

Catching a Ride on the NII: The Federal Policy Vehicles Paving the Information Highway

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This article assesses the current legislative environment, in the U.S. Federal government, influencing the management of information resources. In a fiscal environment, where the pressure is to both reduce cost and provide better service, the management of information resources is receiving closer scrutiny by Congress and the public. The key relevant information policy initiatives are the Paperwork Reduction Act of 1995, the Government Performance and Results Act of 1993, the Clinger-Cohen Act of 1996, and Executive Order No. 13011. These policies are creating high-level attention to, and use of, the information resources of the Federal government. The usefulness of these policies will be assessed in a framework of strategic information management functions.

Introduction

The practice of information management in the U.S. Federal government has had a checkered past. Much attention has been given to the Federal government's role as an information creator, repository, and disseminator. Yet the management of this resource traditionally has been relegated to a low-level operating function in the executive agencies. This is in direct contradiction to the long-standing recognition of the importance of information and information management to the Federal government (Anderson & Dawes, 1991; Caudle, 1988; Horton, 1979; McDonough, 1988; Sprehe, 1987). Cleveland (1986) contends that government is information, and serves as both an input to the process and a product of the process of government.

In an electronic age, information takes on greater value as the information technologies (IT) make it ubiquitous. The current administration has recognized this value from the

start, with reports and recommendations such as those from *The National Performance Review* (Office of the Vice President, 1993) making clear the high status of information on the national agenda. Facilitating the development of a National Information Infrastructure (NII) is a top Administration priority. The NII is seen as a necessary condition for continued economic growth for the U.S. in the 21st century (Exec. Order, 1993). The goal is to place information, in all its forms at users' fingertips. In specific, President Clinton has designated the NII one of the highest priorities for his administration with expected benefits ranging from:

- Reduction of healthcare costs and an increase in the quality of health services in underserved areas;
- Delivery of higher-quality, lower-cost government services to the public;
- Preparation of the nation's children for the fast-paced workplace of the 21st century;
- Promotion of technological innovation and new technology applications such as the High Performance Computing and Communications Program;
- Extension of the universal services model so that there is an equitable distribution of information resources at affordable prices;
- Protection of intellectual property rights;
- Improvement of Federal IRM and public access to government information;
- Support for lifelong learning; and the
- Creation of a more open and participatory democracy at all levels of government.

It is the goal of this article to discuss some implications to the management of Federal government information resources from recent legislation (For a thorough review of information resources management theory and practice in the Federal government from the 1970s to 1995, see Holden & Herson, 1996, and Bertot, McClure, Ryan, & Beach-

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board, 1996). Relevant policy instruments are examined in light of the Federal government's high-level commitment to the development of an NII which promotes accessible and high-quality services to its citizens.

Current Policy Initiatives

A plethora of Federal laws, regulations, and guidance have established expectations for Federal agencies to plan for and manage their information resources strategically to achieve better mission outcomes. Of these, five are preeminent in defining and requiring a strategic approach to information management. The successful implementation of these policies would enable Federal agencies to improve mission performance using fundamental management guidelines suggested by the U.S. General Accounting Office (GAO) (GAO/AIMD-94-115).

Government Performance and Results Act of 1993

The Government Performance and Results Act (GPRA) (Public Law 103-62) supports the legislative agenda requiring Federal agencies to improve program effectiveness and efficiency while focusing on program results, quality, and customer satisfaction. The purpose of the law is to improve the confidence of the American people in the capability of the Federal government by systematically holding agencies accountable for achieving program results. The law requires the head of each agency to submit a strategic plan for program activities including: An agency mission statement; annual performance plans to be submitted, in conjunction with the agency budget, to the Office of Management and Budget (OMB); and annual program performance results, using the established performance indicators, to evaluate actual programmatic results for the previous fiscal year.

Under the umbrella of GPRA, a new information management framework is required, one which is strategic in nature and focused on the intended programmatic outcomes of the agency, rather than the more traditional IT output measures used to monitor efficiency. GPRA requires that IT be aligned with the agency mission performance, thus providing a clear link between the technology and the agency program activities.

Paperwork Reduction Act of 1995

The Paperwork Reduction Act of 1995 (PRA) (Public Law 104-13) is a lengthy and wide-ranging law, first enacted in 1980. It was reauthorized in 1986 with some changes, and then revised again in 1995. The intent of the legislation is to reduce the paperwork burden on private citizens and businesses that interact with the government. It emphasizes the effective and efficient use of IT to achieve paperwork reduction. The latest revisions reflect a Congressional intent to strengthen information resources management, placing it in a strategic mission context for the Federal

agencies. Along with the reduction of the paperwork burden, the PRA was enacted to:

- Improve the quality and use of Federal information to strengthen decision making, accountability, and openness in government and society;
- Minimize the cost to Federal government of the creation, collection, maintenance, use, dissemination, and disposition of information;
- Ensure the greatest possible public benefit from government information;
- Coordinate, integrate, and, when appropriate, make uniform Federal information resources management policies and practices as a means to improve the productivity, efficiency, and effectiveness of government;
- Provide for dissemination of information on a timely basis, on equitable terms, and in a manner that promotes the utility of the information to the public and makes effective use of information technology;
- Ensure that the creation, collection, maintenance, use, and dissemination of information by, or for, the Federal government is consistent with applicable laws, including laws relating to privacy, confidentiality, and the security of information;
- Ensure that IT is acquired, used, and managed to improve the performance of Federal agency missions; and
- Improve the responsibility and accountability of the Office of Management and Budget, and all other Federal agencies, to Congress and to the public for implementing the information collection review process, information resources management, and related policies and guidelines.

Hand-in-hand with the PRA is OMB Circular A-130 (Office of Management and Budget, 1985). Circular A-130 supplements the PRA to clarify information management, information systems management, and information technology management. The Circular has undergone two revisions, first in 1993, then again in 1994. The revisions reflect the management attention to planning for optimal use of information resources. The 1994 revisions add a requirement to do strategic planning for information resources, integrating information, systems, and technology with the Federal agencies' missions and programs. There is a clear message to move beyond the reduction of paperwork to the management and use of information resources as a strategic asset in Federal government.

Clinger-Cohen Act of 1996

The Clinger-Cohen Act (CCA) renames both the Information Technology Management Reform Act of 1996 (ITMRA) and the Federal Acquisition Reform Act of 1996 (Public Law 104-106). As introduced by Senator Cohen, the intent of the ITMRA was to be:

A bill to facilitate, encourage, and provide for efficient and effective acquisition and use of modern information technology by executive agencies; to establish the position of

Chief Information Officer of the United States in the Office of Management and Budget; to increase the responsibility and public accountability of the heads of the departments and agencies of the Federal Government for achieving substantial improvements in the delivery of services to the public and in other program activities through the use of modern information technology in support of agency missions; and for other purposes. (S. 946)

At the heart of Clinger-Cohen is the requirement for Federal agencies to integrate their IT investment plans and performance measures into the capital planning process. Clinger-Cohen shifts the emphasis from IT acquisition management to IT investment management. The Clinger-Cohen Act repeals the Brooks Act of 1965 (Public Law 89-306) and returns the procurement authority for IT to the executive agencies. With the exception of FTS2000, the day-to-day management of IT is transferred from the General Services Administration to the Office of Management and Budget. Clinger-Cohen has a strong performance measurement orientation, with all IT performance measures being outcome-based and directly linked to the agency programs and mission. The legislation requires executive agency heads to:

- Oversee the development and implementation of IT standards and guidelines working through the National Institute of Standards and Technology;
- Encourage the use of best practices in the acquisition of IT;
- Monitor the development and implementation of professional training in IT for the agency personnel; and
- Justify continuation of IT systems that deviate from cost, performance or schedule goals.

Clinger-Cohen also establishes a Chief Information Officer (CIO) in executive agencies who:

- Reports directly to the agency head;
- Has IRM as their primary responsibility;
- Develops an integrated IT architecture for the agency;
- Assesses knowledge and skills of ITC staff;
- Develops performance measures to monitor IT programs; and
- Provides advice and assistance to the agency head on IT and IRM.

The creation of a CIO is a big step to developing a strategic orientation to information resources in Federal agencies. The value of this position remains to be proven, however. In a recent GAO report to the Subcommittee on Government management, Information and Technology, Government Reform Oversight, House of Representatives (October 1997), the need for executive-level IRM leadership in Federal agencies was strongly noted. Unless the Federal agencies complied with this critical success factor, agency and Federal IRM would not meet the intent of the legislation. The Eighth Annual Survey of Federal CIOs (ITAA, 1997) indicated that this remains a critical stum-

bling block. The survey noted that many Federal agencies have still not made permanent appointments of CIOs, and in those agencies that had, there remained the question of what would be an appropriate and effective model for providing information resources management.

Executive Order No. 13011

Executive Order No. 13011, "Federal Information Technology" of July 16, 1996 integrates provisions of the Clinger-Cohen Act of 1996, the Paperwork Reduction Act of 1995, and the Government Performance and Results Act of 1993. It creates three interagency bodies:

- Chief Information Officers Council, to improve Federal agency IRM practices;
- Government Information Technology Services Board (GITS) to ensure implementation of the IT recommendations of the National Performance Review; and the
- Information Technology Resources Board (ITRB) to provide independent assessment of selected major IT systems.

The Executive Order also assigns responsibilities to the General Services Administration, the Office of Management and Budget, and to the Departments of Commerce and State. General Services Administration is required to manage the FTS2000 program, develop guidelines for all agency ITC acquisitions, and serve as the IRM liaison with Federal, state, local, and non-governmental international organizations. The Office of Management and Budget is charged to evaluate all agency IRM practices, notify an agency if OMB believes that a major information system requires outside assistance, and evaluate the effectiveness of the agencies management structures.

The establishment of the CIO Council represents a major change in how information resources are to be developed in Federal agencies. The Council is one of the first instances of creating a network of senior IRM officials to plan, educate, and share their expertise, and to integrate their agencies' IT systems' development with other Federal agencies. The importance of this network should be underscored. Since its inception in August of 1996, the CIO Council has had an full and active agenda. Membership on the Council includes the CIOs and Deputy CIOs from 28 large Federal departments and agencies, two CIOs from small Federal agencies, representatives from the Office of Management and Budget, and the Chairs of the Government IT Services Board, and IT Resources Board. There are six standing committees of the Council: Capital planning, education and training, interoperability, outreach, security, and Year-2000.

The CIO Council recently released its Strategic Plan in January of 1998 (<http://www.cio.gov/straplan.htm>). The plan incorporates the legislative mandates of the Clinger-Cohen Act. A priority goal of the plan is to establish an interoperable and open Federal information architecture which will support the mission attainment of Federal agen-

cies in a coordinated and comprehensive manner. This is a major component to a successful Federal IRM strategy. The intent is to eliminate the stovepipe approach to information systems development which has been proven to be inefficient, redundant, and not results-oriented. The CIO Council has clearly assessed its mandate and has actively striven to create an environment of interoperable and open management of information resources.

Information Management Implications

The goal of these legislative and executive mandates is to facilitate successful Federal agency mission performance through strategic management of their information resources. The U.S. General Accounting Office (GAO) published an Executive Guide (May 1994) which outlined their recommendation for strategic information management based on the best practices of leading organizations. They described 11 fundamental processes which, if supported and implemented by senior management, would aid agencies to better meet their customers' needs, improve the quality of their programs, and reduce cost. These 11 management practices fall into three critical functions:

1. Deciding to work differently;
2. Directing resources to high-value uses; and
3. Supporting improvement through a combination of people with the right skills, and clear roles and responsibilities.

Deciding to Change

This management function focuses on creating the awareness that there is a need for change in an organization. It promotes the facilitation of major change, not incremental change, in how the information management function is viewed and maintained in an agency. Communicating the urgency to change, top management support and involvement in the change process, and a willingness to take direct action and maintain the momentum fostered by change are specific management practices that can be initiated here.

The recent legislation and orders directly influence Federal agencies by promoting an environment that requires the decision to change. The Paperwork Reduction Act of 1995 explicitly focuses IRM practices on improving the effectiveness and efficiency of agency operations, and the delivery of services to the public. The Clinger-Cohen Act of 1996 focuses on achieving major performance results with the strategic management of the IT investment. Executive Order No. 13011 clearly refocuses IRM to directly support and enhance the strategic missions and programmatic requirements of Federal agencies.

Direct Change

This management directive ensures that strategic plans are anchored to meet the agencies' customer needs and

mission goals, and that key mission processes are measured appropriately. Directing changes further includes a focus on process improvement in the context of an information architecture and, thus, leads to the management of the IT architecture as an investment. This last management practice is an important change for Federal agencies, shifting the perception of IT as an expense to that of a critical agency investment to provide strategic mission support.

The Government Performance and Results Act of 1993 clearly supports the management implications of directing change. GPRA requires the agency heads to submit to Congress a strategic plan for program activities, including a comprehensive mission statement covering the agencies' major functions and programs. GPRA further mandates the preparation of annual performance plans covering each program activity, and annual performance reviews which evaluate the success of the agencies in meeting their performance goals.

The PRA directs agencies to set annual goals to improve IRM to support the agencies' programs and service delivery needs. It also requires OMB to provide an annual report to Congress to evaluate the extent to which agencies have improved their program performance through IRM. The PRA additionally has a very strong agenda for the integration of planning, budgeting, and evaluation of agency IRM and IT. Agencies are to focus on management practices which maximize the values, and formally assess the risks, of major IT initiatives through a process which integrates the budget, financial, and program management decisions, and which is used to select, control, and evaluate the results of these major initiatives.

The Clinger-Cohen Act also has a role to play in directing change. The creation of agency CIOs is, in itself, a major change in IRM direction for Federal agencies. The CIO is deliberately placed at the executive level of Federal agencies to promote and guide the strategic management of the IT investment. The CCA requires the agency heads to design and implement a process which supports an investment approach to IT. In conjunction with OMB, Federal agency heads must now use the budget process to analyze, track, and evaluate the risks and results of all major IT investments, defining explicit criteria to analyze projected cost, actual cost, benefits, and risks to agency programs. OMB is further required to submit to Congress a report on the actual net performance benefits achieved as a result of agencies' major capital IT investments, directly tying in how the benefits relate to the achievement of mission performance.

Executive Order No. 13011 ties the "directing change" function together for Federal agencies in its creation of the CIO Council, the GITS Board, and the ITRB as coordination and accountability vehicles for the major capital IT investments in Federal agencies. The Order directs these three groups to establish interagency support structures to:

- Develop recommendations for overall Federal IRM policy, procedures, and standards (CIO Council);

- Identify opportunities and make recommendations to sponsor cooperative IRM efforts (CIO Council);
- Ensure the IT recommendations of the *National Performance Review* are implemented and maintained (GITS);
- Create opportunities for cross-agency cooperation and intergovernmental approaches in using IT to support common operating processes (GITS);
- Assist in the assessment, development, acquisition, and management of selected major IT investments (ITRB); and
- Seek the expertise from industry, academia, and other governments in planning and developing the Federal IT architecture (ITRB).

Support Change

This management directive focuses on the position and responsibilities of the CIO and the continuous development of skills and knowledge of IT professionals in the Federal government. Change cannot be supported and maintained without the appropriate organizational structure and human resource expertise which are necessary conditions to a strategic and mission approach to IT.

The PRA mandates that agency heads designate a CIO who directly reports to them and who is responsible to ensure agency compliance with efficient and effective information management policies and IRM practices. The PRA additionally directs OMB to make certain that best practices in IRM are utilized in the training of IT personnel.

The CCA further bolsters the position of the CIO in Federal agencies as a supporter of change. The CIO is charged with the responsibility of developing, planning, and managing of the agency IT architecture in a manner that integrates performance goals related to the agency mission, and uses the budget process to develop and measure performance results. The CIO, as an integral player in the annual GPRA performance evaluation process, is required to assess the requirements in meeting the IRM performance goals. The CIO is further mandated to develop strategies and plans to hire, train, and retain professional IT personnel to successfully achieve the agencies mission.

Again, Executive Order No. 13011 reinforces the requirements of the legislation utilizing the three groups it establishes to keep the momentum going. The CIO Council, the GITS Board, and the ITRB all have a major role to play in guiding and facilitating change in the acquisition and management of Federal ITC investments. The order explicitly directs Federal agencies to create and manage change using their IT strategically in support of mission performance. The Order states that:

A Government that works better and costs less requires efficient and effective information systems. The Paperwork Reduction Act of 1995 and the Information Technology Management Reform Act of 1996 provide the opportunity to improve significantly the way the Federal Government acquires and manages information technology. Agencies now have the clear authority and responsibility to make

measurable improvements in mission performance and service delivery to the public through strategic application of information technology. (Exec. Order No. 13011, 1996, p. 37657)

Policy and Practice Converge

The policy initiatives presented here represent a major change in how the Federal government will manage and use its IT investments. The change is necessary to support the high-level goals of the national information infrastructure. The Federal government must create, within itself, the critical IT architecture and IRM policies and practices which will enable it to, in turn, promote and facilitate the NII. The policy initiatives also indicate the strategic importance of IT and IRM to the current administration in carrying out its mandate to create a government which will “work better and cost less.”

The goals of the NII are lofty but not unattainable. One of their nine overarching goals is to provide access to government information and improve government procurement. The NII is explicitly envisioned as a vehicle to ensure that Federal agencies enhance and expand the information that they make available to the public. This access must be equitable and easy. Hand-in-hand with easy and equitable access is the implementation of a restructured Federal procurement process—one which will promote the necessary and innovative new IT developments to support public access and use of government information. The policies discussed in this article directly address the attainment of this NII goal. Their successful implementation will ensure that the Federal government has the appropriate IT architecture, one that is multi-agency, inter-governmental, and secure. The associated IRM policies, and practices mandated by these policies, will ensure that this new architecture will be successfully and strategically managed in support of the NII. As noted by Vice President Gore:

The idea of reengineering through technology is critical. We didn't want to automate the old, worn processes of government. Information technology was and is the great enabler for reinvention. It allows us to rethink, in fundamental ways, how people work and how we serve customers . . . service improvements that will affect all Americans. (Executive Office of the Vice President, 1997).

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