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Information Technology Utilization

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Statement of
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Regulation
Committee on Governmental Affairs
United States Senate

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Mr. Chairman and Members of the Subcommittee:

I am pleased to participate in the Subcommittee's hearings on the reauthorization of the Paperwork Reduction Act. At your request I am focusing my testimony on the utilization of information technology by the federal government--specifically, the billions of dollars spent each year by the various agencies to acquire computer technology to help manage their work loads and to more efficiently meet their objectives. I understand that these hearings will consider, in part, the oversight and policy role of the Office of Information and Regulatory Affairs (OIRA) in the effective application of information technology. Our work has centered on agency management in this area and has not focused on OIRA. However, I believe our observations can provide a useful starting point for the Subcommittee's deliberations.

Mr. Chairman, the federal government early on assumed a leadership role in computer technology applications. Yet we find today that this leadership has slipped. Federal agencies are experiencing massive problems in acquiring and developing the systems necessary to manage government operations. Over the last 4 years, we have reviewed dozens of major systems, systems absolutely critical to effective agency operations, and have found very little positive to say about how these systems are being developed. Invariably, these systems do not work as planned, have cost overruns in the millions and even hundreds of millions of dollars, and are not developed on time. This condition is pervasive throughout the government.

Defining the problems and underlying causes is not simple. And the solutions will not be simple.

This morning I will highlight some of the most significant problems and failures we have seen to date, and provide an overview of why, in our judgment, such failures occur, and what initial steps can be taken to address them.

THE STATUS OF INFORMATION TECHNOLOGY APPLICATIONS AND DEVELOPMENT

In reviewing the problems associated with the application of information technology, we must consider the environment in which the federal government operates. Government operations are characterized by long-term projects with short-term budgets, and rapid turnover of senior and mid-level managers who often refocus program priorities. In addition, many federal systems are massive and/or unique, requiring unusually complex solutions to very singular applications. The government spends about $20 billion each year on information technology and management, but I would be hard pressed to identify a single "mega-dollar" systems development project that could be used as a model.

Unfortunately, I can identify many systems that point to a disturbing trend. For example, our recent review of eight automated defense systems essential for effective personnel management, logistics, and financial management identified a pattern of cost growth, schedule delays, performance shortfalls,

and evolving requirements that resulted in changes to development and acquisition strategies. Specifically,

--cost growth has been massive. Defense's estimate to develop and deploy the systems doubled, from $1 billion to $2 billion, with additional cost growth likely;

--the original completion dates for all but one system have been delayed by 3 to 7 years; and

--Defense did not consider alternative strategies, such as maximizing use of existing personnel and payroll systems, to avoid duplication and unnecessary expenditures.

Two of the eight systems, Army's Civilian Personnel System and Navy's Standard Automated Financial System (STAFS), were in such disarray that development efforts were abandoned. Navy found it easier to terminate STAFS, after spending over $230 million, than to risk another estimated $200 million to make the program work. Navy, reported to Congress that the life cycle cost for STAFS was $184 million, while internal DOD estimates showed an estimated life cycle cost of $843 million--over four times greater than the official estimate.

We also found significant problems with the North American Aerospace Defense Command's (NORAD) $1.3-billion effort to modernize the critical systems that provide timely warning that North America is under air, missile, or space attack.[1] This system has been plagued by mismanagement. We found that

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[1]NORAD's attack and warning systems would be excluded from OIRA oversight under sec. 3502 of the Paperwork Reduction Act. However, the problems identified in these systems demonstrate the pervasiveness of poor systems development implementation throughout the government.

--there is no single manager below the Chief of Staff of the Air
  Force with accountability, responsibility, and authority for the
  modernization effort; rather, responsibility was fractured among
  6 commands and over 200 directorates, boards, and working groups;

--the modernization of the Space Defense Operations Center
  (SPADOC) at NORAD--necessary to provide space surveillance and
  attack information on U.S. satellites--has been hampered by
  unrealistic expectations of the software necessary to achieve the
  systems performance requirements. As a result, the program is
  behind schedule and the system under development is so slow that
  notification that a satellite is under attack takes four times
  longer than specified; and

--severe software problems also hamper the development of the
  Communications System Segment Replacement (CSSR); more
  critically, the wiring standards for CSSR are not compatible with
  existing wiring--a problem that will take 2 years to correct.

Such problems are not limited to the defense establishment.

Information processing giants such as the Internal Revenue Service

(IRS) and the Social Security Administration (SSA) have had

particularly disturbing experiences in attempting to modernize

their enormous, archaic, and overburdened systems. IRS, for

example, has spent over $70 million since 1982 on four major

activities to modernize its tax processing system, without

producing even a clear plan for the modernized system's

architecture. Meanwhile, the agency continues to process tax

returns using a system whose design dates back 25 years.

Similarly, our reviews of SSA's $517 million dollar modernization

program has revealed that the individual components of the overall

systems have many problems, including deficient software,

insufficient technical integration, unjustified procurements, and

inadequate maintenance of existing systems. Further, while the

strategic plan is supposed to set the requirements necessary to

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support the agency's future service-delivery operations, the
various component tactical and operational plans are being
developed in isolation from any such overall plan.

WHY DOES THE GOVERNMENT HAVE PROBLEMS IMPLEMENTING COMPUTER APPLICATIONS?

These examples, plus other work not cited, show that agencies
across the government have similar problems in implementing
automated information systems. For the most part, these problems
are not caused by a lack of regulations, policies, or procedures.
Rather, we see such problems as having several causes:

--Agency needs are not clearly identified, leading to inadequate
   definition of requirements.

--Alternative approaches are not considered; too frequently,
   agencies seek unique solutions to common application needs.

--Problems in software development or system configuration are
   often deferred to the next development phase rather than being
   addressed before moving on.

--Determinations of system needs and requirements continuously
   change, leading to cost overruns and schedule delays.

--Top managers and congressional leaders are not always provided
   with accurate cost and schedule estimates.

--Managers frequently are reluctant to make the tough decision to
   terminate a poor development effort, instead choosing to throw
   additional funding at the problem.

--Program management responsibility changes frequently and is
   often poorly defined.

--Top agency management is not adequately involved in system
   development.

IMPROVING THE PROCESS

We recognize that the underlying causes for these system development problems are varied and complex, and will not be easily or quickly corrected. However, the one absolutely critical factor to moving forward is to increase management attention at all levels. Top agency management must become knowledgeable and involved with the decisions being made to satisfy agency information management needs. These managers must support development programs with technically qualified staff and must be willing to take the time to truly articulate information needs and adequately define the requirements and costs necessary to meet those needs.

Further, agencies need support, encouragement, and oversight. The Paperwork Reduction Act assigns OIRA a significant role in developing policies, in coordinating agency information practices through the review of budget proposals, and in evaluating agency information management practices. While we have not reviewed how well OIRA is carrying out these responsibilities, effective implementation could clearly provide the Congress and agencies a good starting point in helping to address the problem the government is having in developing and modernizing its automated systems. In particular, there are two areas of OIRA's enabling legislation that this Subcommittee may wish to pursue with OIRA officials.

The first deals with the mandate for OIRA to evaluate agency management practices and their compliance with OMB policy, principles, standards, and guidelines. Such evaluations could provide a key to understanding why many of the government's actions to automate systems are having problems and, in formulating solutions to these problems. Specifically, the Subcommittee may wish to pursue with OIRA the extent of these evaluations and its strategy for using evaluations of individual agency systems to identify systemic weaknesses in the government's process for developing automated information systems. In addition, it is important that the Subcommittee not only gain an understanding of the extent and nature of these evaluations, but also of the ability of OIRA to effectively carry out this legislative mandate.

Second, the Subcommittee may wish to pursue how well OIRA is accomplishing its mandate of coordinating--through the review of budget proposals--agency information practices, especially as they relate to the development of automated information systems. While effective implementation of these mandates should help in identifying problems and potential solutions, it is important to note that, in the final analysis, management responsibility and accountability for developing information systems must reside with the agency where the information needs exist and where the systems to meet those needs are being developed.

The Congress can also play an increased role. Hearings such as this serve notice that effective management of information

resources is a congressional priority. Agency oversight committees and the appropriations committees need to continue to both challenge and support the actions of individual agencies to more effectively manage information resources and to assure that massive system development activities do not come untracked.

Finally, we need to take better advantage of the rapidly developing information skills and applications outside the federal government. I believe we can learn a lot from private-sector experience in large system development and application and how to better integrate information management into overall management operations.

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That concludes my statement, Mr. Chairman. I will be happy to respond to any questions you or other members of the Subcommittee may have.