Chapter II

The Evolution of Federal Information Technology Management Literature: Does IT Finally Matter?

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Abstract

Federal agencies rely extensively on information technology to perform basic missions. Arguably, public administration should be driving the theory, policy, and practice for managing these increasingly important resources. While there has been some maturation in the literature for managing IT in federal agencies in the last several years, academics from the field of information systems and practitioners have contributed more recently to the theory and practice of IT management at the federal level than public administration. This chapter analyzes federal IT-management literature over time and compares federal IT-management literature to a normative model of management maturity focusing on the strategic objectives for IT and related management approaches. Public administration's minimal contribution to federal IT-management literature raises profound questions about whether federal agencies are performing commensurate with public expectations as the theory and practice of IT management may be moving into a new, post-information-age era.

Introduction

Given the growing importance of effective IT management to the basic functioning of most public programs, the sophistication of the policy, theory, and practice in this area should be evolving quickly. Unfortunately, that is not so (Fountain, 2001; Holden, 1996; Holden & Hernon, 1996). As a result, it is quite possible that the current generation of public-administration scholars and practitioners may be ill equipped to face the challenges of the information age in which we find ourselves trying to govern.

A mere gap in IT-management theory might not be fatal, but in reality, the implications for the practice of public administration, and therefore governance, are quite grim. Press accounts of the interoperability challenges first responders faced during the World Trade Center attacks on 9/11 offer just one example of how integral public-sector IT has become to the safety and economic well-being of the country. While the billions of dollars currently spent by the federal government on IT make up an insignificant portion of the budget, IT underpins almost the whole budget directly or indirectly. Just ponder the implications to the government's cash flow if the Internal Revenue Service (IRS) could not collect taxes or the Social Security Administration could not post employee earnings.

This chapter compares the federal IT-management literature with a normative model of management maturity, examining the strategic objectives for IT and the related management approaches. The academic disciplines that contribute to an understanding of the management of IT in the federal government include business administration, state and local government management, information sciences, and public administration. Although the analysis of the literature does include government publications, it does not discuss the pertinent public law or government-wide policy (see instead Beachboard & McClure, 1996; Holden, 1994; Plocher, 1996).

Like public administration more generally, IT management draws on several different sources. Unlike other management topics in public administration, though, the literature covering IT management lacks breadth and maturity. Even more alarming, Kraemer and Dedrick's (1997) review of the public-administration literature for managing IT found that research on public-sector computing was declining when federal agencies were relying more heavily on IT. The following quotation summarizes the state of the literature at the turn of the 21st century:

A century from now, social and policy scientists will look back with amusement and no small amount of condescension at the glacial pace with which social scientists moved to consider fundamental changes in information processing and their implications. (Fountain, 2001, p. 10)

While the chapter documents some progress in the field in the last several years since a similar review was published (Holden, 2003), it also points to continuing shortcomings. It is particularly troubling that disciplines besides public administration are responsible for the few recent developments in federal IT-management literature. Compared against the management maturity model presented below, there is clearly much work left to do.

A Model for Information Technology Management Maturity

This analysis of federal IT-management literature proceeds in an order that reflects the maturation of the strategic objectives for IT and the attendant management philosophy over the last 40 years. As a normative standard, this analysis adapts a model of maturation of theory and practice that Donald Marchand (1985) first used for the field of information management (Holden, 1994). He identified four stages of evolution for information management encompassing the 20th century.

This chapter adapts his model as an organizing principle in several ways. First, since this analysis deals with the management of IT, it does not include his Stage 1, which addresses the physical control of information before automation in the 1950s. Second, Marchand discusses the evolution of information management for five distinguishing characteristics: (1) precipitating forces, (2) strategic objective, (3) basic technologies, (4) management approaches, and (5) organizational status. This chapter stresses how strategic objectives for and management approaches to IT have evolved, placing little emphasis on the other three characteristics. Third, since Marchand covers information management, which is broader than IT management, the names for the stages differ. Finally, the stages used to organize this chapter reflect the stage of development of the literature, despite the date of its publication. In contrast, Marchand demarcated his stages by time periods, assuming that all activities within a specified period of time conformed to the same stage of development in management.

The adaptation of Marchand's model is quite consistent with stage or phase models used in the IS literature. For instance, one of the classic texts (Applegate, McFarlan, & McKenney, 1999) for what business schools call management information systems (MISs) discusses three major eras of computing in organizations. The eras cited in this MIS text mirror the three stages used to organize this chapter in terms of the prevailing technology and level of management attention in each era or stage. More recently, Peppard and Ward (2004) used what they call a widely accepted notion of these three eras of computing in organizations as the organizing frame to assert that there is a new era emerging in IT management in both theory and practice. These two examples lend support to the credence of this chapter's adaptation of Marchand's work and also point to the emergence of a new phase or stage that should be informing both the theory and practice of federal IT management as discussed in the concluding section of the chapter.

Stage 1: Management Information Systems

This stage, which Marchand (1985) labeled "Management of Automated Technology," spanned the 1960s through the mid-1970s. Then, business and public-sector professionals often used the term MIS to describe IT. The management of technology dominated this era at the expense of the management of information. Because the management of technology was limited to the data center, there was little concern for relating those resources to other facets of management in organizations.

The management approaches for IT of this era reflected the isolation of the IT professional from broader functional and executive oversight. Organizations used IT to automate back-room operations, with the primary strategic objective being to improve the efficiency of clerical activities (Zuboff, 1988). Personnel in the data-processing function took primary responsibility for the management of these resources and focused on the development of applications and systems. Typically, these systems consisted of applications run by data-processing professionals in centralized processing facilities that consisted of mainframe computers. Users had few direct contacts with these systems other than to fill out punch cards, do manual key entry, and receive printouts from the data-processing department. As a result, line functions in the organization rarely controlled their own computing resources (Ackoff, 1967).

The early MIS literature dealt almost exclusively with private-sector applications. It was not until much later that public administration adapted MIS literature to public-sector theory and practice. In 1986, Bozeman and Bretschneider articulated a case for a separate body of literature to address the unique information needs of public organizations. They proposed that this body of theory and practice fall under the heading of public management information systems (PMISs).

To support this argument, they asserted that MIS literature ignores variables external to the organization, such as the political environment and the annual appropriation process. The political control of public organizations, which entail uncertain and variable goals, means that public- and private-sector methods for establishing IT performance indicators differ dramatically. Though private and public organizations can acquire the same hardware and software, their different organizational environments require unique system design techniques. While this notion of PMIS brought attention to the use of IT in the public sector, it had limited applicability as a management approach. Instead of viewing IT as a strategic resource for public-sector organizations, this perspective examined the development of one application at a time.

Some public-administration research on IT has examined the availability of IT at the state and local government levels. For instance, the International City Management Association (ICMA, 1986) surveyed local and county governments' use of computers several times. Kraemer, King, Dunkle, and Lane (1989) at the University of California have published several works resulting from the Urban Information Systems (URBIS) research project. These initial efforts addressed the use of IT in local governments, placing much less emphasis on the management of those resources or their strategic importance.

Building on the URBIS study, Norris and Kraemer (1996) did an analysis of the results of ICMA's 1993 survey of local government computer use. While based on more recent survey data, this study looked more at the adoption and use of IT at the local level more so than how those resources were managed. The authors did examine the degree of computing centralization and found a statistically significant relationship between population and the kind of technology deployed. Large cities were more likely to have deployed central systems (such as mainframes and minicomputers) and smaller communities were more likely to have deployed only personal computers.

Some theoretical work in evaluating information systems has surfaced nonetheless, which applies generally to public-sector organizations. Newcomer and Caudle (1991) provide some insights into how and why the evaluation of information systems in the public sector should

go beyond mere return-on-investment criteria. In particular, they offer a framework for evaluation that includes qualitative and quantitative measures and recognizes the multiple uses of most public information systems. Although this framework does not help agency decision makers choose between competing projects, it, nonetheless, broadened the theoretical base for evaluating individual systems projects.

Stevens and McGowan's work (1985) presents an overview of information-systems management for public administrators from the local to the federal level. Their book adapts contingency-based organization theory to explain how public organizations must process information effectively to respond to their environment. For the most part, the book focuses on managing single applications and makes illustrative points through the discussion of three case studies. Although it does cover a variety of topics, including management, policy, and technology, it does not provide an organization-wide or strategic view of managing IT.

Despite some maturation of the literature during the MIS stage, theory was apparently not meeting the needs of practice. There were two notable contributions to the literature during this period. First, an emerging view recognized that IT required broader management attention. Second, management approaches matured to recognize that private-sector IT management might not suffice for public-sector managers. Even in the private sector, the MIS philosophy fell prey to vocal criticism as the developers rarely interpreted user needs accurately, and even if they did, it took so long to write the programs to run the systems that the original user requirements changed. After corporate managers spent millions of dollars to buy and subsequently upgrade MISs that did not provide the expected results, this criticism became more widespread.

Frustration found a voice in John Dearden (1972), who wrote that MIS would never meet managers' expectations or needs. He asserted the following:

The notion that a company can and ought to have an expert (or a group of experts) create for it a single, completely integrated supersystem—an MIS—to help govern every aspect of its activity is absurd. (p. 92)

After fixating on the technology and the life cycle, evidently organizations still did not build the information systems they needed. A new, broader perspective for managing IT emerged as an alternative to MIS in the early 1980s.

Stage 2: Information Resources Management

Ironically, the private sector did not lead the next phase of IT-management theory. Stage 2 signaled the replacement of MIS with a theory of information resources management (IRM). The federal government ushered in this new state of IT management with the passage of the Paperwork Reduction Act (PRA) (*Paperwork Reduction Act of 1980*, 1980). The PRA articulated a need for the federal government to manage information and IT as a resource, much like financial and human resources (Caudle, 1987). Though the PRA created requirements

for managing both information and IT in the federal government, Marchand (1985) uses the term IRM to refer to a philosophy for managing IT more generally, as does this chapter.

IRM, as the Stage 2 perspective for managing IT, reflected change in both the technical and the external environments of organizations from the mid-1970s to the mid-1980s. Information technology began to move out of the data center with the arrival of minicomputers and the introduction of microcomputers. With this decentralization of computing power, management approaches had to shift from the data center to include user organizations. Strategic objectives for IT also changed as line organizations began to realize that they could use IT for more than just backroom functions. As a result, program offices often acquired their own IT when data-processing organizations could not keep pace with their needs. These changes, combined with the increasing level of spending on IT in organizations, brought these resources to the attention of a broader range of managers (Marchand, 1985).

In response to the disillusionment toward the management perspective focused on single applications mentioned earlier (i.e., MIS), private-sector organizations and business schools began to think more about how to tie together disparate systems to form an organization-wide perspective. Often, data-processing organizations call such perspectives architectures. This view represented a departure from the earlier philosophy of managing IT because it assumed that systems existed outside the physical and management control of a central data center.

McFarlan and McKenny (1983) also took an organization-wide view of managing IT, which they called the "IS function." Their work distinguished itself in recognizing that organizations, especially large ones, often manage many information-systems projects at once. As a result, it dealt with issues arising from coordinating several systems projects, going beyond exerting life-cycle management control over individual projects.

McFarlan and McKenny (1983) acknowledged that cultural (what they call environmental) factors often determine the effectiveness of control mechanisms for managing information systems. These factors include: (a) the penetration of information systems in the working environment, (b) the level of maturity of information-systems development efforts, and (c) the planning style of the organization. More specifically, McFarlan and McKenny asserted that the effectiveness of information-systems planning depends on the perceived importance and status of the systems manager, the physical proximity of the systems group and the general management team, the corporate management style, and organizational size and complexity.

International Business Machines (IBM, 1984) developed a systems planning methodology called business systems planning (BSP) that offered a framework for managing a collection of information systems across organizations. Specifically, BSP provided organizations, public or private, with a method for creating an information-systems plan.

Experience has shown that BSP can be applied to all institutions in the public sector and all industries in the private sector because the requirements for developing information systems are similar no matter the business served or the products and services provided (IBM, 1984).

Even thought BSP does not address the planning or use of individual systems, it does create a framework for linking systems planning to the broader purposes of the organization.

IBM's stated intent in creating BSP was to develop a methodology for creating a plan that would overcome the historic weaknesses of information-systems implementation, gener-

ally attributed to a lack of planning. In part, IBM built on its own attempts to deal with the plethora of systems that each of its own functions had developed over time. The keys to this new method, as IBM espoused them, were using top-down planning and analysis of organizational processes, relying on bottom-up implementation, translating organizational objectives into information-systems requirements, and using a structured methodology (IBM, 1984).

Consistent with IBM's view that BSP methods applied to public- and private-sector organizations, collections of articles on IRM issues appeared during this stage of the literature. For instance, Rabin and Jackowski (1988) edited a volume that touches on a variety of IRM issues, including information-systems management, data administration, and applications such as decision-support systems and databases. While sections of the volume dealt with public-sector IRM (Marchand & Kresslein, 1988), the balance of the work was so general that applying it to any particular kind of organization is difficult. Specifically, it devoted little attention to federal government.

In response to a request from the House Committee on Government Operations, the General Accounting Office's (GAO, 1992b) Division of Information Management and Technology (IMTEC) compiled a report that highlighted some problems it consistently found in federal agencies' management of information resources. It identified 11 themes across 132 agency-specific reports that spanned the period between October 1, 1988, and May 31, 1991. Of those 11 themes, 8 dealt with IT management and 2 addressed agency-wide management and control of information resources, including IT and data management. GAO did not set out to find root causes to these broadly defined problems, but did identify several plausible explanations in the report. For management mechanisms such as life-cycle management, project evaluation, and the coordination of information resources, GAO found that agencies lacked sufficient policy controls or did not effectively use the controls that existed.

Based on its experiences reviewing agency-specific IT projects, IMTEC developed what it described as a generic framework for developing systems architectures. In the preface to the report describing this framework, IMTEC expressed hope that the framework would help to address a prevalent problem of agencies trying to manage IT projects, which is the lack of planning and analysis of alternatives. While this report provided a very high-level view of the steps an agency should consider in developing a particular systems project, it did not address how to provide cohesiveness to information-systems efforts across the agency (GAO, 1992a).

To date, only two academic studies have addressed the implementation of the PRA by federal agencies. Caudle (1987) conducted the first study, documented in a report for the National Academy of Public Administration (NAPA). This report included the results of interviews with federal IRM officials in cabinet-level agencies, with selected subagency organizational units, and with the central oversight agencies. Caudle used these interviews to learn how agencies had organized to meet the mandates of the PRA and to assess whether the principles contained in the act had begun to pervade agency attitudes and behavior. In addition, her study presented agency views on the Office of Management and Budget's (OMB) and General Services Administrations (GSA) policy-making mechanisms for overseeing the achievement of the PRA and the Brooks Act.

Caudle's (1987) work provided groundwork for subsequent public-administration advances in IT management. In particular, she found that agency staff identified the strategic planning

and budget processes as the primary control mechanisms for IRM. This attitude manifested itself in the respondents viewing IT management as guiding a project through the acquisition approval process at GSA and the budget approval process at OMB. In the conclusion to the report, Caudle recommended future research into control mechanisms for information resources. Such mechanisms, she noted, might differ from those used for financial and human resources. Additionally, her work serves as the foundation for GAO's strategic information management study discussed later.

The second study, conducted by Levitan and Dineen (1986), also relied on interviews with selected federal IRM officials. This research differed from Caudle's (1987) report for NAPA in that Levitan and Dineen first established a model of what they called "integrative IRM" and used that as a basis for assessing the state of the art of integration of federal IRM in 1985. In the authors' view, managing IT is complex because such management issues transcend normal organizational boundaries. Specifically, Levitan and Dineen cited strategic planning, the implementation of technology, and interaction with the organizational constituencies as examples of integrative issues for federal IRM.

Having constructed this model of the integrative nature of federal IRM, the authors conducted interviews with representatives from several federal agencies and one bureau of a federal agency. They posed questions about whether managing information resources in the organization extended beyond information systems to include information management (e.g., functions such as dissemination and records management) and whether notions of IRM extended to the program offices.

The findings confirmed several of those cited by Caudle (1987) in her study published by NAPA. For the most part, agencies had not fulfilled the mandate of the PRA by integrating the management of information systems and information content. The federal IRM offices represented in the interviews cited the management of information systems as their major concern overwhelmingly. This reflected the information-systems background of those staff who had risen to management positions in IRM. Agencies relied on task forces to achieve the integration of IRM issues across normal organizational boundaries. Levitan and Dineen (1986) found no consistent patterns of whether agencies had succeeded in integrating IRM as a management discipline in program operations.

Bishop, Doty, and McClure (1989) prepared a compendium of views on federal IRM from the two aforementioned studies, academic literature, and GAO, OMB, and GSA publications that went beyond just the carrying out of the PRA. Their paper presented a matrix of various observers' critiques on the status of IRM in the federal government. Comparing these critiques, they identified strong agreement on several points such as (a) insufficient integration of IRM at the agency level, (b) insufficient integration of IRM with the agency mission and program management, and (c) a need for better planning. Only one index dealt with the management of IT, and the respondents split evenly on the issue of whether IRM suffered from an overemphasis on technology.

Several other contributions from information sciences bring more insight into the state of IRM policy development and to some extent implementation. Beachboard and McClure (1996) point out some inherent inconsistencies among the various federal oversight bodies and policy instruments. To help deal with weaknesses they found in the IRM policy they cite, Beachboard and McClure advocate changes in IRM policy, federal agency commit-

ment to IRM as a management discipline, and further empirical research into the lack of effectiveness of IRM policy and practice.

A similar publication on federal IRM finds that neither policy nor practice seems able to bring federal agencies into the information age, thereby enabling wide-scale electronic service delivery (Bertot, McClure, Ryan, & Beachboard, 1996). Without much empirical grounding, the authors offer a mix of policy, organizational, and investment choices that they assert will enhance the effectiveness of federal IRM policy and practice. These contributions add a certain richness to an understanding of federal IRM policy, but despite some hints of loftier strategic objectives for IT (i.e., electronic service delivery), they offer little in the way of concrete management processes to make that vision a reality.

Consistent with the maturing view of IRM, the research on local governments' use of IT began to explore the benefits from investments in automation. An analysis of survey data collected from 46 U.S. cities found that payoffs accrued in fiscal control, cost avoidance, and improved service-delivery mechanisms. This study also found that it took longer than anticipated to realize some benefits and that expected payoffs in better information for management and planning had yet to appear (Northrop, 1990).

Other research has included IT management as part of an examination of IRM in state governments. Caudle (1989) produced a nationwide study on the maturity of IRM in state governments. This study used data collected from a survey of 2,200 program managers and information-systems directors to characterize their views on the state of the art across several IRM activities, including IT usage and acquisition. It did not, however, discuss management techniques for IT or the strategic role of IT for stage governments.

At the county level, Fletcher and Bertot (1993) examine the extent and impact of the centralization of information services. The article is a based on a national survey of the largest 450 counties in the United States, supplemented with case studies of 13 counties, ranging from very small to very large. The survey gathered data on the extent of user-agency vs. central IT department equipment ownership, IT operation, network configuration, software-development strategies, and the operation of office systems. The analysis of these data reflected the shift of the role of the central IT organization from controller of all IT resources to provider of resources. The authors called this a collaborative model between central IT and user organizations and asserted that these data support a finding that county governments were succeeding at IRM while federal agencies were not at that time.

A consistent theme emerges from the literature of Stage 2 covering IRM. The application of theory and practice from this era has been very uneven. The federal government, in particular, still relies extensively on centralized, mainframe information processing and a similarly centralized management approach, which does not support the sharing and integration envisioned by IRM proponents. A lack of agreement on the meaning and relevance of IRM, as manifest in the publications advocating continued changes to basic federal law and government-wide policy for IRM, continues to thwart the adoption of the core management principles. This may be in part because researchers outside public administration, most notably information sciences, have done most of the research on IRM policy.

There is still work being done, though, to solidify the role of information and IT in public organizations in the tradition of PMIS started in the mid to late 1980s. Rocheleau (2006) has published a text devoted solely to the management of IT in the public sector. It begins

with a discussion of how the management of IT differs between the public and private sectors. The bulk of the book, though, outlines key management issues and techniques for IT management that public administrators should know. This is text is one of the few examples that focuses exclusively on public IT management and includes discussions of some of the political and ethical issues that are unique to the public sector.

The strategic focus for IT remains largely the same: efficiency. Although efficiency of government service delivery to the public, as compared with the efficiency of just backroom functions, represents some progress, the ultimate goal remains lower costs. These notions of IRM as a management philosophy and strategic focus for IT remain mostly inwardly focused to the organization, except for preliminary discussions of electronic service delivery. Despite, or perhaps because of, the limited success of IRM, a new era for managing IT has begun to emerge.

Stage 3: Managing Information Technology in an Information Age

While many organizations strive to make the transition from Stage 1 (MIS) to Stage 2 (IRM), further developments in managing IT are forming the outline of a new stage. Marchand (1985) calls this stage "knowledge management" to highlight the shift in emphasis from the physical management of technology and information to the management of information content. Although there is now considerable interest in the area of knowledge management as a field of study and practices with the information-systems field, Marchand's use of the term has a narrower meaning than we now generally find. He contends this stage of development began in the mid-1980s and would continue through the 1990s. While the management of information content is emerging as a new skill, the successful application of IT makes it possible to maximize the benefits of information content (Marchand). The IS literature typically refers to this stage as strategic information systems, where the benefits of managing information content translates into competitive advantage in the marketplace (Applegate et al., 1999).

At the outset, though, a more precise definition of the term information age is in order. Information age has crept into the day-to-day language used in most organizations and the popular press. It is generally used to describe a future state where information will be quickly and universally accessible in electronic form. Dizard (1985, 1989) described his view of an information age, but implied that our society has not yet arrived there. The mature phase, which he believed would arrive in the 1990s, would entail the mass availability of IT and technology-based information services to consumers in their homes. This third stage would be made possible by the existence and use of a broad network of networks for sharing information between individuals, not only large organizations and businesses. Many of these new services would be made available, not through the personal computer, but with existing appliances in many homes, for example, the television and the telephone. To a great extent, this third stage of the information age is becoming a reality quicker than even Dizard might have envisioned. For that reason, this part of the chapter uses that description of the term information age to help frame the most mature management philosophy for IT.

As an indication of how powerful the notion has become, the Clinton administration described an information-age initiative promoting new uses for IT in federal agencies (Office of Science and Technology Policy, 1993). This report brought a new strategic focus to the uses of IT for federal agencies as a service-delivery vehicle, requiring new management approaches and supporting policies. The Clinton administration envisioned the federal government will use IT to make agencies more responsive and service oriented. Instead of using automation to make government operations more efficient for internal processing, agencies would use IT to reach out to the public to provide timelier and higher quality service.

Comparing differences between an information-age philosophy and IRM points to the maturation of management approaches for federal IT management. One difference is a more robust understanding in the information age of how important the technological infrastructure is. Emerging and maturing technologies such as graphical user interfaces, client-server computing, and workstations create a foundation for more substantial user involvement in information management. Additionally, this reality requires recognition that technology cannot be managed effectively from the mainframe data center to the exclusion of management of the desktop and everything between.

Several themes emerge from Strassman (1990), extending the IRM view of managing information systems from an organization-wide perspective. Strassman created a 137-item policy checklist for managing IT based on his work in the private sector prior to becoming the CIO (chief information officer) for the Department of Defense. He stresses that the policies for managing information systems should place responsibility in the hands of the users, not the IRM specialists. These policies include: (a) using economic analysis that promotes trading off between information resources and other resources and (b) providing mechanisms that charge users for information and information systems. He also introduces the notion that organizations should examine and redesign work processes before automation to ensure that automation does not speed up archaic and unneeded functions. The unifying theme presented by his list of policies is to ensure that investments in information systems add measurable value to the core missions of the organization.

Without identifying it as such, Strassman's (1990) approach of aligning information resources to organizational missions falls under the rubric of strategic management. Strategic management represents an effort by private- and public-sector managers to make strategic planning more useful in meeting the short-run needs of organizations. Much like Strassman, business authors writing about strategic management talk about aligning corporate resources and missions to take advantage of opportunities in the market. Strategic management emphasized looking at resource-allocation processes and support systems to see how they added value to a business (Hax & Majluf, 1984). For use in the public sector, public-administration authors have adapted these models for differences in civil-service traditions in political environments (Nutt & Backoff, 1992). Some public-sector models of strategic management explicitly include and highlight the role of IT in strategic management processes (Adler, McDonald, & MacDonald, 1992; DeLisi, 1990).

An analysis of a national survey of public managers' views of IT issues provided further insight into differences and similarities between public- and private-sector management in this area. Caudle, Gorr, and Newcomer (1991) compared the results of a 1988 survey of managers in federal, state, and local agencies to similar studies of private-sector organizations. The comparison of the public-sector survey to the previous survey of private-sector managers found that 7 of 10 top issues are common between the two groups. The authors

found some differences in the relative ranking of the issues, leading them to conclude that the public sector was still grappling with some issues that private-sector organizations had been able to deal with more quickly. For instance, public-sector respondents ranked issues like the integration of technologies and end-user computing as high-priority issues where their importance had been declining over time for private-sector managers. They did find that both groups rated the issues of aligning IT with agency goals and IT planning near or at the top of their respective lists, indicating that a strategic orientation was beginning to take hold in the public sector.

GAO (1994) has taken a more preventive approach to dealing with federal agencies' problems with managing IT and grounded it in the literature of strategic management. In doing so, GAO not only presents a new management approach for IT grounded in systematic research, but it also brings the new strategic objective of mission performance into discussions of why the successful management of IT is so important. Within the federal IRM community, GAO's work in this area often goes by the label of its best-practices study (Caudle, 1996).

Part of what separates this GAO effort from typical GAO reports is the rigor of the analysis supporting GAO's recommendations for change. GAO went to some lengths to find case-study examples of effective IT-management practices in both the private and public sectors and included federal agencies beyond state governments. Throughout the process of deriving the key best practices from the case-study research, the GAO team consulted with federal IRM executives and oversight organizations such as Congress, OMB, and GSA to help ensure that the practices were applicable in the federal environment. As part of the case-study analysis, the research also went to great lengths to point to empirical proof of improved mission performance resulting from or at least relating to the application of the best practices.

While not explicitly linking the research or the findings to a particular body of literature, it becomes apparent from viewing the list of practices that GAO has created a strategic management framework specifically for managing IT. The practices GAO advocated are (a) directing IRM changes, (b) integrating IRM decision making in a strategic management process, (c) linking mission goals and IRM outcomes through performance management, (d) guiding IRM project strategy and follow-up through an investment philosophy, (e) using business-process innovation to drive IRM strategies, and (f) building IRM and line partnership through leadership and technical skills (Caudle, 1996). Although some of the language and the term IRM pervade the best-practices report, GAO's work has clearly brought both federal IT theory and practice to another level of management maturity.

Compared with the model of management maturity posited earlier, GAO's research, the resulting report, and the associated tool kits contribute new viewpoints to the strategic objectives and management approaches for IT. The strategic objective for GAO's best-practices work is unambiguously clear with the discussion of both strategic planning and mission performance, grounded in related program effectiveness measures. In effect, this implies a life-cycle management approach to linking IT plans, investments, and results. The mission focus also becomes apparent as the management approach seeks high alignment of IT investments with strategic plans and greater partnership between IRM and program staff. An investment management philosophy, grounded in the budget process, gives the whole management approach "teeth" and helps to guard against the tendency for more traditional IT plans to lie unused.

One academic study examined federal agency implementation of GAO's strategic information management (SIM) framework to assess how the practices from leading organizations, mostly from outside the federal government, were being implemented. Westerback (2000) analyzed data gathered from 20 case studies identified by the federal CIO council and the Industry Advisory Council in a report of federal IT-management best practices. By this time, most of the SIM framework had been codified into public law and government-wide policy (see *Information Technology and Management Reform Act of 1996*, 1996; *Paperwork Reduction Act of 1995*, 1995), and supporting government-wide policy (i.e., OMB, 1994).

The study therefore examined whether the case-study agencies were following the new laws and related policy and whether the practices were as relevant to federal agencies as GAO asserted. The analysis of the case-study data found strong support in practice for 3 of GAO's 11 practices and support for the remaining 8. In addition to finding support in practice for the GAO SIM framework, the study identified another practice (modified acquisition practices) that the study organizations found key to success but was not included in GAO work. This study helps to ground this important work, initiated by a practitioner organization, in the public-administration literature and also provide some much-needed external evaluation.

The Kennedy School of Government (Mechling & Applegate, 2000) published a series of papers titled *Eight Imperatives for Leaders in a Networked World*. The papers included an overview document and a guideline paper devoted to each of the eight imperatives. The intended audience for the paper series was government leaders, although the findings and suggested practices are grounded in the literature of both public policy and business administration. The topics for the papers were (a) a focus on how IT can reshape work and public-sector strategies, (b) how IT can be used for strategic innovation, (c) the utilization of best practices in implementing IT initiatives, (d) improving budgeting and financing for promising IT initiatives, (e) protecting privacy and security, (f) the formation of IT-related partnerships to stimulate economic development, (g) using IT to promote equal opportunity and healthy communities, and (h) preparing for digital democracy. Though not particularly deep in explanation, these guidelines provide a good overview of issues government leaders face in leveraging the full potential of investments in IT in the public sector.

One recent addition to the literature covers an IT management project that is quite unique to the federal government: megaprojects. Bozeman (2003) uses the IRS Tax Systems Modernization (TSM) as an extended case study to explore the challenges of deploying desperately needed IT and business modernization on a scale not often seen. Bozeman analyzes the TSM case using the literatures of organizational culture and risk aversion. While some of these lessons are unique to the IRS, they may well prove instructive to federal agencies with risk-adverse cultures seeking major systems and business-process improvements.

There is also some state-level research that addresses the strategic role of IT in the public sector.

Although the primary focus of the research is on strategic planning, Holley, Dufner, and Reed (2002) nonetheless build on the GAO studies of strategic information management to assess the extent to which state governments are managing information resources more strategically. The authors analyzed data from a Government Performance Project (GPP) survey gathered in 2000. For this study, the authors analyzed a subset of the GPP data that examined the processes and end results of strategic information-systems planning in state governments. The authors concluded that much like at the federal level, middle managers

instead of top-level career and political appointees were involved in planning for IT implementation and as a result, the resulting plans were more tactical and inwardly focused than they were strategic and targeted at improving mission performance.

Garson (2006) addresses the policy, management, and implementation issues required for the success of a virtual state. One of the first chapters provides a brief history of public-sector information policy that chronicles the evolution of federal IT policy since the 1940s. Garson labels the most recent phase the virtual state, which places this work in the stage of IT management for the information age. The text points out how changing technology and public expectations have necessitated changes in public-sector policy, management, and implementation of IT.

One final article rounds out the most recent stage of managing IT in an information age and addresses the issue of whether public-sector investments in IT have and will yield the expected benefits of organizational transformation. Danziger and Andersen (2002) analyzed empirical research published in journal articles between 1987 and 2000 to understand the impacts of IT on public administration and the public sector. They organized their findings into four broad groupings of impact and 22 specific impacts. While the capabilities grouping focused on traditional impact measures like efficiency and effectiveness, the other groupings examined impacts that might be considered more political, such as how the interactions among governments, citizens, and stakeholders might change and whether value distributions might change as a result of public-sector IT. The authors concluded that while positive impacts included improved efficiency and productivity, negative impacts of public-sector IT included changes in public-employee work environments and citizens' interactions with government. On the larger issue of whether IT had transformed the public sector, the authors concluded that the impacts were substantial, but were not fundamental transformations.

Stage 4: Conclusion—Emerging New Models of IT Management

It is quite apparent how integral IT has become to administering federal programs specifically and all public programs more generally. Relegating this management domain to "computer people" is no longer sufficient. Since governance is an information-rich endeavor, public administrators need to understand how to manage the infrastructure that collects, processes, stores, and disseminates information about and for public-program delivery.

Unfortunately, most advancement in federal IT-management theory, policy, and practice continues to come from outside public administration. In particular, the information-systems field leads public administration in identifying the strategic role of IT in supporting organizational missions. Beyond that, there is evidence that researchers in IS are articulating a new era of computing beyond what they called strategic information systems and this chapter refers to as managing IT in an information age.

Carr's (2003) polemic, "IT Doesn't Matter," in the *Harvard Business Review* (HBR) asked the question of whether investing in IT for strategic advantage was still advisable. A subsequent debate in the editorial pages of HBR, the trade press, and even the popular press probed Carr's article title, data, analyses, and conclusions. I used this article to help generate debate in my undergraduate and graduate management information systems courses over the last three years, and my students and I concluded that the title was a bit disingenuous, but still quite effective for provoking debate. We also felt that Carr overreached with an analogy that asserted that IT had become a commodity like electricity and therefore was no longer a source of competitive advantage and, as a result, should be managed by minimizing risk and cost. What Carr said in his article, which is sometimes overlooked in the hyperbole over the title, is that while the underlying technology may no longer be the source of competitive advantage it was once, what really matters now is how organizations deploy and manage IT.

At about the same time, Peppard and Ward (2004) argued that organizations should be moving beyond identifying the "killer application" that will provide strategic advantage. Instead, the authors argue that organizations should be developing and sustaining an "information systems capability" that can be a source of continuous value. They assert this will be a fourth era of computing in organizations that recognizes the whole organization's performance will depend on IS capability instead of just a strategy of identifying a few select strategic applications. The resulting management focus should shift, in their view, to developing a full set of IS competencies, and the success of this approach should be measured by the performance of the organization as a whole.

It is not clear (and it may not matter) whether IT management is entering a fourth era. What seems clearer is that public-administration literature for managing IT still lags behind practice and theory from other disciplines. Given the growing popularity and spending on electronic government, it raises issues of whether public organizations lack a sufficient management infrastructure for building new Internet-based forms of service delivery. The depth and rigor of public-administration research in budgeting, personnel, and organization theory compared to IT management points to a need to reexamine the core management competencies for public administration. Peppard and Ward (2004) argue this for the private sector, and it likewise makes sense that the management of IT should be viewed as a competency as important as the management of human and financial resources within public administration.

Public administration should provide a vision for federal agencies as they move from a technology base and management philosophy grounded in concepts of management information systems and information resources management to a more mature notion of an information age. This more mature notion should recognize that as IT becomes even more widely available and used by the public, citizens will demand changes in the way they interact with their governments. Increasingly, the public will ask, if not demand, to do business with the federal government electronically. As a result, it is imperative that IT management theory, policy, and practice mature more quickly to enable the electronic service delivery the public will demand and current state-of-the-art technology enables. It remains to be seen whether public administration will contribute to this maturation any more than it has in the past.

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Chapter III

Politics, Accountability, and Information Management

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Abstract

This chapter provides examples of the politics of managing information in public organizations by studying both its internal and external aspects. Within the organization, politics is involved in structuring decision making, struggles over purchases of hardware and software, interdepartmental sharing of information, and the flow of communications such as e-mail among employees. The chapter analyzes examples of each of these internal aspects of politics. The chapter also discusses evidence concerning whether political appointees or career administrators are more effective as information managers. Externally, the chapter discusses how information management has been used to attempt to achieve greater political accountability through e-reporting and examples of cases where purchasing problems spill over into the realm of external politics such as through attempts to privatize governmental information management function. Certain topics such as municipal broadband systems and information management disasters are highly likely to involve information managers in politics. The attempts to use governmental Web sites as mechanisms to achieve e-governance and greater citizen participation in the political process also make it impossible for information managers to insulate themselves against politics.

Introduction

The message of this chapter is that information management has always been political and will become increasingly political due to several important trends that are occurring. First of all, information technology has become a central aspect of organizations, so more people care about it. This high interest can lead to struggles over strategic and operational issues. Second, there are emerging issues that push technology into areas that are potentially fraught with politics. For example, many local governments are interested in establishing governmentally supported broadband and wireless areas and these efforts have already resulted in major political battles with more likely to come. Also, information management is viewed as a method of obtaining increased citizen participation in the political process through various electronic mechanisms such as governmentally supported online e-governance mechanisms such as online rule-making dockets, public Listservs, public blogs, and other forms of computer-mediated communication (CMC). Each of these mechanisms has the potential to achieve positive goals, but they are also fraught with potential for generating political conflict. The underlying premise of this chapter is that information is power and consequently information management is inherently political. Information asymmetries give an advantage of one actor over others (Bellamy, 2000). Maintaining control over information can allow individuals, departments, and organizations to control how successful they appear to others and thus may protect autonomy, job security, and funding. Therefore, in order to provide effective leadership for IT, the generalist and head IT manager will need to actively engage themselves in both internal and external politics. An excellent case illustrating the importance of political issues in managing IT occurred in California. The California Department of Information Technology (DOIT) was eliminated in June of 2002 (Peterson, 2002). The department had been created in 1995 in order to solve the problem of several disastrous contracts in the IT area including a Department of Motor Vehicles (DMV) project that cost over $50 million but never functioned as planned (Peterson). Peterson cites accounts from observers to support the argument that a major reason for the failure was due to the other major agencies that viewed the new department as a threat to their power and lobbied to reduce the authority of the agency in the legislation creating it. In particular, the opponents lobbied to deny the new DOIT control over operations in the legislation creating DOIT. Those with interests opposed to the new DOIT included existing departments that had major authority in the IT field and/or those with large data centers. The opposition was successful so that the legislation limited DOIT's role mainly to authority over the budget. Consequently, the DOIT did not have control over data centers and was not able to achieve one of its major goals to centralize and consolidate these data centers (Peterson). This lack of operational authority limited its ability to influence other departments as Peterson summarizes:

Without controlling data centers or California's telecommunications network, DOIT simply had no juice, some sources argued. Because DOIT didn't add value to other state agencies, it couldn't exert any leverage on those agencies. DOIT could present ideas, but it couldn't make any real contribution to making those ideas happen. In other words, with the Department of Finance controlling IT budget processes, the Department of General Services controlling IT procurement and the state data centers handling computing needs, what was the DOIT's responsibility?

Also, according to observers, the head of DOIT was not allowed to sit in on cabinet meetings and there were reported cases of other departments doing "end arounds" concerning the formal requirement for DOIT to approve all major new projects. Another symbol of the weakness of the DOIT was that the governor appointed a new head of e-government who was independent of the DOIT, again lending credence to the perception that the DOIT lacked respect and power. The precipitating event in the death of DOIT was the quick approval by DOIT of a controversial project with the Oracle Corporation that resulted in an investigation and the resignation of several of the state's top IT officials. The California case illustrates how IT can become enmeshed in both internal and external political issues that I will analyze in this chapter.

In some cases such as those above, politics appears to refer to actions that tend to be viewed by outside observers as narrow-minded and self-serving. However, it is important to note that I use the term politics in a nonjudgmental manner. Politics can be about money and the "mobilization of bias" as Schattschneider (1983) described it as different forces struggle to prevail. However, politics can also be thought of as the attempt to mobilize resources to achieve public objectives and thus a necessary part of implementing any major project. I agree with Dickerson (2002, p. 52) that politics need not be a "lot of nasty back-stabbing and infighting" but is most often about "working and negotiating with others … to get things done." It can be as simple as practicing good communication skills to keep others informed.

Although information management involves many technical issues, it is important to understand that it involves major political challenges. A large portion of governmental information managers come from technical backgrounds such as computer science and business. They usually have excellent technical skills and they can quickly rise to leadership positions such as chief information officer (CIO). However, decision making concerning the management of information technology requires more than technical knowledge as Towns (2004) notes: "There's increasing talk that CIO's don't need to be technologists because the position's nature is changing. Project management skills and people skills now mean more to a CIO than IT skills, the argument goes …"

The most important critical success factors involve organizational and political skills that the technologically skilled often lack; however, these skills can be learned. In this chapter, I identify some of the key political problems that are likely to be faced. Many technical staff dislike politics and try to avoid dealing with political dilemmas. Molta (1999, p. 23) says, "engineers and programmers frequently appear oblivious to the strategic issues that keep management awake at night." He goes on to state that managing information technology is "the most politicized issue of the modern organization" and that technical staff "need to get in the game." Refraining from politics will lead to more serious problems and result in ineffective management of information technology.

Before the days of the World Wide Web and electronic government, managers and user departments often deferred computing decisions to technical staff because information management was not central to the organization (Lucas, 1984); generalist managers had little knowledge to contest decisions made by technicians. Now, since the information system has become a central concern, user departments often have their own technical staff, and generalist managers may become "technical junkies" (Molta, 1999, p. 24) who keep abreast of technological trends. The result is that information management is a much more prominent issue and the potential to become the source of disagreement. Consequently, technical skills themselves

are not sufficient to be effective for information managers to achieve their goals. A study (Overton, Frolick, & Wilkes, 1996) of the implementation of executive information systems found that political concerns were perceived as the biggest obstacles to success. Many people felt threatened by the installation of such systems for a variety of reasons including fears of loss of their jobs and increased "executive scrutiny" (Overton et al., p. 50). Feldman (2002) also sees politics as one of the biggest challenges for technical managers. Feldman (2002, p. 46) observed that technicians often adopt a "bunker mentality" on important technology decisions and fail to take effective steps to achieve their goals. Peled (2000) also argues that information technology leaders need to bolster their politicking skills to boost the rate of their success. A survey (Anonymous, 1994) of over 500 British managers revealed that the majority believe that information flows were constrained by politics and that individuals use information politics for their own advancement. In short, the effective use of political skills is an important component of effective information management.

Over the past decade, computing has become much more important in governmental as well as private organizations. Major decisions about computing have always involved politics. Detailed studies of cities in the 1970s (Laudon, 1974) and 1980s (Danziger, Dutton, Kling, & Kraemer, 1982) demonstrate several cases involving computing and politics. However, computing was less central to public organizations then. Most employees had minimal contact with computing but now routinely employ computer technology in many of their day-to-day practices. They use e-mail, the Internet, and a variety of computer modules to accomplish their tasks. Computing is a central part of their jobs and they care about technology. The development of e-government and the Internet has greatly broadened the end users of governmental information systems so that now they include citizens and groups such as contractors. Information technology now is employed to provide greater forms of accountability to the public such as using computers to derive sophisticated assessments of performance and posting performance measures on the Internet. Many elected chief executives such as governors wanted to be associated with information technology. Coursey (in press) points out, for example, that Jeb Bush wants to be known as an "e-governor." As a result, information technology decisions are more complex and subject to the influence of external politics.

I analytically differentiate the politics of information management into two major categories: (a) internal organizational politics concerning issues involving organizational members and (b) external politics concerning how the governmental organization relates to its councils or boards, other organizations, external groups, and general citizenry. However, these two forms of politics frequently overlap and influence each other as they did in the California case. I will not be providing many prescriptions to managers on how to behave politically, not only because research about politics is sketchy but also due to the fact that politics is highly contextual. The course of action that should be pursued depends on the complex interplay of political resources of the actors involved, ethical concerns, and legal issues, as well as economic and technical factors. My purpose is to sensitize information managers and generalist administrators to major political issues that are likely to affect IT decisions. I outline examples of both successful and unsuccessful strategies that managers have employed to deal with information politics.

Sources

This chapter makes use of my own experiences as well as drawing on literature concerning public information management. I found very little formal research in recent years that explicitly focuses on the politics of internal information management. This aspect has not changed since I wrote earlier versions of this chapter. There is a rapidly growing literature on the use of external issues such as the use of the Internet to spur political involvement among citizens. However, my experience shows that internal political issues continue to be pervasive and important for IT managers; most of the major and rigorous academic studies concerning the politics of computing remain those from the mainframe era (e.g., Danziger, 1977; Dutton & Kraemer, 1985). Before IT became pervasive, these early studies by the "Irvine group" demonstrated that political and social factors generally affected how technology was structured and used (e.g., Northrop, Kraemer, Dunkle, & King, 1990). Due to its lack of coverage in traditional academic journals, I make use of periodicals such as computer magazines and newspaper articles concerning computing. Also, many of my examples are based on 25 years of experience in the IT field and also my study of public organizations at the municipal, state, and federal levels.

Information Systems and Internal Organizational Politics

Although almost any decision about computing can become embroiled in politics, my experience is that the most prominent and important political issues involve questions of control and power over the following kinds of decisions.

1. **Information management structures:** How should information management be structured? Where should control over information be placed in the organizational structure? A related issue concerns what kind of background is most effective preparation for technology department heads—technological or political?
2. **Hardware and software acquisitions:** What should be the nature of the process? How centralized should it be? Who should be involved? Should outsourcing be used? Should open-source or other preferences be mandated?
3. **Information management, information sharing, and interdepartmental relations:** What process should be used to determine information sharing and exchange? How will computing influence and be influenced by other aspects of interdepartmental and interorganizational IT issues? How can obstacles to sharing information be overcome?
4. **Managing personnel and communication flows:** How does computing influence employee relations and communication flows? What, if any, rules and procedures should be established? How do e-mail and other forms of CMC influence communication and organizational politics? How does information technology influence the careers of organizational members?

Although each of these issues has technical aspects, nontechnical issues such as concerns about autonomy and power often prevail. Below, I outline how each of these decision areas involves important political aspects. Many information managers prefer to avoid these political aspects. Likewise, generalist managers such as city managers have often ignored direct involvement in these decisions due to their lack of expertise concerning computers. As a consequence, it has been my experience that persons other than information system or generalist managers often dominate these decisions. Consequently, these issues are often decided without adequate attention from those with the most expertise or broadest perspective.

Information Management Structures

There is no consensus as to the best method of organizing computing. How centralized or decentralized should computing be? There are advantages and disadvantages to the centralization of computing: One major review of the centralization-decentralization debate (King, 1983) concluded that political factors are paramount in decisions on how to structure computing. Business organizations have encountered the same dilemma. Markus (1983) has described how business departments have resisted efforts toward the integration of information systems. Davenport, Eccles, and Prusak (1992) found several reasons behind information politics, including the following: (a) Units that share information fully may lose their reason for existence, and (b) weak divisions may be reluctant to share information when they are sensitive about their performance. Overall, in recent years, there has been an emphasis on the centralization of authority as organizations move toward an enterprise-wide approach in which databases are centrally organized and standards govern the hardware and software systems of organizations.

Where should computing be placed in the organizational structure of a public organization such as a city? Should it be a separate line department, a subunit of another department (e.g., budgeting and finance), or a staff unit to the manager or mayor? Should mayors or managers require that the head of computing report directly to them, or should they place a staff member in charge? Except for small organizations, the centrality of today's computing to all departments would suggest that information management should be in a separate unit and not be structurally placed under another department such as budget and finance. There has been a strong movement at the federal and state levels to establish a CIO to deal with problems of technological issues that cut cross-departmental boundaries and to head efforts at building corporate-wide e-government and intranet systems (Fabris, 1998). However, managers, both computing and generalist, need to think carefully about the implications of these different arrangements and which structure is most likely to meet the needs of the organization. Decisions concerning the structure will be based on a number of factors including the degree of interest of the generalist managers in computing as well as what goals managers have for IT.

Molta (1999, p. 23) defines politics as the "allocation of resources within an organization." Some departments will want to control their own computing as much as possible through hiring their own IT staff. Eiring (1999, p. 17) defines politics as the "art of negotiation, compromise, and satisfaction," and urges information management staff to form strategic alliances that are beneficial to the IT cause and to "nurture them as one would a good lasting friendship" (p. 19). Feldman (2002, p. 46) warns that "when departments are doing their own

thing—namely hiring their own IT staff—a central IT department is in political trouble." He goes on to point out that hiring a staff implies unhappiness with the services of the central IT unit. However, in many organizations, it has been common and perhaps necessary for line departments to have staff dedicated to IT. For example, police departments often have their own dedicated systems and staff because of the early development of police information systems, the centrality of computer searches to their function, and the need to have secure and easy exchange with other police departments. When non-IT-department IT staff exist, one political issue is how they should relate to the central IT staff. Feldman (p. 48) argues that the smart strategy is for the central IT staff to offer "to exchange information and support" with non-IT-department staff. By taking these steps, Feldman argues that they can at least establish "dotted line relationships." Feldman argues further that these non-IT-department technological staff are often isolated and appreciate the support from the central IT department. Anderson, Bikson, Lewis, Moini, and Strauss (2003) found examples of dotted-line relationships in states like Pennsylvania where the formal authority of the state IT head over state agencies was weak: "Additionally, all agency CIO's have a 'dotted line' relationship to the state CIO even though they formally report to their own agency heads; they meet quarterly with him" (p. 23). The only alternative is to try to control all computing from the central IT department, but this strategy can either work very well or turn out to be a disaster (Feldman).

A major rationale for the existence of a CIO (as opposed to a traditional data-processing manager) is that he or she will not be restricted to technical issues but act as a change agent, politician, proactivist, and integrator as well (Pitkin, 1993). The federal government (Koskinen, 1996; Pastore, 1995) has firmly established the use of CIOs in order to improve information management. Will it have a positive impact? Should the CIO model be followed in municipalities and other public organizations? Merely assigning the CIO title does not ensure that these functions will be performed. For example, a study (Pitkin) of CIOs in universities found that, despite their title, CIOs did not view themselves as executives and often do not perform nontechnical roles. Without a push from a CIO, public organizations may fail to make good use of information technology. For example, one study found that police regularly used their database systems for reports to external agencies but rarely for internal management purposes (Rocheleau, 1993). CIOs and centralized information structures help to fix responsibility and that can mean that they themselves become targets of unhappiness with technological decisions. There are many cases in which CIOs in the private sector have not been viewed favorably by their fellow managers (Freedman, 1994), and CIOs in both the public and private sector are blamed for failures (Cone, 1996; Newcombe, 1995).

With the growth and importance of IT, organizations of moderate to larger size now tend to have an independent IT department (Gurwitt, 1996) because IT is now viewed as infrastructure serving everyone and should not be under control of any single department. Also, because there is now a strong acceptance of the need to have as much standardization of hardware and software as possible, the IT unit is often vested with final approval over major purchasing decisions. However, the California case shows that this centralizing trend is not inevitable or necessarily linear. According to Peterson (2002), the structure recommended to replace the State Department of Information Technology was to decentralize, with the authority of the extinguished department being reassigned to the finance and general-services departments. By way of contrast, a study by Rand Institute researchers (Anderson et al., 2003) recommended a more powerful and centralized department to replace California's

deposed DOIT. However, it is interesting to note that the Rand Institute researchers studied the governance structures of four other states and found that some of the states (e.g., Illinois) had IT structures that were weak in formal authority but nevertheless worked effectively due to the fact that the IT leadership worked through brokering relationships. Likewise, according to the Rand study, Pennsylvania's system does not vest strong authority in the state CIO, but it depends on successful dotted-line relationships. Their conclusion is that there is no one best way to organize and that CIOs who have weak formal authority can use their negotiating and brokering skills to be successful. They also argue that management style is important. Successful state IT managers have a style that is "participative, collaborative," and emphasizes positive "carrots" rather than "sticks" in seeking change (Anderson et al., p. ix). In the California case, the politics of IT involved the legislature and also key vendors, so IT leaders have to practice their communication and political skills on key external as well as internal constituencies. Recently, the head of the National Association of State Chief Information Officers (NASCIO) reported that several state CIOs had told him that they preferred not to report directly to the governor because they wanted to focus on operational issues and avoid partisan politics (Towns, 2005).

In my experience, there is a wide variety in the amount of attention devoted by generalist managers to structural issues concerning computing. In one city, a city manager was very much focused on information management and devoted great attention to decisions made concerning computing by the city, in effect acting as the municipality's CIO. His focus on information technology enabled him to establish a positive reputation for innovation that helped to secure his next job. When this manager left for another city, he was replaced by another manager who was not especially interested in computing. Devoting great attention to computing can be both productive and counterproductive. The first manager who was heavily involved in computing decisions became embroiled in severe struggles with his new board and organization over IT issues that contributed to his resignation from his new job.

Although there is no single right way of organizing computing, each manager needs to ensure that the structure will provide relevant, timely, and reliable information. Kraemer and King (1976) argue that public executives spend too much of their time on decisions concerning the purchase of equipment and too little on other important information management issues that have less visibility but are equally important. Kraemer and King emphasize the need for generalist managers to take personal responsibility for computing and to be engaged in the following decisions: how to structure computing, the purposes to be served by computing, and implementation issues such as the goals of computing and the structures used to achieve them.

Some experts (e.g., Severin, 1993) argue that the chief executive officer (CEO) of an organization should also be the true CIO. The former mayor of Indianapolis, Stephen Goldsmith, is an example of a CEO who took charge of the information technology function and instituted a number of important policy changes such as privatizing many IT functions as well as encouraging e-mail from any employees directly to himself (Poulos, 1998). A related issue concerns the question of to what extent the head of IT needs to have a technical background. John Kost (1996) was appointed to be CIO of the state of Michigan by Governor Engler and instituted several policy goals of Engler's such as the consolidation of state data centers, the establishment of statewide standards, and the reengineering of IT including its procurement process. It is notable that Kost did not have any IT background at all (Kost). Kost maintains that it is more important that the CIO understand the business

of government than have a strong technology background. Kost proceeded to do a major reengineering of IT in Michigan and claims that they successfully achieved many of the goals set by Engler. However, if the CIO does not possess strong technological skills as well as institutional knowledge about the IT system, he or she will need to have trusted and reliable staff who do have such skills in order to have the trust and respect of client agencies. One of the problems with the California DOIT was that it had little operational authority and was primarily an oversight agency. Thus, one of the recommendations of Anderson et al. (2003, p. 53) is to "transfer the majority of people with technical skills" from the finance and other departments to the new IT department so that it would be "properly staffed and positioned to provide technical approval."

Paul Strassmann served as director of defense information at the defense department from 1991 to 1993 where he was in charge of a $10 billion annual budget for IT and instituted major changes in the procurement process. Strassmann (1995) subsequently published a book entitled *The Politics of Information Management* in which he argues that managing IT is "primarily a matter of politics and only secondarily a matter of technology" (p. xxv). Strassmann goes on to hold that only the technical aspects of information can be safely delegated to computer specialists. He supports a "federalist approach to information management, delegating maximum authority to those who actually need to use the information" (p. xxix). Strassmann (1995) believes that it is the duty of the CEO to establish general principles: "Without a general consensus about the principles and policies of who does what, when, and how, you cannot create a foundation on which to construct information superiority" (p. 10). He says that the CEO should never delegate the responsibility for information management to a CIO because it is the CEO who must decide how to apply information systems.

In a majority of organizations of large size, there tends to be one or more advisory committees or groups set to assist the IT head in making decisions. In my experience, these advisory groups tend to fall into three categories: (a) end-user groups involving end users who are especially engaged in IT, (b) representatives of departments served by the IT department, who may or may not be heavy end users, and (c) external people who have substantial experience in IT. In Anderson et al.'s (2003) study of four states that are regarded as having successful IT departments (New York, Pennsylvania, Virginia, and Illinois), the state IT units generally had both internal groups made up of the line departments who represent the end users of IT and an external group consisting of private-sector IT heads who provided their expertise. I have known municipalities to use the same approach, and one municipal IT head told me of how the private-sector committee saved their community money with their advice about telecommunications strategy to obtain low-cost services from vendors. A politically adept CIO can make good use of these committees to build her or his political base.

Comparison of Politically Appointed vs. Career Administrators

As I have documented above, political skills are a necessary component of IT management. This has been documented at the federal level in studies of the jobs of federal CIOs carried out by the United States General Accounting Office (U.S. GAO, 2004). Given the importance of politics, would we expect politically appointed or career administrators to be

more effective? The GAO study has some support for both positions. The GAO publication outlined what most CIOs considered to be major challenges, and they all involve the use of political skills: (a) implementing effective IT management, (b) obtaining sufficient and relevant resources, (c) communicating and collaborating internally and externally, and (d) managing change.

According to the GAO (2004) report, many thought that politically appointed CIOs would be more successful because they have more clout and access. However, others thought that skilled career administrators would be more successful because "they would be more likely to understand the agency and its culture" (p. 23). Another variable is that politically appointed CIOs (in federal agencies) had a shorter tenure of 19 months vs. 33 months for the career administrator, and the career administrators thought that this gave them a significant advantage because it can take a good deal of time to accomplish major tasks. Concerning their communication and collaboration skills, the GAO report concluded that it is critical for CIOs to employ these abilities to form alliances and build friendships with external organizations:

Our prior work has shown the importance of communication and collaboration, both within an agency and with its external partners. For example, one of the critical success factors we identified in our CIO guide focuses on the CIO's ability to establish his or her organization as a central player in the enterprise. Specifically, effective CIO's—and their supporting organizations—seek to bridge the gap between technology and business by networking informally, forming alliances, and building friendships that help ensure support for information and technology management. In addition, earlier this year we reported that to be a high-performing organization, a federal agency must effectively manage and influence relationships with organizations outside of its direct control. (p. 30)

Concerning the management of change, the GAO report (2004) found six CIOs (from the private sector) who said that dealing with government culture and bureaucracy was a major challenge and that they had to marshal resources to overcome resistance. A subsequent report by Lewis (2005) comparing political and career federal managers (this concerned all managers, not just CIOs) found that career managers were more successful based on the Bush administration's Program Assessment Rating Tools. A *Federal Computer Week* analysis found that only 16 out of 27 CIOs in office in 2004 remained in office in November of 2005 (Lunn, 2005). The most common reasons for leaving the job were to obtain better pay (19%) and a change in administration (16%).

The *Federal Computer Week* magazine (Hasson, 2004) conducted a survey that obtained responses from 129 CIOs concerning the career vs. political issue and found similar results. Two thirds of the CIOs agreed that the political appointee would have better access and one third agreed that they would be able to raise the profile of the IT department. One former CIO argued that the political appointee could be more aggressive while the career administrator "had to find a champion" to push projects through the legislature. However, two thirds also thought that the career CIO would have a bigger impact because of the longer tenure. In 2004, there was a number of prominent CIOs who left high-profile public positions, including the top IT officers of the states of Virginia and Florida (Towns, 2004). It is

safe to say that in order to be effective, regardless of whether they are political appointees or career administrators, people in these positions will need to exercise effective political skills. Peled (2000) presents two case studies involving information technology leaders in Israel. In one case, a prestigious scientist with outstanding technical skills was called in to solve transportation problems by employing computing technology. This technologist viewed his job in technical terms and attempted to develop a project without communicating with and building support from other key actors. He refused to share information with other departments working on related projects and consequently encountered resistance leading to his resignation and the end of the project. His failure was largely due to deficiencies in communication and lack of knowledge of organizational politics such as the need to obtain support from others in order to develop a project. Peled provides a second case study in which a leader without any major technical skills was able to solve serious problems of building a land-registry database. He used a training system to develop a core of users and people committed to the new database and negotiated with unions about wage demands for using the new system. This leader viewed his project in political terms from the very beginning and this approach helped him to achieve success. The importance of political skills in managing e-government has been confirmed by a study by Corbitt (2000) of the eight factors associated with the failure of e-government projects—only one of these concerned technical problems. The others included the absence of a champion of change, lack of managerial support and attention, poor attitudes toward the IT department, lack of education and training, and a discrepancy between IT staff and the end users of the system. I am not saying that IT skills are not important. Indeed, in the numerous small governments that have only a tiny number of staff, they cannot afford to hire a nontechnical IT manager. Nevertheless, even in these small organizations, political skills are also an essential component to IT leadership.

Politics and the Purchasing Process

As we saw in the California DOIT case, the failure of a large IT system can often embroil an organization in politics, and it is crucial that generalist managers take measures to avoid such disasters. An underlying assumption of the current information resources management theory is that an organization's information system should be aligned with its business goals. A related assumption is that generalist managers must be involved in procurement and other important decisions. They need to specify what goals and functions should be achieved by purchasing new software and hardware. Sandlin (1996, p. 11) argues that managers need to be on guard for "technological infatuation." The author points out that generalist managers would never let the transportation departments buy a line of expensive cars, but they often allow equivalent purchases in the IT area.

The failure of expensive new computer systems is likely to expose governmental managers to political attacks. Even if knowledge of the failure remains internal, unsuccessful systems can undermine central management, IT, and other departments involved. The problem often begins with the failure of the internal management of the projects. For example, the Federal Retirement Thrift Investment Board fired and sued its contractor, American Management Systems (AMS) of Fairfax, Virginia (Friel, 2001), for breach of contract. The contractor defended itself by stating that the board had not determined system needs even 3 years after

the beginning of the contract (Friel, 2000). The determination of system needs is primarily a managerial issue. The pervasiveness of contract failures has led to what some refer to as a "contract crisis" (Dizard, 2001) with political consequences: "Thanks to new project management techniques, improved oversight, employee training, and contract controls, several state CIO's reported that project failures are decreasing. But they agreed that the *political cost of bungled projects remains high* [italics added]."

The U.S. General Accounting Office (2002) studied the Department of Defense Standard Purchasing System and found that 60% of the user population surveyed were dissatisfied with its functionality and performance. If a failed project has high visibility, then often external political issues also develop, but even if not visible to outsiders, failed purchases weaken the credibility of IT staff and thus the purchasing process is one of the most critical areas for managers and IT staff to negotiate.

As end-user computing has grown, end users have enjoyed the freedom to innovate and strong centrifugal forces have resulted. Employees often have strong personal preferences and feelings concerning software and hardware purchases. Part of the ethos of end-user computing is the ability to make your own decisions about software and hardware. Allowing each end user (or end-user department) to make decisions about software is likely to lead to multiple hardware and software platforms.

A potentially major source of politics is developing due to the conflict between open-source software and proprietary software packages such as those of Microsoft. Recently, the CIO of the state of Massachusetts issued a policy that only open-source software would be used and that proprietary software would be phased out by 2007 (Towns, 2005). Other state agencies (e.g., secretary of state) questioned the authority of the CIO to mandate such policies for other agencies, and the state legislature considered a bill that would set up a state task force that would have to approve such mandates (Towns). Microsoft attacked the open-source policy labeling it as discriminatory. The Massachusetts CIO later resigned though the state maintained that it would continue its movement toward the open-source requirement (Butterfield, 2005). The movement to establish enterprise-wide standards as well as the move to open-source software promises to make the jobs of those involved in establishing IT standards politically sensitive in the future.

There are other trade-offs between allowing each department to use its preferred software and hardware vs. centralization. Multiple platforms complicate training, backup, and maintenance, too. The existence of "platform zealots" is not unusual and can lead to conflict (Hayes, 1996). In my experience, these problems with multiple platforms have led certain managers toward establishing a single platform and also centralized control over hardware and software acquisitions. Barrett and Greene (2001) make the point that leaders need to convince the end users of the strong advantages and rationale for the standardization of hardware and software. If they fail to take this step, they are likely to encounter directly or indirectly passive resistance to their policies. In some cases, formal control of IT purchases by the IT department is impossible if the funding source for hardware and software is from another level of government (e.g., state or federal funding). Regardless of what approach is taken, information management and generalist administrators need to provide the centripetal force needed to integrate information management in public organizations. If they do not do it, no one else will. However, this integrating role often runs into stiff resistance and it requires that the manager use powers of persuasion, negotiation, bargaining, and sometimes authority and threats.

Many generalist managers may want to establish standard policies that influence the purchasing choices of departments, such as the following: (a) Some governments take a position that data-processing functions should be privatized as much as possible, (b) many governments have instituted online purchasing and forms of purchasing pools that departments may be required to adhere to, and (c) some governments are establishing special arrangements with a small number of computer vendors with the idea of achieving advantageous pricing arrangements. Both the federal and many state governments have been revamping the purchasing process with more emphasis on speed and emphasizing value rather than lowest cost (Rocheleau, 2000). Kost (1996) believes that the CIO and CEO need to take charge of the purchasing process if they are to achieve goals such as privatization and "value purchasing": "For example, a policy advocating privatization is doomed unless the purchasing process allows privatization to occur... An intransigent purchasing director can often do more to thwart the direction of the administration than a policy-maker from the opposite political party" (p. 8).

At the federal level, Strassmann (1995) implemented a corporate information management (CIM) initiative that was aimed at streamlining the military's information system purchases such as the use of the same systems across the different services. Strassmann enunciated the following principle that the technicians were expected to follow: Enhance existing information systems rather than "opt for new systems development as the preferred choice" (p. 94). In one case, this CIM approach killed an $800 million Air Force system and replaced it with a similar one that was used by the Army (Caldwell, 1992). The Air Force had already spent $28 million on their system and resisted the move. Observers of the process noted that it was a "turf issue" and a GAO report concluded that CIM required centralization and a cultural change that were difficult for the defense department (Caldwell, pp. 12-13).

The acquisition and implementation of new systems often engender resistance. One of the basic principles of planning for new computer systems is to involve the people who will be using the system in its design, testing, and implementation phases. Indeed, there are entire books written concerning the principles of participatory design (Kello, 1996). An apparent example of user resistance occurred in Chicago when a new computer system was introduced to speed the building-permit process. After the system was implemented, lengthy delays drew widespread criticism (Washburn, 1998) and the delays caused a bottleneck during a time of booming construction. The new system tracked permit applications and allowed the scanning of plumbing, electrical, and other plans so that the plans could be viewed simultaneously on several screens. There were some technical problems acknowledged by city officials. For example, some staff had trouble seeing plan details on their screens and on-the-spot corrections were not possible due to the fact that applicants were not present when reviews were done. However, officials argue that many of the complaints were due to the fact that the system had changed the process of handling permits. Permits are now done on a first-in-first-out basis compared to the previous situation where expediters used to "butt into line," and, consequently, they feared loss of influence under the new system (Washburn). The contention was that the expediters deliberately spread false rumors about extensive delays in an attempt to "torpedo the new system."

The desire to standardize can create political resistance. For example, vendors who target their products to municipal governments begin with a basic general ledger and finance product and then expand to develop modules for other functions such as the permit and other processes. Managers see advantages to using the same vendor for all of their different

modules such as ensuring interoperability among them as well as gaining favorable financial terms. However, in this author's experience, vendors who have strong financial modules often are weak in other areas and thus the desire to standardize on one vendor's software can lead to problems with end users who do not like these other modules of the vendor. In such cases, it is clear that generalist and information system managers will have to be sensitive to organizational politics and either accept the need for diversity in vendors or employ their personal and political resources to achieve change.

Computing, Sharing Information, and the Politics of Interdepartmental Relations

In addition to purchasing issues, there are many other interdepartmental issues that need to be dealt with by CIOs and generalist managers in order to establish an effective information system. For example, computing creates the possibility of free and easy exchange of information among governmental organizations. However, information is power and organizations tend to be sensitive about giving out information to outsiders, especially if it reflects on the quality of the organization's operations. Many agencies prefer to maintain autonomy over their data. For example, the author worked on a project with the job training agency of a state agency that was to employ databases drawn from several state agencies to evaluate the state's job training programs. However, despite obtaining verbal agreements from the top managers of the agency, the lower level programming staff delayed the sharing of data for months. It became clear that they saw our requests as an additional burden on them that would make their job more difficult if such requests were to become routinized.

Building e-commerce systems usually requires the cooperation and sharing of information among a number of different departments. Corbitt (2000, p. 128) conducted a case study of an organization that developed an e-commerce system and found that there were "important political and interest differences" among the departments as well as "differences in perceptions" that caused problems. In particular, Corbitt found competition between the data division and the e-commerce group about what needed to be done and who should exert leadership over it. Corbitt (p. 128) concludes that power is a "very substantial issue affecting implementation success."

Some new technologies such as geographic information systems (GISs) are forcing changes in computing structures and procedures among departments. Generalist managers may need to act to ensure that appropriate new structures are established. For example, although many geographic information systems are initiated by a single department, the systems are expensive and the software is relevant to many different departments. When Kansas City decided to build a GIS (Murphy, 1995), they found it necessary to form a GIS committee (made up of representatives of four participating departments—public works, water, city development, and finance) to conduct an interdepartmental needs assessment and resolve problems such as how to resolve conflicts in databases and how to minimize database development costs. Although such developments do force structural changes, there is still wide latitude in regard to the nature of the structure. Sharing data can lead to conflict. In a study of the exchange of information between municipal departments such as fire and police, this author (Rocheleau, 1995) found that a large percentage of departments fail to exchange information despite overlaps in their job responsibilities concerning problems

like arson and emergencies. I studied one city where the fire department, clerk's office, and building department all shared information responsibility for entering information about buildings, but each department tended to point their finger at others when mistakes in the data were discovered. A major task of generalist and information managers is to deal with departmental concern with autonomy over the databases. If they defer to the status quo, information management will be less effective. Bringing about the change required to achieve integration may aggravate such conflicts. Overcoming these obstacles requires negotiating, political, and organizational skills.

Top managers may force the exchange of information via command. However, employees often find ways to resist change. For example, they may provide poor-quality information that renders the exchange useless. Markus and Keil (1994) provide a case study of a new and improved decision-support system designed to help salespersons that failed because it worked counter to underlying organizational incentives. The system was aimed at producing more accurate price quotes, but it hampered the sales staff's ability to sell systems, their most important goal, so the new system was used little.

The relationship between technology and individual career ambitions can lead to political aspects of information management. Knights and Murray (1994) have conducted one of the few detailed studies of the politics of information technology. In their case study of IT in an insurance company, they concluded that the success and failure of the systems were closely tied to the careers of mangers. Consequently, these managers often attempted to control the perception of the success of these systems because perception is reality (Knights & Murray, 1994):

The secret of success lies in the fact that if enough people believe something is a success then it really is a success ... it was vital for the company and for managerial careers that the pensions project was a success. (p. 172)

One of the key points made by Knights and Murray (1994) is that computing decisions become inextricably entangled with career ambitions and fears of individual employees and become embroiled in a very personal form of politics. Another detailed case study (Brown, 1998) of the implementation of a new computer system in a hospital found that different groups (the hematology ward, hematology laboratory, and information technology team) had very different perspectives on the reason for the failure of a new computer system. Moreover, each of the three groups used the common goal of patient care to legitimate their view of the system. Brown concludes that the study shows that participants were influenced by "attributional egotism" in which each person and group involved attributes favorable results to their own efforts and unfavorable results to external factors. Similar to Knights and Murray, Brown concludes that many of the actions are taken to protect individual autonomy and discretion.

Grover, Lederer, and Sabherwal (1988) borrowed from the work of Bardach (1977) and Keen (1981) to outline 12 different "games" that are played by those involved in developing new systems. They tested their framework by in-depth interviews with 18 IT professionals who confirmed that these games were played in their organizations. Most of their games involve interorganizational or interpersonal struggles similar to those I discussed above. For example, they discuss how in the "up for grabs" game, control over a new IT system

involves struggles between the IT and other departments. They illustrate what they call the reputational game with a story about an IT manager who projected "a rough exterior" (Grover, Lederer, & Sabherwal, p. 153) in order to reduce demands on the IT department, but this approach led to a coalition against him and the IT department and resulted in the eventual dismissal of the IT manager.

The lesson of the above cases is that, prior to implementing new systems, information managers need to assess the organizational context and determine how proposed systems will be affected by incentives, informal norms, resistance to change and sharing, as well as other forms of organizational politics. A broad stakeholder analysis needs to be done. Many of these factors may be addressed by including end users in the planning process. Managers will often have to be involved in exerting political influence and engage systems outside their direct control in order to assure a successful outcome. For example, Kost (1996) describes how the Michigan Department of Transportation decided to change from a mainframe to a client-server environment, and this change endangered the jobs of a dozen mainframe technicians. The logical step was to retrain the mainframe technicians to do the new tasks, but the civil-service rules and regulations required that the mainframe workers be laid off and new employees be recruited to fill the client-server positions. Thus, in order to have an effective information system, generalist and information managers will often have to seek to change rules, procedures, and structures and, at the same time, alleviate as much as possible any perceived negative impacts of change. Still, change may bring information managers inevitably into conflict with other departments.

Computing and Communication Patterns

Information technology such as e-mail can affect organizational communication patterns. Changes in communication flows can be extremely political. For example, if a subordinate communicates sensitive information to others without clearing it with her or his immediate supervisor, strife is likely to result. While he was mayor of Indianapolis, Stephen Goldsmith encouraged every police officer and other public employees to contact him directly via e-mail (Miller, 1995a). He claims to have read 400 e-mail messages a day. Should mayors or managers encourage such use of direct contact from employees? Although such communication can and does occur via phone and face-to-face communication, e-mail communications are different from face-to-face communications—there is less rich information and many people portray themselves differently in e-mail than they do in person.

E-mail has become the dominant form of communication in many organizations and it has implications for organizational politics (Markus, 1994; Rocheleau, 2002b). Markus has shown that e-mail is routinely used as a device to protect employees in games in which they feel it is necessary to "cover your anatomy." E-mail now provides a digitized trail that can be used to support employees concerning their reasons for doing what they did. Employees often copy e-mail messages to their own or those of other superiors to let people know what they think is necessary, thus attempting to bring more pressure on the recipient of the e-mail (Phillips & Eisenberg, 1996). E-mail is now used for communicating bad news and even conducting negotiations. Many people (McKinnon & Bruns, 1992) are scornful of those who use e-mail for purposes such as reprimands and firings. However, some research now

shows that e-mail may work better in communications that involve "dislike or intimidation" (Markus, p. 136).

The establishment of e-mail and other communication policies involves sensitive organizational issues. For example, if one employee sends a printed memo to an employee in another department concerning a matter of interest to his or her bosses, it is often expected that the sending employee will send a copy of the memo to the bosses. Should the same policy hold for e-mail exchanges? Is e-mail more like a formal memo where such a procedure is expected or more like an informal phone call where copying is not done? Such policies will likely lead to debate and perhaps conflict. Generalist and information managers need to be actively involved in making these decisions.

Technical leaders need to realize that keeping others informed in the organization is a crucial task, and devoting time to such communication often needs to take precedence over more technical issues as the following IT director for a local government described:

With the manager—I don't want any surprises and I don't want my manager to have any surprises. So if I see it [some problem] coming, I am up there communicating with him. This morning before you got here, I went to give a heads up to purchasing and to the manager's office to let them know "hey, this is going to be coming to you" [an unexpected expenditure]. I spend a lot of time doing things like that. ... The complaints that I hear a lot about are that people send things in and the manager's office doesn't know what is about. ... So communicating those things to grease the skids, and letting people know that what I would like to have happen—I spend a lot of time on it. And I think it pays big dividends in getting things done.

In short, good political skills concern the ability to communicate effectively with all of the key actors in the IT process from the end users to the top managers.

The External Politics of Information Management

There are several ways in which computing can become involved with external politics. Here are some examples.

1. Information technology is being used to determine the performance of governmental organizations as well as the presentation of these performance measures on Web sites. These online evaluative reports (e.g., report cards for school systems) can have much greater visibility and accessibility than previous evaluations and thus e-government can lead to greater citizen involvement. Access of the public to information about the performance of governments and other organizations (e.g., hospitals, health professionals) can often lead to controversy.
2. Legislatures, councils, and boards of public agencies may contest the purchasing decisions of public organizations. Likewise, the award of computer contracts may involve

political rewards. In the California case (Anderson et al., 2003), the legislature stepped in to weaken the amount of authority given to the new Department of Information Technology created in 1995, thus ensuring that the General Services Administration and Department of Finance would continue to dominate IT decision making.

3. It is possible that public computer records could be used for political purposes. The information could be used to schedule campaigns or find information that brings candidates into disfavor.
4. Information systems often involve sharing amongst different levels of government as well as private organizations. Often there is conflict among these organizations over basic issues such as how the information system should be structured and what data they should gather.
5. The rise of the World Wide Web and e-government has created the potential for politics. Political issues have erupted over the use of Web sites and other forms of CMC. A wide range of issues have developed such as the use of Web sites to attack governmental officials or their use for advertising purposes.
6. Major computer disasters or failures can bring negative attention to public organizations. These failures both hurt organizational performance and also threaten the jobs of staff.
7. A variety of computing technologies are viewed as a way of increasing citizen participation in government. These include interactive Web sites that allow citizens to easily post comments on proposed rules and other public issues. Public-participation GIS (PPGIS) and Web logs could also be used to achieve enhanced participation but at the same time can lead to controversy and increased conflict.

Online Accountability

The development of computing technology has had an important impact on measuring accountability and presenting this information to the public. Many governmental organizations are now posting information such as report cards of their performance online. The hope and expectation is that using Web sites to make such performance information available will make organizations accountable and also lead to more trust in government. Indeed, Mossberger and Tolbert (2005) have found some limited evidence that use of governmental Web sites has positive effects on perceptions of governmental responsiveness.

The extent to which online information can improve accountability depends in part on the accessibility of information. The Mercatus report (McTigue, Wray, & Ellig, 2004) analyzes accountability information on Web sites by separating them into desirable characteristics, such as breaking the report into downloadable sections (and multiple formats) if it is large, as well as the inclusion of contact information if anyone has questions concerning the report. It is instructive to look at the Mercatus report's comments on specific government agencies concerning transparency to observe in more depth what kinds of actions the authors regard as providing for good transparency. The U.S. Department of Labor scored highly and the positive comments include the fact that the accountability report is linked to the home page and is downloadable in "multiple PDF documents" (McTigue et al., p. 30), and the authors praise the report for being "clearly written" and providing trend data since 2000, though

it notes that more trend data concerning key problems would have improved it. By way of contrast, the report critiques the Department of Health and Human Services (DHHS) for the obscurity of its report, stating that they could only find the report on the department's Web site via a "circuitous trip." It also criticizes the report for not providing information about the quality of the data of any of the 600 measures it uses. The Mercatus report acknowledges that an agency's actual performance may not be correlated directly with the Mercatus score. This brings up the issue of the quality of the data, and the Mercatus report states that the agency should indicate how confident it is in the quality of the data and, to ensure transparency, it should make the data available for independent verification.

The National Center on Educational Outcomes (NCEO) (Thurlow, Wiley, & Bielinski, 2003) assesses the reports done by state education agencies and has been assessing their Web sites for outcome information since 2001. Some of their evaluative criteria refer to the organization of the information on the Web site. Among the criteria they used to assess the state Web site were the following: (a) Are there clear words or links to get to the report on the agency Website, (b) how many clicks did it take to get from the agency's home page to the disaggregated results, and (c) what is the proximity of data on special education to the data for all students?

One of the major obstacles to the use of accountability efforts has been the argument that comparisons of performance are invalid—no two situations are the same. Consequently, organizations with poorer results have been able to point to factors that differentiate them from better performing organizations (Rocheleau, 2002a). The posting of information on the Internet makes this kind of information much more accessible than in the past when it would likely reside in obscure, hard-to-obtain governmental publications. These increased external forces often lead organizations to adopt strategies for resisting information or manipulating it so that negative information is not available to the public or oversight agencies (Rocheleau). For example, a U.S. General Accounting Office report (2002) found that abuse of nursing-home patients was rarely reported. Indeed, colleges, universities, health-maintenance organizations, and perhaps most organizations take steps to ensure that only positive information is reported via a number of strategies, especially if the information will affect high-stakes decisions (Bohte & Meier, 2001; Rocheleau). Information is power, and the demand for more external access to performance information makes the job of information management even more political. Now that this information is so accessible, organizations have to deal with demands for access to more information while other units may resist such demands and power struggles over information ensue. For example, the Tennessee teacher unions successfully resisted efforts to make public the scores of individual teachers based on a value-added system developed by the state (Gormely & Weiner, 1999). Other consequences include the likelihood that the data may be "cooked" in order to demonstrate high performance (Rocheleau) and the IT managers may face ethical issues concerning how to handle such situations.

The External Politics of Purchasing and Privatization

Many city managers attempt to defuse controversies over the purchasing process by involving council or board members in developing the proposals. Thus, decisions will not be brought up until strong council or board support exists. Achieving such a consensus may

be more difficult these days because board members are more likely to be involved with computing in their own organizations (e.g., Pevtzow, 1989). When computing was restricted to mainframes and data-processing departments, council or board members were less likely to feel knowledgeable and able to challenge purchases. Rocheleau (1994) found that there could be conflicts over purchasing even if there is a consensus on what type of technology to use. Major contracts can be especially controversial during periods of budget strain, and expensive IT contracts may be viewed as taking away from services. For example, some state legislators argued that $52 million of a $90 million contract that California State University had awarded to Peoplesoft should be redirected to educational programs to compensate for cutbacks made by Governor Gray Davis (Foster, 2004). There also may be tensions about whether to purchase from local vendors vs. outside vendors. We saw earlier (Peterson, 2002) that major failures of a large IT project led to the creation of a state IT department, but controversies over another contract (with the Oracle Corporation) led to the end of the department after only 7 years of existence. Major failures in procurement can turn a project that begins as primarily an internal matter into a political football and such failures have led several IT directors to lose their jobs.

The move to privatize information systems can create external conflicts with legislative bodies as well as unions. For example, the state of Connecticut's administration decided to change the state's entire system from mainframes to the desktop and hire an external vendor to handle every aspect of the information function (Daniels, 1997). Later, it decided against the outsourcing because of a number of factors such as disputes with the state legislature and the union representing the IT employees, as well as reappraisals of the proposed contracts. Several other states have considered privatization including Indiana, Iowa, and Tennessee. In order to implement such plans, the managers will have to negotiate with legislatures and unions in order to reach agreements. For example, the Connecticut administration (Daniels) moved to assure the jobs of the state IT workers for a period of 2 years at the same salary and benefits in order to have the privatization move approved. In more recent times, the cities of Memphis and San Diego have moved to outsource their entire information services function. The absence of unions has facilitated the privatization of the Memphis operation (Feldman, 2000). However, as we have seen above, effective communication and political skills are required for an effective IT system, and turning over the entire operation to a private vendor could disrupt the communication patterns and power relationships necessary for the system to work smoothly. That is why in many cases the selected vendor often is an organization consisting of former employees or, as in the Memphis case, the winning vendor is expected to hire employees of the former municipal IT department (Feldman). One of the principles that Anderson et al. (2003, p. 31) found in their study of state IT structures was that "states with successful IT initiatives demonstrate commitment to employees during major changes." In some recent cases (Kahaner, 2004), state governments (e.g., New Jersey and Massachusetts) have passed laws that have outlawed outsourcing of call centers for services such as answering questions concerning electronic benefits like food stamps. The outsourcing would have saved money directly in lower contract costs, but some point to unemployment and other benefits that would have to be paid to the workers who would lose their jobs. In 2004, Florida technology officials became embroiled in a controversial outsourcing (that includes e-government) in which losing bidders complained about the bidding process (Towns, 2004), leading later to the resignation of the Florida CIO. The era of budgetary shortfalls leads to demands that CIO cut budgets and save money (Hoffman, 2004). This situation can lead to failure and resignations when CIOs are unable to meet

these cutback expectations as occurred with the CIO of New Hampshire who resigned (Hoffman). Dealing with the implications or even expectations of personnel cutbacks due to IT decisions is one of the most sensitive and important tasks for IT leaders and the generalist administrators of governmental organizations.

Although privatization may be used to achieve positive goals, it can also be used for political rewards and result in problems. One such example occurred when a computer vendor, Management Services of Illinois Inc. (MSI), was found guilty of fraud and bribery connected to the state of Illinois awarding a very favorable contract to them (Pearson & Parsons, 1997). MSI had legally donated more than $270,000 in computer services and cash to Illinois Governor Edgar's campaign. The jury found that the revised contract had cheated taxpayers of more than $7 million. Campaign donations as well as the flow of governmental and political staff between government and private vendors can influence the awarding of contracts. More recently, there have been some suspicions that politics has been involved in the selection of no-bid contractors for "e-rate" contracts aimed at putting computers and other IT in Chicago's school system. Among the winners of no-bid contracts was SBC (then headed by Chicago Mayor Richard Daley's brother) and another company (JDL Technologies) headed by a friend of Reverend Jesse Jackson (Lighty & Rado, 2004).

At the same time that many states and municipalities are exploring the privatization of their information management function, there are several municipalities that are moving to become telecommunication owners and that leads to political controversy. For example, Tacoma's (Washington) municipal power company is aiming to build and provide cable services to homes and thus put it in competition with the local phone and cable companies (Healey, 1997). Many other cities including several small communities such as Fort Wright (Kentucky) are also planning to build telecommunication networks (Newcombe, 1997) in the United States and are providing telecommunication services for businesses and private homes in their communities. The rationale behind these moves is that the private cable and local phone companies have a poor record of providing up-to-date service (Healey). These moves have often been labeled as socialism and are opposed by the local cable and/or phone companies. However, in the Tacoma case, most local business leaders were backing the municipality because of the desire to have better technology (Healey). Some states (e.g., Texas, Arkansas, and Missouri) have prohibited municipal organizations from becoming telecommunication providers (Healey). The state of California is in the process of privatizing its state telecom system (Harris, 1998). In Iowa, many municipalities have been laying fiber to deliver cable in competition with cities, and the first suit brought by a phone company was found in favor of the municipality (Harris). More recently, the Supreme Court (Peterson, 2004, p. 27) "upheld the right of states to ban municipalities entering the broadband market." The Missouri Municipal League had argued that the Federal Telecommunications Act prevented states from passing laws to limit entry into providing services, but the court said that this provision of the law did not apply to governmental units. Thus, politics and the law are integrally related, but there are few fixed principles about law as it affects emerging computer technology.

When local governments decide to pursue broadband, they must be ready to be involved in a whole array of politics and will need to market their position to the public. One strategy of small local governments is to increase the viability of their position by collaboration with other municipalities. In Utah (Perlman, 2003), several municipalities joined together to form UTOPIA (Utah Telecommunications Open Infrastructure Agency) to provide high-speed

fiber-optic networks to their communities. However, telephone and cable companies have allied with taxpayer groups to oppose the efforts. Eight of the 18 local governments that supported the initial feasibility study have withdrawn from UTOPIA, and the remainder has committed themselves to taxpayer-backed bonds to finance the required infrastructure. The feasibility issue depends heavily on assumptions about take-up rates: What percent of the targeted businesses and residents buy into the service, and will the project finance itself? According to Perlman, the take-up rate has averaged 40% in those local governments that have put "fiber to the home," and only a 30% take-up rate is required for the project to pay for itself.

A study by a conservative think-tank researcher (Lenard, 2004) found that none of the municipal entrants into the broadband market had been able to cover their costs and argues that they are not likely to do so in the future either. Defenders of municipal entry see it as a movement to bring services and competition to areas that telecommunication companies have poorly served or totally ignored and that broadband is now infrastructure needed to attract businesses to the community and is thus equivalent to building roads. Brookings researcher Charles Ferguson (2004) has labeled the broadband situation an example of "market failure" due to a lack of real competition. Defenders would argue that, by entering the market, municipalities will provide the competition to obtain the quality services that have been denied them. Lenard argues that the competitiveness of the telecom industry makes it likely that the private sector will meet these needs without governmental involvement. In short, the debate over local governmental provision of Internet services goes to the very heart of what government should be doing.

More recently, a similar controversy has erupted over the desire on the part of some local governments to provide "hotspots" or WI-FI (wireless fidelity) zones in downtown areas. These local governments view the provision of WI-FI capability as a service to their citizens as well as a way of assisting economic development. Opponents of municipal provision of hotspots view it as inappropriate public-sector competition with a service that is available from the private sector. For example, Philadelphia stated its intention to provide wireless service at very low prices (Peterson, 2005). A bill passed both houses of the legislature aimed at preventing other communities from taking similar steps (Peterson). In short, it is becoming clear that, although many information managers prefer to avoid controversy, telecommunications issues such as broadband and wireless may make it impossible for IT staff and governmental officials to avoid making politically sensitive decisions.

Computer Disasters and Information Management

It is likely that the majority of computer problems and disasters remain unknown to the public and even legislative bodies. However, certain disasters have so much impact on key operations that they do become public and create crises for generalist and information managers. For example, the delay in the opening of the new Denver Airport was due to software problems controlling the baggage system. Likewise, the state of Illinois' Medicaid program encountered many failures of the computer system with the system assigning patients to inappropriate health care providers (Krol, 1994).

Many disasters are beyond the control of managers and there is little they can do other than plan for emergencies. However, in many cases, disasters appear to result from overly high

expectations for new computer systems and a lack of understanding on how difficult it is to implement a new system. This author has reviewed a large number of computer problems and failures (Rocheleau, 1997). Both the Federal Aviation Administration (FAA) and Internal Revenue Service (IRS) have experienced major failures that have led to threats from Congress to defund systems (Cone, 1998). Another example is the state of Florida's new human-services system that encountered much higher-than-projected costs and slower-than-expected implementation (Kidd, 1995). The perceived disaster led to the loss of the job of the state official in charge of the new system along with threatened legal action. However, over the long run, it appears that the system actually worked and has helped to reduce costs. Information management officials need to ensure that executives and the public have realistic expectations of system costs and performance. Computer problems and disasters are likely to occur more often as computing becomes central to governmental performance and communication with its constituents. In these situations, managers cannot avoid dealing with computing even if they have removed themselves from any decisions concerning it.

In contrast to the disaster cases, some politicians and managers make use of notable achievements in computing to boost their reputation for innovation and effectiveness. However, it can be dangerous for politicians or managers to claim success for large-scale new systems until the systems have been fully implemented and tested. For example, a former state of Illinois comptroller introduced a powerful new computer system that was aimed at speeding the issuance of checks as well as improving access to online information during June of 1997 (Manier, 1997). Soon afterward, there were complaints that checks were arriving behind schedule and that matters had not improved (Ziegler, 1997). The agency stated that it was just taking time for workers to get used to the new system. This is one case where there does appear to be a clear prescriptive lesson for managers: New computer systems that are large scale and introduce major changes usually experience significant start-up problems and claims of success should be muted until success can be proven.

Information Management and Interorganizational Struggles

Many of our largest governmental programs involve complex arrangements where administration and funding are shared by federal, state, and local governments. These governments are often at odds over how they view information systems. For example, the welfare-reform legislation passed in 1996 led to needed changes in how state and local governments gathered and analyzed data. Since welfare recipients move from state to state, the new welfare time limits require states to share and redesign their systems so they can calculate time periods on welfare and whether a recipient has exceeded state or federal limits (5 years total and 2 years consecutively for federal limits). Prior systems were oriented to yearly information and were concerned only with welfare activities in their own state. The federal government has established data-reporting requirements that many states view as burdensome and unnecessary (Newcombe, 1998). For example, they have to monitor the school attendance of teenage mothers and that requires sharing information with independent local school districts. The quality of the data submitted by the states is also an issue (Newcombe). The very purposes of the federal and state systems can be somewhat at odds. The federal government wants to use the system to determine the overall success of the program and to be able to compare the

performance of states. The state governments often are opposed to the increase in the number of data elements required from 68 to 178 and the costs of gathering much new information (Newcombe). Similar disagreements can occur between state and local governments with the latter often feeling that states are too autocratic in how they implement information systems. The resolution of such disagreements will involve conflict and bargaining with creative solutions sought that meet the primary needs of all involved.

Schoech, Jensen, Fulks, and Smith (1998) provide a case study of a volunteer group in Arlington, Texas, who tried to create a data bank aimed at helping reduce alcohol and drug abuse. This volunteer group "discovered the politics of information." Hospitals opposed the identification of drug-affected births. When agency personnel changed, permission for access to the data had to be obtained over again. Changes in the structure of government and functions of office also led to the need to start again. They found that data gathering was not a high priority for other agencies involved and access to data was often delayed or not forthcoming.

The Center for Technology in Government (CTG) has conducted several case studies concerning the development of information systems that require the cooperation of several organizations. One case study involved the development of an information system for the homeless. First, several different actors needed to be involved in the development of the system including the New York State Office of Temporary and Disability Assistance, the Bureau of Shelter Assistance, the New York City Department of Homeless, the Office of Children and Family Services, the Department of Health, the Department of Labor, the Office of Alcohol and Substance Abuse Services, and the Division of Parole, and many independent nonprofit organizations contribute to and use information on the system. The huge number of actors meant that the development of the system had to be very deliberate and the first priority was to develop a sense of trust amongst them first before getting into technical design (CTG, 2000). The new information system was to be used to help set goals and thus affect evaluation. Consequently, there were issues that had to be settled about how ambitious to make goals. Consensus had to be forged on key definitions such as the "date of admittance" into the system because these definitions were important to funding of the end users of the system. Some agencies wanted a more detailed listing of ethnic options than others due to their federal funding requirements, so this detail needed to be negotiated, too. The basic points of this case study are that negotiation and trust are essential to the creation of interorganizational and intergovernmental systems. Organizations that believe that their financial interests and viability will be threatened by a new system will resist it regardless of how rational and sensible the policy looks on paper.

Another CTG (1999) study focused on attempts to build integrated criminal-justice systems. It found many conflicts over budgets, organizational relationships, and procedures. CTG concluded that these problems were not technical in nature but due to "conflicting visions" related to organizational and political interests. It also found that trust, participation, and understanding of the business were among those elements required for success. To achieve buy-in, they had to pay much attention to "interests and incentives" and use marketing and selling techniques. Political pressures played an important role in some cases. The study found that "turf is the biggest killer of integration": "Protecting turf can be particularly important when the potential loss of autonomy or control could benefit other agencies that are political or institutional adversaries" (p. 11).

There was also a need for a champion of the system who had major organizational or political influence that allowed this person to overcome the political barriers to integration. Bellamy (2000) found very similar results in a review of attempts to create criminal-justice systems in England. Although technical skills are always useful and sometimes essential, the development of successful interorganizational systems necessitates major use of political skills and resources. The Anderson et al. (2003) study of four states found that it was important to have general executive leaders who are champions of IT:

States with exemplary IT practices have executive leadership (governor and state CIO) who are champions of IT initiatives. All four of the states we visited exemplify this characteristic. These leaders emphasize the value of IT for the state in performing its missions. They view IT as an investment, rather than a cost ... (p. 33)

These studies and other literature on IT have two important implications: (1) Generalist administrators who want to have successful IT programs need to be engaged in IT, and (2) IT heads need to cultivate support from generalist administrators.

One of the current trends in information technology management is to encourage the easy sharing of information and to bring an end to information silos. Thus, states such as Pennsylvania (Chabrow, 2005) have hired deputy chief information officers with one of the major goals of their jobs being to enhance IT effectiveness by coordinating budgeting across agencies that share common functions (so-called communities of practice). For example, several agencies may have e-payment systems that could share a single application. Forcing agencies to share common applications is likely to lead to tension and political battles.

In some cases, the use of computing may help to reduce the amount of ad hominem politics and give more attention to the underlying facts of cases in development decisions (Dutton & Kraemer, 1985). They found that the computing models did not eliminate politics. Developers and antidevelopers employed competing models with different assumptions. However, the focus on the computer models helped to direct attention to facts of the case and away from personalities and unverifiable assumptions, thus facilitating compromise and agreement.

Information Management and the Politics of Databases

Most information managers prefer to avoid the release of information with political implications. However, often they cannot avoid releasing such information and need to have a defensible policy in this regard. The New York State Attorney General's Office (Yates, 2001) plan to track flows of donations to victims of the September 11th tragedy was resisted by organizations such as the Red Cross due to privacy and confidentiality issues. The Freedom of Information Act (FOIA) covers computer records in most states. Issues of privacy and public interest often collide and managers are often forced to make difficult choices. Although these problems existed prior to computers, the existence of computing has made it possible for outsiders to conduct very detailed critiques of the practices of public agencies with emphasis on pointing out their failures and questionable decisions. For example, the *Chicago Tribune* did a reanalysis of computerized information from the Illinois Department of Public Aid to do an exposé of fraud and waste in its Medicaid system (Brodt, Possley, &

Jones, 1993). The extent, magnitude, and speed of their analysis would have been impossible without access to computerized records. Consequently, it is not surprising that many governmental agencies resist FOIA requests. A series of articles (e.g., Mitchell, 1999) by the *News-Gazette* newspaper in Illinois revealed that many resist FOIA using a variety of reasons such as the fact that they would have to create a new document. The existence of a good computerized system can serve to weaken the argument that the obtaining of records would pose too great a burden on the governmental agency.

Generalist and information managers picture technology as a way to better services, but they should be aware that the same technologies and databases can be employed for political purposes. For example, many municipal and state governments are now constructing powerful geographic information systems that are aimed at improving services to citizens through the mapping of integrated databases. However, GISs and their data are now being used for "cyber ward heeling" in the 1990s and facilitate such traditional functions like the mapping of volunteers, canvassing of voters, and location of rally sites (Novotny & Jacobs, 1997). Politicians are likely to seek data from these public information systems to conduct their political campaigns. For example, databases allow the targeting of campaigns so that candidates can use several different messages and conduct "stealth campaigns" without alerting their opponents. Thus, the more powerful and information rich local GISs become, the more attractive they will be as databases for political activities, which could lead to controversy.

Online Computer-Mediated Communication

The impact of the World Wide Web has especially important implications for politics. Researchers such as Robert Putnam (1995) point out a substantial decrease in some forms of civic participation on the part of the public. Many people are frightened to speak at public hearings. The Web offers a way of increasing public participation in community decisions (Alexander & Grubbs, 1998). Many people see us entering a new age of cyberdemocracy (Stahlman, 1995). Shy people and stutterers would be able to provide testimony electronically and their arguments would be judged based on content rather than their appearance or public speaking skills (Conte, 1995). Municipalities may help to develop useful networks such as senior-citizen discussions. Parents can use the system to update themselves on student homework assignments. However, as noted above, there are several drawbacks to teledemocracy and the development of interactive Internet applications.

- There is less inhibition in telecommunications than in in-person communications against intemperate statements. Consequently, electronic forums often degenerate into "flaming" wars. The originator of the Santa Monica (California) online discussion system argued that, if he were to do it over again, he would like to have a moderator for the system and charge user fees (Conte, 1995; Schuler, 1995).
- Some people lack the computing technology and/or skills to participate in these electronic discussions (Wilhelm, 1997).
- It is feared by some that easing access to public testimony and input to public officials may result in such a massive and discordant amount of input that democracy would be stymied and that gridlock would increase.

- The Internet raises fears about privacy. Efforts to improve access can often lead to resistance. For example, the Social Security Administration (SSA) made interactive benefits estimates available over the Internet but was forced to withdraw the service due to privacy issues (James, 1997; United States General Accounting Office, 1997). Social Security numbers are not very private and all someone needed was the number plus the recipient's state of birth and mother's maiden name to gain access to earnings and benefits information.
- Public online systems may become campaign vehicles for certain politicians.

A detailed account (Schmitz, 1997) of a discussion group concerning homelessness on Santa Monica's PEN system made the following points about the successes and failures of online groups: (a) The discussion group was successful in bringing people who would never have engaged in face-to-face meetings together for discussion purposes on an equal basis, but (b) electronic media demand keyboarding and writing skills. Thus, there are many obstacles to the successful participation of the poor. One recent study by Gregson (1997) found that even politically active citizens were not able to transfer their activism to a community network without substantial training and experience. Hale (2004) did a study of the use of neighborhood Web pages, and his overall assessment was that the overall usage rates were low and that consequently these pages were not meeting the hope that they might help to "revitalize democracy."

Both generalists and information management staff need to give careful consideration to the possibilities and drawbacks of teledemocracy. If they decide to support electronic discussion groups, should they employ a moderator and, if so, who should act as a moderator? Would a moderator's censoring of input be a violation of the right to free speech? Fernback (1997) argues that most people accept moderation not as "prior restraint but as a concession" for the good of the collectivity. How can the argument that teledemocracy is elitist be handled? Is the provision of public places (e.g., in libraries) for electronic input sufficient to deal with this objection? In this author's experience, I have found strong resistance to the establishment of online discussion groups. Many local governmental officials believe that such communication is likely to result in contentious and strident behavior. Some also feel that increased participation would make governmental decision making slower and more difficult. Thus, West's (2001) finding that few governmental agencies allowed interactivity such as the posting of online messages, much less online discussion groups, may not be merely the result of their lack of technological sophistication, but may also be due to a calculated reluctance to sponsor CMC.

The Politics of Web Sites and Other Online Information

The creation of Web sites has produced a whole new set of opportunities for politics to occur. What kinds of information should be online? Who should decide what information should be online? These are issues that have been highlighted by the Web. Before, most public information resided in reports that few had access to or even knew existed. The ease of online access has changed that situation and can lead to controversies that would not have existed when information was restricted to paper reports. As a result of the events of

September 11th, some U.S. agencies have pulled from their Web sites information on hazardous waste sites. To many, these actions make good sense, but others have pointed out that the chemical industry has tried to keep such information private and that public access to this information can help to save lives ("Access to Government Information Post September 11th," 2002). The New York Attorney General's Office began to develop a database to track the distribution of money donated to victims of the attack, but the Red Cross raised privacy concerns (Yates, 2001). Placing some information on governmental Web sites can result in jeopardy for government officials. A U.S. Geological Survey contract employee was allegedly fired for posting a map on the U.S. government Web site that identified areas of the Arctic national wildlife as moose calving areas that the Bush administration would like to open to oil exploration (Wiggins, 2001). Recently, the American Education Association and American Library Association (Monastersky, 2004) have accused the Bush administration of politics in deleting information from its Web site and cited an internal memo that it was policy to remove information that was outdated or did not "reflect the priorities of the Administration." Thus, putting up certain information or omitting information from Web sites can become a controversial and political issue.

A related issue is to what extent should Web sites of governments act as, in effect, a campaign Web site for the top elected officials? There is great variability in state and local governments, but some governmental home pages appear to be campaign sites with photos of the top-level officials and their personal positions, and accomplishments of the elected official dominating much of the page. Such activities can stimulate opposition to political uses, and Franzel and Coursey (2004) report that the state of Florida banned the placement of almost any information other than basic personal and legal information on their Web sites. Coursey (in press) cites an interesting example in which Governor Jeb Bush ordered an e-mail link be placed at the top of all of the state's Web pages, but that led to thousands of responses that could not be answered in a timely fashion and the policy was eventually reversed.

Should advertising by private businesses be allowed on governmental sites? Many governments are resisting advertising. Some of the most successful such as Honolulu (Peterson, 2000) have used advertising to fund advanced electronic governmental systems but few others have followed. Honolulu put out a banner for a bank on its Web site. Peterson cites other governments as either being interested in advertising or not depending on whether they see it as necessary for funding. Decisions about opening government sites to advertising will involve ethical and practical issues.

Even decisions about what links to have on Web sites can become involved in political and legal controversy. A court case was brought by an online newsletter (*The Putnam Pit*) against the city of Cookville, Tennessee, due to its failure to provide a link to the newsletter despite the fact that several other for-profit and nonprofit organizations were linked to from the city's Web site (Anonymous, 2001). Many governments avoid making such links. The consensus is that if governments do make links, they need to have a carefully thought-out (nonarbitrary) policy for doing so.

E-Governance Issues

There is a large and rapidly growing literature about how IT will affect and change the nature of political decision making as well as partisan politics. I will note some significant

aspects of how e-governance can affect those who manage IT. E-governance is defined by Carlitz and Gunn (2002, p. 389) as the "use of computer networks to permit expanded public involvement in policy deliberations." One particular form of e-governance is to create an e-docket that is aimed at increasing participation in the creation of administrative rules so that they will be less likely to be challenged in courts. Coglianese (2004, p. 2) has defined e-rule-making as "the use of digital technologies in the development and implementation of regulations." He argues that IT may help streamline processes and allow agency staff to "retrieve and analyze vast quantities of information from diverse sources." He cites early examples of rule making such as the Bureau of Land Management's scanning of 30,000 comments concerning a proposed rangelands rule. Coglianese describes how the Department of Transportation and Environmental Protection Administration (EPA) created entire e-docket systems that provide "access to all comments, studies, and documents that are available to the public." Indeed, the EPA has been designated the managing partner in an interagency project to establish a common Internet site for all federal regulatory issues to help the public find and comment on proposed regulations. There is a governmental Web site that describes this initiative at http://www.regulations.gov/images/eRuleFactSheet.pdf and has links to all of the federal-agency e-rule-making sites. Carlitz and Gunn (2002) have described how the e-rule-making process ideally would work:

An online dialogue takes place over a several week period. The dialogue is asynchronous, so participants can take part at their convenience, with ample time to reflect on background materials and the postings of other participants. Although in our experience a properly structured event is typically very civil, the dialogue is moderated to deal with the rare cases in which the discussion becomes too heated and to help keep the conversation focused. (p. 396)

However, the authors go on to acknowledge that there are many legal concerns about abridgement of First Amendment rights through attempts to moderate discussions and make them more civil. Carlitz and Gunn (2002, p. 398) said they were advised by the EPA's Office of General Counsel not to use their "usual prerogatives" as moderators because of these legal concerns, though they note that other departments have taken different positions.

A more recent study by Shulman (2005) raises serious questions about the ability of e-rule-making's ability to contribute useful input to the rule-making process. He studied randomly selected electronic contributions to e-rule-making and found that e-mail contributions give little deliberative input. The vast majority (more than 98%) of electronic contributions were exact or almost exact duplicates of form letters with little in the way of additions. Moreover, the process used by the private outfits to analyze the electronic communications is likely to miss the few meaningful contributions according to Shulman. He concludes that the few thoughtful communications are likely to be drowned out by the huge electronic output.

Concerning the local-government level, Chen (2004) studied the involvement of local officials with e-mail and the Internet in the Silicon Valley area. She surveyed city and county officials. Her findings were somewhat surprising to me in that they found that these officials rated e-mail ahead of traditional "snail mail" in importance to their office, though the absolute differences were small. It is surprising to me because I would think that the act of writing and mailing a letter takes considerably more effort than sending an e-mail message so that

letters would be assigned a higher priority by officials. However, Chen also found that only 9% of the officials checked their own e-mail, leaving this to their assistants. The burden of incoming e-mail was relatively small compared to the huge amount that goes to members of Congress—just over 50% said they got more than 50 e-mails per day (Chen). Although they used e-mail to communicate with the public, they were careful about using broadcast features of e-mail that would allow them to send mass mailings to the public because of the resentment that spam can cause in citizens. Many governmental sites now do provide the voluntary opportunity for residents to sign up for various forms of electronic communication. In Chen's study, some local officials had suffered from "spoofing" in which opponents sent offensive messages to the public that appeared to embarrass them. The overall assessment of e-mail contact by most local officials was that e-mail is useful once a good relationship had been established via in-person or phone contact.

A study by Ferber, Foltz, and Pugliese (2003) of state Web sites found few interactive political input opportunities such as public forums, chat rooms, or Listservs. Similar to my expectations, Ferber et al. put less weight on e-mail communications than traditional phone or snail-mail communications. One of the issues politicians have with e-mail is that it is difficult if not impossible to determine the location of the e-mailers and thus politicians do not know if the e-mailers live in their political districts. One approach to this problem is to require that the person fill out a Web form giving his or her address prior to accepting the electronic communication. However, as Ferber et al. note, the vision of computer-generated e-mails receiving computer-generated responses does not meet what constitute "increased democratic participation in the political process."

There are a number of other developments in which IT is being used to encourage greater participation on the part of the public. For example, public-participation GISs are now being designed to enhance citizen participation by allowing members of the public to be able to visualize consequences of development decisions by studying maps and accompanying images (Krygier, 1998). Likewise, blogs (logs of individual opinions on issues recorded on the Internet) are being employed by some managers and could be used by governments to provide an additional method for citizens to express their viewpoints about public issues. The use of blogs in government has been rare until now. The State of Utah CIO (Harris, 2005) offered blogs to employees in order to encourage more open communication. However, much of the material in such blogs appears to have high public-relations content, and if the blog becomes the subject of political controversy, the blog may be ended. For example, a blog established by a metropolitan transportation-planning agency in Orlando, Florida, ended its blog when the blog was used by opponents to attack the policies of the agency as well as the agency's officials (Crotty, Dyer, & Jacobs, 2005). Use of the Internet is now viewed by some as a way of reorganizing government according to the views of certain ideologies. For instance, some conservatives view the Internet and Web sites as a way of increasing "choice-based policies" (Eggers, 2005) in areas such as education because, they argue, information would be presented about the efficacy of providers of education (both public and private schools) so that citizens could make an informed and voluntary choice.

Conclusion

Failure to become engaged and knowledgeable about internal politics can undermine the efficacy of information managers. I know of cases in which managers with good technical skills lost their jobs due to their failure to master organizational politics. Information managers need to negotiate, bargain, dicker, and haggle with other departments. They may need to form coalitions and engage in logrolling in order to achieve their goals. A good information manager needs good political skills to be effective. I have drawn from a number of resources to illustrate the politics of information management, but there exists little systematic research concerning the topic as Strassmann (1995) has pointed out. We need more research concerning the crucial issue—both in-depth qualitative case studies and surveys concerning how managers employ politics in their dealings with information technology.

The lessons of our review are clear. As Fountain (2001) has pointed out, generalist managers can no longer afford to ignore IT. Fountain sees the urgency for generalist-administrator involvement:

Public executives and managers in networked environments can no longer afford the luxury of relegating technology matters to technical staff. Many issues that appear to be exclusively technical are also deeply political and strategic in nature. In some cases, new use of technology furthers an existing agency or program mission. But in others, using the Internet can play a transformative role and lead to expansion or rethinking of mission and change in internal and external boundaries, accountability, and jurisdiction. (p. 249)

Likewise, IT managers can no longer afford to ignore politics. Internal political issues such as those I have discussed above (structures, purchasing, sharing information, and electronic communication) have become so central that managers will find that questions about these issues demand attention and decision. External political issues will continue to grow in number and importance as the Web and cyberpolitics become more prominent. For better or worse, information managers are going to have to possess effective political skills.

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