able to match Dell's efficiency (Dedrick and Kraemer, 2005). Other dramatic examples of business change associated with IT use, such as Wal-Mart, Amazon.com, e-Bay, and Google show a similar pattern of forcing dramatic re-thinking of the whole business enterprise.

One must be careful in drawing conclusions from such studies and applying them to government. The overall effects of IT on business are more complicated than they might first appear. While Amazon.com, e-Bay, and Google are stunning examples of the dot.com era, many companies that tried to change their industries or create new industries failed completely and disappeared when the dot.com boom went bust. In addition, business and government organizations exhibit fundamental differences that influence the outcomes of IT use. Few business organizations have their tasks and work specified under statute or executive order, and businesses, unlike governments, are free to decide what things to do and how to do them. Business organizations are driven mainly by market forces, which encourage radical innovation and can be characterized by Schumpeter's "gales of creative destruction." Government organizations, in contrast, are driven by political/institutional forces that are not and cannot be subjected to destructive changes without severe consequences for their constituents.

This does not mean that governments have little to learn from the changes seen in the business world. Examples from business prove that even well-established production systems can be changed dramatically to produce results that are of benefit to consumers. At minimum, these examples provide hope that government services can be improved in ways that bring benefits to citizens through careful application of IT. For that to happen, however, the leadership of government organizations must establish the broader goals of the reform efforts, develop new models of electronic governance and electronic service delivery, and then bring IT carefully into consideration. Today's E-Government initiatives are part of a broader government reform agenda that emphasizes customer service and greater responsiveness to citizens (National Performance Review, 1993; Executive Office of the President, 2003). If this is indeed the will of the existing governmental power structure, IT *might* play a role in the reform. But that is not a foregone conclusion, and what actually happens, remains to be seen.

A more difficult challenge arising from the arguments in this paper is the question of what practitioners, researchers, and others who are interested in E-Government should do in response to this assessment. One might conclude that E-Government is a mere passing fad that will flare and then fade, as many other management fads have in the past (e.g., management by objectives or zero-base budgeting). This would be over-reaching. The argument here is a cautionary note

about E-Government and significant government reform. It is not a criticism of E-Government, *per se*, nor is it a claim that E-Government will fail to produce significant long-term changes in the nature and conduct of government. Returning to business organizations, there is considerable evidence to suggest that profound transformations in whole sectors have occurred over time through the use of IT. Yates' studies of IT in the rise of system approaches in American management between 1860 and 1920 and of the remaking of the US insurance industry in the early 20th century provide elegant proof of the transforming power of IT-enablement (Yates, 2005). King and Lyytinen's study of transformation in the automobile industry in the 20th century provides insights about the role of IT in reshaping of industrial ecologies (King and Lyytinen, 2005). There is good reason to believe that E-Government initiatives might affect government dramatically over the coming decades.

The question of whether expectations for E-Government are realized or dashed depends on what those expectations are. This paper suggests that claims that E-Government will fundamentally alter governmental structure, performance, citizen engagement, and so on (National Performance Review, 1993; Executive Office of the President, 2003) are likely to be dashed, given that IT in and of itself has consistently proven to have little bearing on those kinds of government reforms. IT is a general-purpose engine that can enable reform efforts, but unless the other factors required for reform are in place, the role of IT is immaterial. IT has also been used to thwart reform efforts, a fact that many who support the reform hypothesis overlook. True reform begins and ends with political will, and along the way IT can play myriad roles.

Perhaps most important for E-Government practice and research, nothing in this argument refutes the hope that IT will improve government operations and enable new government services. E-Government, at least in principle, offers a great deal to government organizations facing increasing demands, shrinking resources, and in many cases, more fractionated political climates. IT can be used to make important marginal improvements in efficiency and effectiveness, and in some cases, create truly innovative government responses to challenges. IT has brought such benefits to many organizations and many sectors, and there is nothing to preclude government organizations from enjoying such payoffs from thoughtful IT investment. A challenging agenda for E-Government practice and research remains, even if government reform is removed from the agenda.

Another point that is seldom mentioned in the reform discussion might be added to the agenda: the implications of E-Government in changing the political dynamics whereby government leaders are elected and appointed. As was pointed out in a 1987 study of the use of computer models in the federal government, IT had conspicuously failed to alter fundamental dimensions of the federated governmental apparatus of the United States, but the same could not be said for the processes of political mobilization (Kraemer et al., 1987). The most recent U.S. Presidential election was replete with examples of the ways in which IT can alter political balances and fortunes, including the Internet-based fund-raising drives that allowed Democratic campaign financing to keep up with Republican financing, the effects of weblogs and Internet-based news sites covering the campaign on the mobilization of public opinion, to the controversies regarding electronic voting (Nardi et al., 2004 a, b). It is in some ways fitting that the most significant impacts of IT on government thus far have been in the most political

dimensions of government: the determination of who governs. This condition is likely to persist, and is highly relevant to both practice and research in the realm of E-Government.

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ENDNOTES

[1] This literature spans more than thirty years and is illustrated by the National Performance Review of 1993. From Red Tape to Results: Creating a Government that works Better and Costs Less, and Reengineering through Information Technology (accompanying report of the NPR). Washington, DC: US Government Printing Office.

[2] By 2002, federal government spending for IT was $45 billion annually, with $45 million set aside for e-government projects, increasing to $150 million by 2006 (Forman, 2003).

[3] In a recent analysis of e-democracy in four municipalities in Sweden, Gronlund (2003) concluded that the various e-democracy initiatives reinforced the current procedures of formal politics by complementing them with increased direct communication with citizens rather than citizen participation and influence. Moreover, he concluded that this should be seen as a measure designed to reinforce the politicians' position rather than the citizens, as the agenda was set by the politicians.