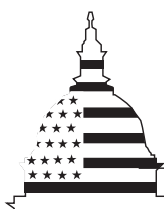


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REGULATORY MANAGEMENT

Communication About Technology-Based Innovations Can Be Improved



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Abstract During the past several years, information technology (IT) has played an increasingly important role in how federal agencies interact with the public and accomplish their missions. Sometimes referred to as electronic government or E-gov, the use of IT has already changed how public policy is developed and administered in a variety of areas and has the potential to introduce even more changes in the future. One area of public policy that is beginning to feel the effects of IT is regulatory management, which includes such interrelated processes as rulemaking, compliance assistance, information collection and dissemination, and regulatory enforcement. The use of IT in regulatory management can reduce regulatory burden; improve the transparency of regulatory processes; and, ultimately, facilitate the accomplishment of regulatory objectives.		Monitoring Agency Acronym
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February 12, 2001

The Honorable Fred Thompson
Chairman
The Honorable Joseph I. Lieberman
Ranking Member
Committee on Governmental Affairs
United States Senate

The Honorable Henry A. Waxman
Ranking Minority Member
Committee on Government Reform
House of Representatives

During the past several years, information technology (IT) has played an increasingly important role in how federal agencies interact with the public and accomplish their missions. Sometimes referred to as “electronic government” or “E-gov,” the use of IT has already changed how public policy is developed and administered in a variety of areas and has the potential to introduce even more changes in the future. One area of public policy that is beginning to feel the effects of IT is regulatory management, which includes such interrelated processes as rulemaking, compliance assistance, information collection and dissemination, and regulatory enforcement. The use of IT in regulatory management can reduce regulatory burden; improve the transparency of regulatory processes; and, ultimately, facilitate the accomplishment of regulatory objectives.

Last year, we reported on innovative uses of IT to facilitate public participation in federal rulemaking.¹ This report responds to your request that we examine the use of IT in other aspects of regulatory management. Specifically, we agreed to identify (1) examples of how federal agencies are innovatively using IT, either individually or in collaboration with other agencies or levels of government, to facilitate regulatory management; (2) examples of how state regulatory agencies are innovatively using IT to facilitate regulatory management; (3) IT applications that representatives of nongovernmental organizations believe could be more widely used by

¹*Federal Rulemaking: Agencies' Use of Information Technology to Facilitate Public Participation* (GAO/GGD-00-135R, June 30, 2000).

federal regulatory agencies; and (4) what officials and staff in federal and state regulatory agencies and nongovernmental organizations believe are the key factors that facilitate or hinder the adoption and diffusion of innovative IT applications in regulatory management. The parties relevant to each of these objectives (i.e., federal or state agencies and nongovernmental organizations) identified which applications they considered “innovative.”

Results in Brief

All of the federal agencies that we examined were using some form of IT to improve regulatory management and to meet legislative and executive branch mandates in this area. The IT-based applications that officials and staff in federal regulatory agencies and others identified as innovative covered all of the dimensions of regulatory management that we examined, and most applications covered more than one dimension. Most of the applications involved using IT to improve traditional regulatory management approaches within their agencies. However, other applications were more interactive in nature and appeared to change the nature of the relationship between regulatory agencies and the relevant public. For example, the Department of Labor has a system of electronic “advisors” imitating the interaction that an individual might have with an employment law expert. The advisors allow users to obtain tailored compliance assistance information and, in some cases, complete required reports. A few of the applications attempted to address issues involving interagency or intergovernmental coordination. The Environmental Protection Agency, for example, is working with partners in state government and the Environmental Council of the States to develop a national environmental information exchange network to deliver accurate, reliable data to the public, government officials, and industry and environmental groups and to reduce the burden of reporting environmental data.

The IT-based applications that state government organizations identified as innovative, like their federal counterparts, represented the range of regulatory management functions. Several of the state innovations were interactive systems that allowed regulated entities to identify their regulatory responsibilities and complete related transactions. For example, the Texas Railroad Commission has an electronic compliance and approval process that allows users to obtain oil or gas well permits on-line, complete and file the required forms, and pay any associated fees. Other state government applications were less interactive and involved using IT to improve traditional management approaches.

Representatives from nongovernmental organizations who participated in our review recognized and supported federal regulatory agencies' current efforts to use IT to improve their regulatory management processes. However, the representatives also said that federal agencies could improve their performance in this area. Specifically, they suggested that agencies improve both the content and access to on-line information, more broadly and consistently use some existing applications, and adopt some new applications. The representatives also expressed concern that IT-based applications in regulatory management could (1) make individuals and businesses more vulnerable to scrutiny and federal enforcement actions and (2) disadvantage those individuals and businesses with limited technical resources.

Federal and state agency officials and representatives of nongovernmental organizations identified several factors that they believed affected the adoption and diffusion of IT-based approaches in regulatory management. Those factors were (1) top-level leadership commitment/support, (2) adequate financial resources and human capital (given competing priorities), (3) legislative and executive branch IT initiatives, (4) internal and external partnerships with critical stakeholders, (5) reengineering of existing business processes, and (6) development of a communication infrastructure. In relation to the last factor, federal regulatory officials said they were sometimes unaware of how other agencies (and, in some cases, other parts of their own agencies) were using IT to improve regulatory management.

Increased use of IT in regulatory management has the potential to yield significant benefits, from improving the quality and quantity of public participation in rulemaking to reducing burden on regulated entities. As agencies learn more about regulatory innovations, they are likely to use those applications in their own agencies and avoid "reinventing the wheel" when developing their own applications. Therefore, we are recommending certain actions that could facilitate innovation, avoid duplication of effort, and potentially result in a broader and more consistent approach across federal agencies.

Background

Several legislative initiatives enacted during the past decade have emphasized the potential of IT to improve the federal government's performance. For example, the Paperwork Reduction Act of 1995 (PRA) requires the Director of the Office of Management and Budget (OMB) to "promote the use of information technology to improve the productivity,

efficiency, and effectiveness of Federal programs, including through dissemination of public information and the reduction of information collection burdens on the public.” The Information Technology Management Reform Act of 1996 (known as the Clinger-Cohen Act) also requires the OMB Director to “promote and be responsible for improving the acquisition, use, and disposal of information technology by the Federal Government to improve the productivity, efficiency, and effectiveness of Federal programs, including through dissemination of public information and the reduction of information collection burdens on the public.” Additionally, the Government Paperwork Elimination Act (GPEA) requires the OMB Director to ensure that federal agencies “provide for the option of electronic maintenance, submission, or disclosure of information, when practicable as a substitute for paper” by October 2003.² GPEA’s full implementation will give individuals and organizations the option to submit information or transact business with agencies electronically.

Executive branch initiatives have also encouraged the use of IT in the federal government. For example, in September 1993, the National Performance Review (later the National Partnership for Reinventing Government) announced a set of recommendations that were intended to improve government by reengineering through the use of information technology. Those recommendations included the development of integrated electronic access to government information and service; the creation of a national environmental data index; and the use of IT and other techniques “to increase opportunities for early, frequent, and interactive public participation during the rulemaking process and to increase program evaluation efforts.” In July 1996, President Clinton issued Executive Order 13011 on “Federal Information Technology,” which, among other things, established a Chief Information Officers Council (CIO Council) as the principle interagency forum to improve agency information resource management and to “share experiences, ideas, and promising practices.” A December 17, 1999, presidential memorandum on electronic government noted that “as public awareness and Internet usage increase, the demand for online Government interaction and simplified, standardized ways to access Government information and services becomes increasingly important” and directed federal agencies to take steps to address that growing demand. Additionally, this directive called for the establishment of a “one stop” gateway to government information available on the Internet.

²*Electronic Government: Government Paperwork Elimination Act Presents Challenges for Agencies* (GAO/AIMD-00-282, Sept. 15, 2000).

The federal government has taken some steps to establish electronic gateways that provide one-stop access to information from a variety of agencies, including regulatory agencies. For example, the “FirstGov” Web site (www.firstgov.gov), which was launched on September 22, 2000, provides links to all on-line federal resources—from applying for student loans to tracking Social Security benefits. Also, the U.S. Business Advisor site (www.business.gov) provides businesses with one-stop access to federal information on such topics as taxes, international trade, financial assistance, and laws and regulations. The laws and regulations link allows users to connect with the *Federal Register*, the United States Code, and compilations of laws and regulations affecting small businesses. The U.S. Business Advisor site was created by the Small Business Administration (SBA), the National Performance Review, and an interagency task force and is maintained and funded by SBA.

In our report issued last year, we identified a number of examples of how federal agencies were using IT to facilitate public participation in rulemaking.³ Although all of the departments and agencies we contacted were developing some type of IT-based participation vehicles, officials and staff in those agencies questioned the need for standardization of those practices across agencies. They said that agencies need to be able to design their procedures to fit their particular circumstances, and that standardization would require scarce agency resources. However, agency officials and staff were supportive of efforts to better coordinate the use of those participation mechanisms to avoid each agency’s reinventing the wheel.

OMB’s Office of Information and Regulatory Affairs

OMB’s Office of Information and Regulatory Affairs (OIRA), which was created by the PRA of 1980, is responsible for providing guidance and oversight for both IT and regulatory issues. The OIRA Administrator sits on the CIO Council, which is chaired by OMB’s Deputy Director for Management. Executive Order 12866 identifies OIRA as “the repository of expertise concerning regulatory issues” and makes the office responsible for coordinating agencies’ regulatory missions. The executive order also established a Regulatory Working Group that is chaired by the OIRA Administrator and is comprised of representatives of the heads of each agency with significant domestic regulatory responsibilities. The order also says that the Regulatory Working Group “shall serve as a forum to assist

³GAO/GGD-00-135R.

agencies in identifying and analyzing important regulatory issues,” including “the development of innovative regulatory techniques.”

OIRA has taken some steps to encourage the use of IT specifically to improve regulatory management in federal agencies. For example, in April 2000, the OIRA Administrator launched an initiative focusing on using IT to improve the quality of the information that the government collects, while minimizing the burden. The initiative began with a public forum that featured senior officials from a number of federal regulatory agencies presenting information on their agencies’ initiatives, followed by a series of roundtable discussions. Additionally, OIRA and OMB have provided guidance to agencies on a variety of information policy issues, including the implementation of GPEA, privacy, and data exchanges with the states. The guidance applies to regulatory management as well as other agency functions.

Objectives, Scope, and Methodology

The objectives of our review were to identify (1) examples of how federal agencies are using IT innovatively, either individually or in collaboration with other agencies or levels of government, to facilitate regulatory management; (2) examples of how state regulatory agencies are using IT innovatively to facilitate regulatory management; (3) IT applications that representatives of nongovernmental organizations believe could be more widely used by federal regulatory agencies; and (4) what officials and staff in federal and state regulatory agencies and nongovernmental organizations believe are the key factors that facilitate or hinder the adoption and diffusion of IT applications in regulatory management.

We focused our efforts regarding the first objective on the Departments of Agriculture (USDA); Labor (DOL); Health and Human Services (HHS); and Transportation (DOT) and the Environmental Protection Agency (EPA). We selected these agencies because they are primarily responsible for federal health, safety, and environmental regulations that have been the target of reform initiatives. In each agency, we identified the IT and regulatory management officials and staff to interview, either through our designated liaisons or through publications that featured relevant IT applications, including the agencies’ Web sites and agency documents. We asked each of these officials and staff to identify IT-based regulatory management applications that they considered innovative. We did not attempt to define the word “innovative” but made it clear that the application should not simply be that the agency had a page on the Web. We also obtained information on the agencies’ innovative or “best practice” uses of IT in

regulatory management from individuals and groups focusing on regulatory reform, including the Regulatory Working Group, the Council for Excellence in Government, and academics.

In each agency, we asked a series of structured questions that were keyed to our reporting objectives. For each of the federal IT-based regulatory management applications that the agencies or others identified, we conducted a structured, follow-up interview that was designed to obtain more detailed information from relevant agency officials. Specifically, we asked, among other things, for a detailed description of the innovation and for information on the regulatory purpose(s), status, scope, and results of the IT-based application. Additionally, we asked about lessons learned, including obstacles and facilitators to development. We also reviewed information on the innovations on agencies' Web sites and other relevant documents.

In some cases, the innovations we identified were primarily located in one part of the agency. For example, in HHS, the innovations identified for this study were primarily in the Department's Food and Drug Administration (FDA).⁴ Additionally, in some instances, we selected certain innovations for presentation in this report from a longer list of suggestions that was provided by the agency. For example, FDA officials provided a list of more than a dozen applications that they considered innovative. Working with FDA officials, we selected applications for inclusion in this report that represented different types of functions.

For the second objective, we interviewed officials from organizations representing state governments (e.g., the National Governors Association and the Environmental Council of the States) to identify promising regulatory IT applications at the state level. Again, we allowed these organizations to define the word innovative. We also identified state IT applications in the regulatory arena that other organizations (e.g., the Council for Excellence in Government and the National Association of State Information Resource Executives) or publications identified as examples of best practices. For each of the identified state IT-based applications, we talked to officials or staff in the state agencies involved in the development and/or implementation of the application and reviewed information on the agencies' Web sites.

⁴In GAO/GGD-00-135R, we identified innovative uses of IT to facilitate public participation in federal rulemaking in other parts of HHS.

For the third objective, we interviewed representatives of business associations, consumer advocacy groups, and academic centers that deal with regulatory reform issues. Although we recognize that there are numerous organizations that are interested in regulatory issues, we judgmentally selected these nongovernmental organizations to contact because they have been actively involved in recent regulatory reform initiatives and represent alternative perspectives on regulatory reform. We contacted the following organizations: the National Federation of Independent Businesses, the National Association of Manufacturers, the U.S. Chamber of Commerce, the American Hospital Association, the Natural Resources Defense Council, Public Citizen, OMB Watch, Information Renaissance, the American Bar Association, the Heritage Foundation, Citizens for a Sound Economy, the Mercatus Center of George Mason University, American University's Washington College of Law, and Washington University's Center for the Study of American Business. Some of these organizations provided extensive information, while others gave us more limited answers to our questions. We also reviewed available Web sites for the organizations and looked at relevant publications discussing IT applications that may have potential for improving federal regulatory management.

For the fourth objective, we asked all of the individuals that we interviewed what they viewed as the key factors that facilitate or hinder the adoption and diffusion of IT applications in regulatory management.

Our review was intended to provide examples of innovative IT-based applications in regulatory management and should not be viewed as a compendium of all such applications, even within the federal agencies and states that are the focus of this report. Also, the suggestions offered by representatives of the nongovernmental organizations in relation to the third objective are not intended to be comprehensive of all possible suggestions. We did not attempt to validate federal or state agency officials' views or data regarding the performance of the innovations that they identified.

We conducted our work between June 2000 and December 2000 in Washington, D.C., in accordance with generally accepted government auditing standards. We provided a draft of this report to the Director of OMB for his review and comment. OMB officials said that they had no comments on the draft report. We also provided federal and state agency officials with the relevant draft report sections attributed to them to ensure that we correctly characterized their systems and comments.

Federal Agencies Used IT in Different Ways to Facilitate Regulatory Management

All of the federal agencies included in our review were using some form of IT to improve regulatory management and to meet legislative and executive branch mandates in this area. The applications that the agencies and others identified as innovative covered all of the dimensions of regulatory management that we examined, and most applications covered more than one dimension. Most of the applications involved using IT to improve traditional regulatory management approaches within their agencies. Other applications were more interactive in nature and appeared to change the nature of the relationship between regulatory agencies and the relevant public. A few of the applications attempted to address issues involving interagency or intergovernmental coordination. Although agency officials were able to identify perceived benefits for the innovations, few agencies had performance data clearly demonstrating the effect of the innovations on the agencies' effectiveness or efficiency, burden reduction, or other regulatory outcomes.

Most Innovative Federal IT Applications Attempted to Improve Traditional Regulatory Management Approaches

The innovative IT-based applications that attempted to improve traditional regulatory management approaches addressed several of the different dimensions of regulatory management—rulemaking, information collection, compliance assistance, information dissemination, and other compliance/enforcement actions. Many of these applications also had implications for burden reduction and/or improved transparency of the regulatory process.

Rulemaking

Several of the federal IT-based applications and initiatives that agency officials and others identified as innovative were attempting to improve the internal management of the rulemaking process.

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- DOT's Docket Management System (DMS) is an electronic, image-based database covering every agency and every rulemaking within the Department. A DOT official said that the DMS not only offered easier access to rulemaking materials to the public, but it also made it easier for DOT lawyers, analysts, managers, and others involved in the rulemaking to find the information they needed when they needed it. For example, they said agency professionals could review public comments on proposed rules at their desks or even from their homes as they develop final rules. As noted in our previous report, the DMS has become the official rulemaking record for the Department, enabling DOT to save more than \$1 million each year in administrative costs.⁵
 - USDA's Risk Management Agency—the agency responsible for crop insurance programs—developed an Internet-based Regulatory Processing Management Tracking System that monitors proposed and final rules through all steps in the rulemaking process. The system permits agency employees and others to identify planned regulations and their estimated time frames, the status of rules being developed (including the number of days in each processing step), and the next steps required in the process. The system also has a forecasting feature that allows users to develop a list of process steps required for publication of rules and to calculate estimated dates of publication that are based on best and worst case scenarios. Other features are planned for the future, and other agencies within USDA have expressed interest in developing similar systems.
 - DOT's Federal Aviation Administration (FAA) has developed an Internet-based Integrated Rulemaking Management Information System (IRMIS) to track the status of rulemaking projects, including their corresponding schedules and associated documents. IRMIS also provides users with access to other rulemaking-related systems, including DOT's DMS; federal regulations; and the agency's Regulatory Guidance Library.⁶ DOT officials said the Department expects to implement a DOT-wide tracking system within a year that will interact with IRMIS and other agency tracking systems.

⁵GAO/GGD-00-135R.

⁶We have an ongoing study evaluating the FAA rulemaking process. An assessment of IRMIS will be included in a report scheduled for issuance later this year.

Information Collection

Several agencies have developed IT-based applications that involve the collection of information through some form of electronic reporting. Two agencies' efforts in this area are particularly noteworthy—EPA and FDA.

- EPA has established a central Office of Environmental Information (www.epa.gov/oei/) to coordinate the agency's information collection and dissemination activities and to develop integrated, standardized collections of information (among other things). EPA is also taking a number of actions to make electronic reporting available to all regulated communities for all environmental compliance reports, including (1) developing electronic data interchange (EDI) standards; (2) developing user-friendly Web-based forms, which would be appropriate for electronic reporting by companies that are not EDI-capable; and (3) implementing a "central data exchange facility" to provide a single, one-stop point of entry for data submitted to EPA. In addition, the agency is developing electronic reporting and recordkeeping best practices and implementation support to help state and local agencies accept electronic reports under EPA-delegated programs.⁷ EPA does not yet have any data on the amount of burden actually reduced through the use of electronic reporting. However, on the basis of industry experience with electronic commerce, EPA officials estimated that these initiatives could ultimately reduce regulated entities' paperwork time and costs by as much as 20 percent for a given entity, allow EPA and state and local agencies potentially to save millions of dollars in processing costs, and reduce data entry errors.
- FDA's Operational and Administrative System for Import Support is an automated system for processing and making admissibility determinations for shipments of foreign-origin, FDA-regulated products seeking to enter domestic commerce. Agency officials said that admissibility decisions are transmitted to importers' agents within minutes after shipment data are electronically submitted to FDA, and that 85 percent of shipments are cleared without any submission of paper. Automated screening functions also reportedly enhance FDA's ability to detect problems, thereby keeping certain products from

⁷For other views on EPA's information initiatives, see *Environmental Information: EPA Needs Better Information to Manage Risks and Measure Results* (GAO-01-97T, Oct. 3, 2000); *Managing for Results: EPA Faces Challenges in Developing Results-Oriented Performance Goals and Measures* (GAO/RCED-00-77, Apr. 28, 2000); *Environmental Information: EPA Is Taking Steps to Improve Information Management, but Challenges Remain* (GAO/RCED-99-261, Sept. 17, 1999); and *environment.gov: Transforming Environmental Protection for the 21st Century*, National Academy of Public Administration, November 2000.

entering the country. An FDA contractor estimated that the system would save the import industry \$1.2 billion during a 7-year period, and FDA believes that the system will also improve the effectiveness and productivity of agency employees. This system has won a number of awards, including the CIO Council's and Industry Advisory Council's 1998 Best IT Practices in the Federal Government and *Government Executive* magazine's 1998 Government Technology Leadership Award.

- FDA's Center for Devices and Radiological Health has developed an Internet-based Mammography Program Reporting and Information System to support the agency's statutorily mandated responsibility for certification and inspection of all mammography facilities in the United States. The system permits the electronic tracking and monitoring of a facility's accreditation, certification, inspection, and compliance history. FDA and state inspectors use laptop computers to record inspection results and send the results to a centralized database, which is also used by FDA-approved accreditation bodies. The system allows access to data from all authorized user locations and was built to accommodate a variety of users' computing environments.
- FDA's Center for Food Safety and Applied Nutrition's Voluntary Cosmetics Registration System provides Internet-based access to a database that allows cosmetic companies to obtain a registration number and subsequently submit formulation information and ingredient lists to the center in a secure manner. FDA officials said that cosmetic companies are more willing to voluntarily register with the agency through the system because it reduces the amount of time the companies spend registering and submitting information.
- FDA's Center for Biologics Evaluation and Research has designed and implemented an Electronic Regulatory Submission Review Program to support the required performance goals in the Prescription Drug User Fee Act and proposed international standards. The purpose of the program is to move from a largely paper-based, regulatory submission and review environment toward one that works with an all-electronic regulatory submission. Agency officials said that the program would enable the efficient receipt, viewing, storage, and archiving of electronic submissions, thereby allowing access to information from any reviewer's desktop and automating analytical and administrative processes.

Compliance Assistance

Compliance assistance has long been recognized as a way to reduce the burden associated with federal regulations, but those efforts have not always proved successful. In our 1996 report on federal regulatory burden, federal agencies said that several private sector companies we contacted

during our review had misstated or misinterpreted statutory or regulatory requirements, sometimes incurring unnecessary expenses.⁸ Some of the companies told us that it was difficult to obtain clear compliance information from federal agencies. We observed in our report that the mechanisms agencies used to provide information on regulatory requirements appeared fragmented both between and within agencies, and that this fragmented approach may be contributing to ineffective communication between regulatory agencies and the business community.

Some of the IT-based applications that agency officials and others identified as innovative during this review were intended to inform regulated entities of their responsibilities under applicable statutes and regulations.

- EPA has partnered with industry associations, environmental groups, universities, and other government agencies to create 10 compliance assistance centers for specific sectors, many of which are heavily populated with small businesses and other small entities. (See www.assistancecenters.net.) Sectors served by the centers include agriculture, automotive services and repair, metal finishers, printing, transportation, local governments, and federal facilities. EPA manages two of the centers (agriculture and federal facilities), with the other eight managed by organizations outside of EPA. The centers offer a range of communication services, including Internet sites, E-mail groups, fax-back systems, and telephone assistance hotlines. Information provided through these mechanisms include plain-language compliance guides, updates on industry-specific regulatory developments, on-line access and search capabilities for state regulations, and training and satellite conferences. According to EPA, the centers were used more than 400,000 times by regulated entities and the public in fiscal year 2000, a 56-percent increase from fiscal year 1999.
- DOL's Occupational Safety and Health Administration (OSHA) offers electronic Compliance Assistance Tools (e-CAT) that help businesses identify workplace hazards in specific areas. They also provide safety and health information to help businesses address the identified hazards. (See www.osha-slc.gov/dts/osta/oshasoft/osha-advisors.) The six available e-CATs cover compliance requirements for baggage

⁸*Regulatory Burden: Measurement Challenges and Concerns Raised by Selected Companies* (GAO/GGD-97-2, Nov. 18, 1996).

handling, nursing homes, the logging industry, respirator protection, silica protection, and lockout/tagout inspections.

Information Dissemination

Although all of the selected agencies had IT-based systems to provide information to the public, four EPA systems were particularly noteworthy.

- “Envirofacts” (www.epa.gov/enviro/) is an Internet-based system that allows users to retrieve environmental information about different media and issues (e.g., air and water quality, hazardous wastes, and toxic releases) from several EPA databases. Envirofacts also includes (1) mapping programs that allow users to identify sources of pollution within the users’ community and (2) a Facility Registry System database that provides a single, integrated source of comprehensive information about particular facilities. Envirofacts has received numerous awards, including the Government Computer News Agency Excellence Award in 2000 and the 1999 Government Technology Leadership Award.
- EPA’s Integrated Data for Enforcement Analysis (IDEA) database (www.epa.gov/oeca/idea/) is a comprehensive source of environmental performance information on any EPA-regulated facility, retrieving data from across agency program offices. The database provides federal and state employees with facility-specific historical profiles of inspections, enforcement actions, penalties assessed, toxic chemicals released, and emergency hazardous spills. Public users can obtain access to certain information in the system by registering with EPA and paying for computing services.
- EPA has also developed a separate but related Sector Facility Indexing Project (SFIP) database (www.epa.gov/oeca/sfi) to provide information from the IDEA database to the public in a more user-friendly and accessible manner. SFIP currently provides information about compliance and enforcement history, pollutant releases and spills, production capacities, and the demographics of the surrounding community for facilities in five industrial sectors: pulp mills, petroleum refining, automobile assembly, iron and steel, and primary nonferrous metals. EPA officials said they plan to expand the database to include federal facilities in the near future.
- EPA’s “AirNow” Program (www.epa.gov/airnow/) is a Web site that provides environmental information to the public through links to regional cameras that show air quality in various parts of the country. The site also provides public health information on the environmental effects of air pollution, featuring interactive ozone maps, air quality forecasts, and health advisories that help keep users informed about the air they breathe. The site won a Government Technology Leadership

award in 1998 and was selected by *Government Executive* magazine as one of the “Best Feds on the Web” for 2000.

Some Federal IT Applications Offered New Ways of Interacting With the Public

The applications previously discussed, although innovative in many respects, are not interactive or transactional in nature and generally do not represent significant departures from traditional regulatory management functions. On the other hand, a few of the applications that the agencies and others identified as innovative have gone beyond the traditional constructs and provide new forms of interaction with the public.

DOL’s “Elaws” Advisors

One such application is DOL’s set of Employment Laws Assistance for Workers and Small Businesses (elaws) advisors. (See <http://www.dol.gov/elaws/>.) Elaws is a set of interactive advisors that is available on the Internet to help workers and small businesses understand their rights and responsibilities under federal employment laws and regulations. Each advisor imitates the interaction that an individual might have with a DOL employment law expert, asking questions and providing answers that are based on the responses provided. For example, the Confined Spaces Advisor leads the user through a series of questions designed to determine whether a particular business is covered by the applicable regulations. Among other things, the advisor asks whether the space in question

- is large enough for a worker to enter bodily;
- is configured so that a worker can perform work inside;
- has a restricted entry or exit;
- is designed for continuous worker occupancy;
- has a hazardous atmosphere; and
- has a floor that slopes down to a narrower cross section.

At the end of this series of questions, the advisor informs the user whether OSHA considers the space in question to be a confined space, and whether a permit is required for its use. The advisor also directs the user to an overview of OSHA guidance on permit-required confined spaces.

The elaws advisors differ in the types of interactions they support. For example, the Posters Advisor not only allows business owners to identify any DOL-required posters their business must display, but also allows them to print the required posters. Other advisors help users fill out required forms and submit them electronically. As of November 2000, DOL had elaws advisors covering a variety of issues and DOL-administered statutes,

including the Fair Labor Standards Act, the Drug-Free Workplace Act of 1988, and the Family and Medical Leave Act. According to DOL, the various advisers were accessed more than 450,000 times during fiscal year 2000, and their use is increasing.

OSHA's Expert Advisors

In addition to its on-line Fire Safety and Confined Spaces advisors as part of the DOL elaws system, OSHA also has a set of downloadable expert advisors.⁹ These advisors run on personal computers and enable businesses and others to receive answers off-line on how OSHA regulations apply to their work sites. (See www.osha-slc.gov/dts/osta/oshasoft/.) An OSHA official said that off-line advisors allow users to input detailed information about their companies without privacy or enforcement concerns associated with on-line systems connected to the agency. The OSHA advisors include (1) a Hazard Awareness Advisor to identify hazards in general industry workplaces; (2) an Asbestos Advisor for building owners, managers, and others; and (3) a Lead in Construction Advisor to help clarify the coverage of OSHA's rule, the use of exposure data, and other issues. In each of these advisors, users are interviewed about relevant issues; asked follow-up questions that are based on the answers previously provided; and, in most cases, provided a written report tailored to the circumstances described. In August 2000, the Ford Foundation and Harvard University's John F. Kennedy School of Government named OSHA's expert advisors as a finalist in the Innovations in American Government Award, which recognizes responsive and innovative government programs.

DOT's "Do It Yourself" System

Another interactive IT-based application used in federal regulatory management is DOT's "Do It Yourself" (DIY) system. (See <http://diy.dot.gov>.) The DIY system was developed by DOT's finance office and permits regulated entities to file for required licenses and certifications and to make related payments using a credit card through a central DOT Web site or through the regulating agency's Web site. DOT agencies using the DIY system as of November 2000 included, among others, (1) the Federal Motor Carrier Safety Administration (FMCSA) (for registration applications, insurance payments, and fine payments); (2) the National Highway Traffic Safety Administration (for import fee payments, technical information services payments, and Freedom of Information Act request payments); and (3) FAA (for aircraft registration and airman data). Users

⁹OSHA began developing expert systems to provide compliance assistance to small businesses before DOL initiated the elaws program in 1996.

are guided through a series of screens that ask for confirmation of transaction requests and address information. Built-in error messages in the on-line forms help users complete the forms correctly, thereby eliminating rework for both the users and the agency. The final screens take the user through the credit card part of the transaction and provide the user with a transaction number that can be used to track orders. DOT officials said that, in most cases, users should be able to complete the transactions in 10 minutes or less. The DIY system was designed to provide better service to customers, reduce paperwork, and introduce efficiencies into DOT's operations, and agency officials said the system has already demonstrated its effectiveness. For example, they said the DIY system has helped FMCSA eliminate a 5-week backlog of applications from truckers wanting to engage in interstate hauling because staff no longer have to contact truckers about errors and no longer have to follow a series of steps to process the application and payment.

A Few Applications Involved Interagency or Intergovernmental Cooperation

A few of the federal regulatory management innovations that the agencies or others identified involved interagency or intergovernmental cooperation—one EPA effort involving the states and separate efforts at DOT and FDA involving multiple federal agencies.

EPA's National Environmental Information Exchange Network

EPA is working with the states to develop a “national environmental information exchange network” that the agency believes can improve both the quality and access to environmental data. The exchange network is a voluntary, standards-based system that links different state systems and EPA systems, using common language and secure connections through the Internet. In October 2000, a team comprising participants from EPA, individual states, and the Environmental Council of the States released a Blueprint for a National Environmental Information Exchange Network that lays out the network design and partnership agreements for implementing the network. Both federal and state officials consider coordination and cooperation between EPA and the states essential to successful implementation of the environmental electronic reporting initiative previously discussed.

Government-wide International Trade Data System

DOT has been involved in an interagency effort to develop an Integrated Government-wide International Trade Data System (ITDS) that the developers hope will coordinate the collection, use, and dissemination of international trade information. When fully developed (in an estimated 5 to 6 years), ITDS will be the public and interagency interface for all

international trade and transportation transactions for the movement of cargo in either direction across U.S. borders. ITDS goals include improving compliance with trade requirements; reducing burden on both the trade community and the government; and providing more accurate, timely, and thorough international trade data. According to system developers, ITDS will provide the primary inspector with “one look” at the truck, its goods, and the driver’s compliance with key federal requirements before the truck enters the United States. Truckers will electronically file transport declarations and goods declarations before arriving at the port of entry. ITDS will pass relevant data to the agency for selective screening and determination of appropriate action. In October 2000, DOT’s FMCSA agreed to participate in the first deployment of ITDS at the federal ports of entry in Buffalo, NY, in 2001. Also expected to participate in the Buffalo pilot are the Customs Service within the Department of Commerce, the Immigration and Naturalization Service within the Department of Justice, FDA, and the trade and transportation communities.

Food Safety Initiative

Ensuring the safety of the nation’s food supply is the responsibility of an interlocking monitoring system that watches over food production and distribution at every level of government—local, state, and national. Given the complex set of food safety laws, regulations, and responsibilities, even obtaining information about which entity has responsibility for what task can be daunting.¹⁰ In 1997, the Clinton administration created a Food Safety Initiative to strengthen the fight against food-borne illnesses, which afflict between 6.5 million and 33 million Americans every year. The President directed the Secretaries of the U.S. Department of Agriculture and HHS and the Administrator of EPA to identify ways to further improve the safety of the food supply.

One outgrowth of the Food Safety Initiative has been the development of a gateway Web site (www.foodsafety.gov) that is maintained by the FDA’s Center for Food Safety and Applied Nutrition. The site provides links to a wide range of information on food safety, including information on relevant laws, regulations, and enforcement responsibilities. Also included are links to dozens of federal, state, and local agencies involved in food safety and

¹⁰See, for example, *Food Safety: U.S. Needs a Single Agency to Administer a Unified, Risk-Based Inspection System* (GAO/T-RCED-99-256, Aug. 4, 1999) and *Food Safety: Federal Efforts to Ensure the Safety of Imported Foods Are Inconsistent and Unreliable* (GAO/RCED-98-103, Apr. 30, 1998).

buttons on the site's home page that provide safety alerts and methods to report illnesses and product complaints.

States Are Using IT to Facilitate Regulatory Management

A number of agencies in the state governments that we contacted were also using IT to facilitate regulatory management. The applications these state government organizations identified as innovative, like their federal counterparts, represented the range of regulatory management functions. Several of the state innovations were interactive systems that allowed regulated entities to identify their regulatory responsibilities and sometimes to complete the related transactions. One of the innovations was proactive, notifying users of opportunities to participate in rulemaking. States also used other less interactive or proactive IT-based applications to improve traditional management approaches.

Interactive IT Applications Help Regulated Entities Comply With State Requirements

Agencies in four of the states we contacted (Florida, Texas, Virginia, and the State of Washington) have developed IT-based regulatory management systems with extensive interactive capabilities. Most of these systems help regulated entities comply with state requirements.

For example, Florida's Department of Environmental Protection (DEP) has a "One-Stop Permit Registry" (OSPREGY) allowing users to obtain information about all environmental permits administered by the department. (See <http://ospregy.dep.state.fl.us>.) According to a DEP official, OSPREGY was developed as a result of customer comments on how difficult it was to (1) identify the right DEP contact, (2) determine the appropriate permits that had to be filed, (3) determine where the permits had to be filed, and (4) identify the responsible officials for permit approval. To determine what permits a particular activity requires, users first select the Florida county in which the activity will be performed and then identify the type of activity involved (e.g., home building, construction of a boat launch, or road building). OSPREGY then asks a series of questions, culminating in a "Consultation Summary" that lists applicable permit requirements and contact points and provides links to the application forms. The site also contains links to help users determine the fees associated with an application and a link to allow users to check on the status of a submitted application. Although the department has not developed any performance measures for the system, a DEP official said that customer feedback has been very positive.

Another interactive state application is the Texas Railroad Commission's Electronic Compliance and Approval Process (ECAP) system. (See <http://www.rrc.state.tx.us/ecap>.) ECAP streamlines regulatory requirements by implementing a totally paperless workflow that allows users to obtain oil or gas well permits on-line and captures, stores, and transmits oil or gas well permitting information electronically. The system encompasses all aspects of permit requirements, including security/authentication, fee collection, data reuse, and electronic transmission of required attachments. ECAP users can file the appropriate forms, pay the associated fees, and submit the required attachments on-line. Once the commission receives the information, it processes the forms and issues the permit. The industry information is stored by the system so that the user needs to enter facility data only once.

The ECAP project is being implemented through a 3-phase pilot project that will provide the ability to electronically file, process, and approve a drilling permit application. According to commission officials, the first phase of the project has been completed and the second phase will soon be released. The last phase, scheduled for implementation in September 2001, includes data entry of a complex permit, complete integration with existing mainframe computer systems, comprehensive on-line permit approval, and concurrent update of its two database environments. Industry estimates that ECAP will save them between \$3 million to \$6 million annually for drilling permits alone. By 2005, when ECAP is expanded to include all permits and performance reports, commission officials estimate that the savings to industry will be over \$17 million per year, and that the savings for the Railroad Commission could be up to \$1 million per year.

A third example of an interactive state system is the Virginia Department of Motor Vehicle's (DMV) Virtual Customer Service Center. (See <http://www.dmv.state.va.us>.) Through this system, users are able, among other things, to renew licenses and vehicle registrations on-line. A user's information (including digital photographs) is stored within the system, thereby allowing on-line renewals. The Virtual Customer Service Center started by allowing customers to view the catalogue of over 150 different license plates. A customer was able to access the site and determine if a particular personalized message was still available and, if it was, to reserve that message for 90 days. To go further and allow customers to avoid waiting in line, the DMV was able to modify its IT architecture to support Internet-based applications. This involved reviewing the various activities performed by DMV personnel for the different functions and then writing a program that could emulate the various steps. As a result, the Virginia DMV

was able to provide many of the functions performed at the various customer service centers via the Internet.

The State of Washington's Department of Labor and Industries has developed several IT-based "assistance network" systems that are interactive and facilitate compliance with state rules and regulations. Users can access these systems either through the department's Web site (<http://www.lni.wa.gov>) or through a statewide portal called "Access Washington" (<http://access.wa.gov>), which links all state agencies and provides the public with a common access point to state government information and services. The department provides an assistance network that enables users to obtain regulatory information and complete transactions. For example, the systems (1) allow users to determine what labor-related rules are applicable to their operations, (2) provide computer-based training to help employers comply with various labor rules, and (3) offer a training management system to track whether employees are fulfilling training requirements. The department also maintains a database that the public can access to identify registered or certified contractors and to report unregistered contractors. The department is also implementing a site that will allow employers to pay industrial insurance premiums on-line. Officials plan to expand the site to include allowing employers to make other required payments.

Both the Departments of Ecology and Labor and Industries in the State of Washington have developed proactive systems that notify customers by E-mail of upcoming regulatory actions, including the publication of proposed rules, rulemaking hearings, the issuance of interpretive statements, and semiannual regulatory agenda updates. The departments' goal in developing these systems was to provide the public with accurate, current, user-friendly, and timely information related to their rulemaking activities by informing users of new rules or revisions. According to a 1999 Department of Ecology report, the public downloaded more than 3,000 rules per month in its first year of operation, saving the department about \$132,000 in printing and mailing costs.¹¹

¹¹*Regulatory Review Progress Report*, Department of Ecology, State of Washington (Oct. 1999).

States Also Use Less Interactive IT Applications

Some of the IT-based regulatory management applications that the states and others identified were less interactive or proactive, often focusing on providing regulatory information to the public. For example, the previously mentioned Virtual Customer Service Center in the State of Virginia also provides the public with information on a variety of topics—from licensing requirements to waiting times at customer service and telephone centers. Customers are also able to ask questions on-line and receive a response within the next business day.

The State of Washington's Departments of Ecology (<http://www.ecy.wa.gov/>) and Labor and Industry have also developed systems that facilitate the dissemination of information to the public. The Department of Ecology's index of rules, regulations, and related documents is located at one Web site so users can "one-stop shop" for information. This index was created to give the public a crosswalk between the department's various rules and publications. The Department of Labor and Industries also has an index of rules and regulations grouped by program area to provide the public with easier access to the information.

Washington's Department of Ecology is in the process of implementing an on-line comment site that will allow the public the opportunity to submit their comments electronically and have questions addressed by department personnel. Users wishing to comment on a proposed rule will be able to visit the department's Web site and use an on-line form to submit written comments. This form will generate an explanatory statement that combines all comments and responses on a particular proposed rule. User-specific information will be maintained by the system, thereby making it easier for an individual to comment multiple times on various rules and only submit personal information once.

Representatives of Nongovernmental Organizations Suggested Regulatory Management Improvements, Identified Concerns

Representatives from the nongovernmental organizations who participated in our review recognized and supported federal regulatory agencies' current efforts to use IT to improve their regulatory management processes. However, the representatives also said that federal agencies could improve their performance in this area. Specifically, they suggested that agencies improve both the content and access to on-line information, more broadly and consistently use some existing applications, and adopt some new applications. The representatives also expressed concern that the use of IT-based applications in regulatory management could (1) make individuals and businesses more vulnerable to scrutiny and federal

enforcement actions and (2) disadvantage those individuals and businesses with limited technical resources.

Improve On-line Information/Access

The representatives of nongovernmental organizations affected by federal regulations recognized that federal agencies' Web sites already provide regulated entities and others with a great deal of useful information. However, several of the representatives said that these sites vary considerably in terms of their format, content, and ease of navigability. They also said some sites provide a clear link on their home pages to regulatory information, but, in other sites, users must search for the same types of information. One of the representatives said that some agencies are not providing the public with some types of information that could be useful, and that the agencies could do more to disseminate that information electronically to the public and other agencies.

Most of the representatives agreed that agencies should provide as much regulatory information as possible on-line, including information developed during the rulemaking process (e.g., economic analyses, hearing transcripts, and comments from the public) and other types of information (e.g., agencies' agendas of upcoming regulatory actions). Several representatives specifically mentioned the DOT docket management system as a model that could be followed by other agencies. One representative suggested that OMB implement a DOT-type docket system itself and become the model or standard system that other agencies could emulate.

Broader Use of Existing Applications

Several of the representatives suggested that other innovative regulatory management applications that certain agencies are beginning to implement also should be used more broadly. For example, several representatives suggested that more agencies allow the public to comment on proposed rules electronically and make all of the comments the agencies received on a proposed rule available on-line. One person said permitting electronic comments should allow the agencies to save money because fewer staff would be needed to handle the comments received. Other representatives suggested wider use of proactive electronic notification systems (e.g., list servers) to increase the dialog between regulated entities and the public and to encourage more people to get involved in regulatory issues. Another representative suggested that agencies make greater use of video technology and make their public hearings available, either live or on tape, through the agencies' Web sites. According to the representative, this

approach would enable more people to participate in the process, particularly those who were in remote locations or otherwise unable to attend a public hearing on a rule in which they were interested.

Use of New Applications

Some of the applications that the representatives suggested do not, to our knowledge, currently exist. For example, one representative suggested that agencies could develop a “rule cost calculator” that would include all of the costs of complying with a rule. By entering pertinent information about its own business (e.g., type of business or number of employees), a regulated entity could calculate the potential cost of the proposed rule to its business. Others said that they would like to be able to go to one place and find out all applicable federal regulations. One representative said that this kind of one-stop shopping is particularly appealing to small businesses.

Areas of Concern

Although these representatives of affected communities generally encouraged agencies’ efforts to use IT in regulatory management, some also indicated that regulated entities are sometimes nervous about how an agency’s use of technology may affect them. For example, they said regulated entities are concerned that they may be opening themselves up to additional scrutiny and enforcement actions as a result of the electronic trail they might leave if they access or query a regulator’s Web site for information. They said this was of particular concern to regulated entities that must provide private or proprietary information about their business in order for the agency to electronically develop a list of applicable regulations.

In addition, some of the representatives also expressed concerns about the “digital divide”—that is, differences within the regulated community in terms of their technological capabilities. One representative said that some regulated entities, particularly small businesses, do not have the latest technological equipment or the financial or staff resources available to take advantage of the IT-based applications that some of the agencies are developing. Therefore, the representative suggested that it would be best for agencies to make the use of IT for regulatory compliance purposes voluntary, and to continue to allow businesses to comply with regulations and obtain information using traditional approaches.

Factors Facilitating the Development and Diffusion of Innovative IT-based Regulatory Management Approaches

Federal and state agency officials and representatives of nongovernmental organizations identified a number of factors that they believed affect the adoption and diffusion of IT-based approaches in regulatory management: (1) top-level leadership commitment/support, (2) adequate financial resources and human capital, (3) legislative and executive branch initiatives, (4) internal and external partnerships with critical stakeholders, (5) reengineering of existing business processes, and (6) the development of a communication infrastructure.

Top-Level Leadership Commitment/Support

Federal and state agency officials and staff said that the commitment and support of top-level leaders is critical to the successful development and implementation of IT-based systems to improve regulatory management. Federal officials said that leadership commitment is very important in overcoming resistance to changing the traditional ways that agencies conduct business. Officials in DOL said that projects could languish without commitment from the top. Therefore, before beginning to develop an elaws advisor in a new DOL agency, they require that the agency commit the resources—both dollars and people—to ensure successful development.

In some cases, the federal officials indicated that leadership support could be positively influenced by factors outside of the agencies. For example, several officials pointed to the importance of presidential initiatives (e.g., the Clinton administration's E-gov initiative) and congressional mandates (e.g., GPEA) in focusing the agencies' attention and in obtaining the commitment and resources needed to carry out initiatives. An HHS official said that leadership support can also be stimulated by a few pioneers in the agency who have a vision and can sell the idea to agency management. Some of the officials also indicated that leadership support can be engendered by success. For example, a DOT official said that obtaining early demonstrable savings helped obtain top-level support and widespread interest in the Department's docket management system. On the other hand, federal officials also said that frequent changes in top agency leadership could make it difficult to sustain commitment to specific projects. Therefore, they said, agencies need to devise ways to get long-term commitment to proposed innovations that transcends changes in leadership.

All of the state officials and staff that we interviewed also cited the support of top-level management as a key factor in their ability to develop and

implement innovative systems. State officials said that the support of department heads, state CIOs, and/or the states' governors allowed them to consider new ways to address issues raised by customers and develop mechanisms to respond to their concerns. For example, officials in both the State of Washington and the Commonwealth of Virginia cited the enthusiastic support and leadership of their respective governors. In Washington, the governor issued an executive order directing all state agencies to develop and implement technological approaches to regulatory management.¹² In Virginia, the governor made the application of technology to all governmental activities a priority.

Adequate Financial Resources and Human Capital

Federal and state officials and staff also said that leadership commitment involves not only giving initiatives priority and visibility, but also committing appropriate financial resources and human capital to implement IT-based regulatory management applications. Federal officials said that the lack of adequate resources has been the biggest obstacle to implementing innovative IT-based approaches in their respective agencies. However, they recognized that agency leaders must allocate increasingly scarce resources among competing priorities both across programmatic areas and among IT initiatives.

To resolve this issue, several federal officials said that top leadership commitment could help to forge partnerships among program areas and help to obtain the financial resources needed to implement new programs. For example, several program managers at EPA were able to use financial resources provided to the Office of Environmental Information to help develop and implement the agency's electronic reporting initiative. Top-level commitment can also help ensure that adequate human capital is invested in developing these IT-based approaches. One official in the State of Washington emphasized how important it was to the success of the project that leaders in the Department of Ecology dedicated the people that developers needed to complete their work. Without adequate human capital investment, the official said that the department would not have had the right mixture of skills necessary for the development of innovative applications to facilitate regulatory management.

¹²Governor's Executive Order 97-02, *Regulatory Improvement* (Mar. 25, 1997).

Legislative and Executive Branch Initiatives

Several of the federal and state officials said that legislative and executive branch IT initiatives had acted as catalysts in developing IT-based approaches to facilitate regulatory management. As previously mentioned, several of the federal officials that we contacted said that the passage of GPEA had helped them to obtain the top leadership commitment needed to support IT innovations in their agencies. They also said the legislation had helped the agencies develop clear schedules for moving toward the use of IT in regulatory management. OMB officials also said that GPEA had served as an impetus for developing new IT-based approaches to regulatory management. In the State of Washington, agency officials credited Executive Order 97-02 as the impetus for many of the IT-based developments occurring in state agencies. The executive order required all state agencies to review their reporting requirements. The goal of this review was to develop reporting requirements that are coordinated with other state agencies requiring similar information, that are economical and understandable, and that rely on the electronic transfer of information.

Internal and External Partnerships

Federal and state officials and staff said that creating appropriate partnerships—*intra-agency, interagency, and/or public-private*—was also critical in developing systems that facilitated regulatory management. They said that *intra-agency* partnerships helped the agencies eliminate internal “stovepipes” that were a barrier to developing and implementing innovative IT approaches. Federal officials particularly cited the need for internal partnerships between IT and program officials for successful development and implementation of IT projects. They said that developing IT-based management programs is often considered strictly an IT issue, and that program officials (in this case, regulatory officials) often do not get involved with developing those applications for their areas of responsibility. However, federal and state officials and staff said it is essential to involve the people familiar with current regulatory processes and issues in each stage of planning, developing, and implementing new IT applications in their areas of expertise. For example, DOL officials told us that a standard part of the development of a new elaws application is identifying and involving appropriate regulatory managers, subject matter experts, consultants, and lawyers who are knowledgeable about the program. Without this kind of partnership between IT and program office personnel, they said, agencies are likely to automate inefficient processes that will not meet new programmatic needs.

Federal officials also cited the importance of external partnerships in developing and disseminating innovative regulatory management systems.

For example, in developing EPA's electronic reporting initiative, the agency established partnerships with the states through the National Governors Association and the Environmental Council of States. As a result of these partnerships, EPA was able to leverage financial and human capital resources to develop the National Environmental Information Exchange Network. In addition, these partnerships helped ensure that all stakeholders shared information and provided input into the development of system requirements. Although agency officials said that the development of these partnerships had been a huge task, they believed that the final system would yield the results they expected—reduced regulatory burden and consistent data collection and analysis.

State officials also emphasized the benefits of internal and external partnerships. In Florida, the Department of Environmental Protection formed a working group consisting of representatives from other departmental offices to assist in developing OSPREY. Virginia's DMV was able to develop its system through the cooperation of other departmental officials who not only participated in the development process, but also played a key role in the testing and verification of the system before it was released to the public. Texas officials cited the importance of partnerships with the private sector. In Texas, state officials formed a public/private partnership with the regulated community as well as with the federal Department of Energy. Texas officials said that stakeholders' participation in the developmental process ensured that (1) their issues were addressed and (2) that they would assume ownership and use of the system that was developed.

Reengineering of Existing Business Processes

Several of the federal and state agency officials said that comprehensive reengineering of their business processes before developing new systems enabled them to develop more innovative IT-based regulatory management processes. As a result of reengineering, they said they not only increased the efficiency of the selected processes but also eliminated processes that no longer made sense and introduced new ways of relating to the regulated community and the public. However, federal officials cautioned that reengineering their regulatory processes is not always possible because agencies may be legally prohibited from making substantive changes.¹³ Federal officials also said it is sometimes important to implement in segments, rather than undertaking "grand designs." For example, DOL staff involved in the development of the elaws advisors emphasized the importance of modular development within their formal, structured development model. They said that developing and testing key pieces that

they showed to program management helped maintain support for the program. A DOT official also told us that developing the basic capability of the DMS and gradually adding new features and capabilities to meet additional needs as additional resources became available has worked for them. Also, some officials in Washington and Virginia said they believed it is better to seize opportunities and move ahead without substantive reengineering, particularly in developing interactive Internet-based applications. As one official said, “it is better to beg for forgiveness than to ask for permission.”

Communication Infrastructure

State officials also indicated that a well-developed communication infrastructure was important to facilitate the adoption and diffusion of these innovative regulatory management systems. In some cases, the governors in those states were critical to the establishment of that infrastructure. For example, the Governor of the State of Washington created a Subcabinet on Management Improvement and Results that was charged with the responsibility of overseeing the regulatory process and ensuring that the state government “pursues a fair, effective, and sensible regulatory strategy.” The subcabinet’s responsibilities included making recommendations for statutory, administrative, and organizational changes as well as special projects that result in regulatory improvements in state government. In Virginia, the governor appointed a Secretary of Technology who presides as chairman of the governor’s Council on Technology Services. The council consists of 23 representatives from state and local government agencies and institutions and is charged with implementing electronic government in various areas, such as procurement, services, communications, and computing architecture, and coordinating technologies-based systems at all levels of government. The governor of Florida established a similar type of interagency working group that facilitated information sharing and served as a catalyst for partnerships between respective state agencies.

State officials said that the availability of organizations that serve as clearinghouses of information about technological applications in other

¹³As we noted in *Regulatory Burden: Some Agencies’ Claims Regarding Lack of Rulemaking Discretion Have Merit* (GAO/GGD-99-20, Jan. 8, 1999), statutory provisions underlying regulations often give rulemaking agencies little or no discretion in how they can develop regulations. For example, we reported that EPA has no discretion to consider cost or available treatment technologies in developing water quality criteria pursuant to the Clean Water Act.

states helped in not only developing their own systems, but also in disseminating information about their systems to other states. Officials cited several organizations, such as the National Association of State Information Resource Executives, the National Association of State Chief Administrators, the National Governors Association, and the Environmental Council of States, for having served as information conduits among states. They said these organizations sponsor conferences, newsletters, and databases that members may use as mechanisms to inform other entities about the development of systems to address various regulatory management requirements. State officials also said that involving segments of the regulated community provided valuable insights to the process and ensured stakeholder ownership of the resulting system. Officials in Texas, Washington, and Florida said their states had involved members of the regulated community during the development of their systems, and, in each case, the states benefited from the collaboration. In Texas, the oil and gas industries not only provided input into the development process but were also a valuable funding source for the system. In Washington and Florida, members of the regulated community participated in developing the system requirements. This participation in the development process facilitated the implementation of the system since this key group of stakeholders perceived themselves as part of the system, not as having the system imposed on them.

Federal Agencies Suggested Improvements in Communication About Innovations

Federal regulatory officials and staff said they were aware of some, but not all, of the IT-based applications that other agencies, or even other offices within their own agencies, were using to improve regulatory management. They said that most of their knowledge about other agencies' practices came about through ad hoc and informal mechanisms, such as brown-bag lunches by career officials assisting the Regulatory Working Group and meetings sponsored by GAO and others. They told us that there was a need for some type of communication infrastructure to promote more consistent and structured sharing of information about IT innovations to facilitate the diffusion of those innovations across agencies. They said that a new organization was not needed, and that they preferred to use existing groups to share information.

Several federal agency officials also recommended greater use of IT to assist in disseminating information on what other agencies are doing. Some thought that there should be a governmentwide portal focused on regulatory issues or a section of a portal, such as FirstGov, that would be a single point of entry for regulatory agencies as well as the public. One official suggested that there should be an inventory of best practices in the

use of IT in federal regulatory management available on-line. There was widespread interest among federal officials and staff in several types of best practices, including electronic dockets, new options for developing and implementing electronic reporting, and certain interactive models that enable agencies to change the way they interact with the public. Federal officials also said that OMB needed to play a role in facilitating communication regarding this issue. For example, one agency official suggested that OMB devote one meeting each year to discussing innovative applications of IT in regulatory management.

OMB officials noted that the electronic government committee of the CIO Council has more than 1,000 best practices in its inventory of innovative IT applications, and that this information would be available on the Internet soon. Although regulatory management applications are not separately identified, these applications could be highlighted for use in regulatory management. The OMB officials also noted that the agency had taken a number of steps to encourage the use of IT in regulatory management, and that the CIO Council and the National Association of State Information Resource Executives were setting up a working structure for continuing discussion of IT issues between state and federal agencies. Nevertheless, they recognized that more could be done to improve communications among the agencies. For example, they said OMB could encourage interagency forums on the topic of IT in regulatory management and could highlight regulatory issues as part of the agency's oversight of the implementation of GPEA.

Conclusions

Federal and state regulatory agencies are already making extensive use of IT to address traditional regulatory problems and improve regulatory management. However, they are just beginning to realize the full capabilities of IT and the Internet to develop interactive regulatory management practices and facilitate interagency and intergovernmental uses. Our work during this review and during our review last year indicates that innovative IT-based approaches to regulatory management have the potential to increase the amount and quality of public participation in rulemaking, increase regulatory transparency, reduce burden on regulated entities and help them understand their responsibilities, save regulatory agencies money, and improve the quality of agencies' regulatory programs. Most of the agencies that we contacted cited benefits of their innovative IT applications, although few had performance data yet that clearly demonstrated the effect of the innovations on the agencies' efficiency or effectiveness, burden reduction, or other regulatory management

outcomes. Such performance data would be useful as other agencies try to decide which IT-based applications to adopt or adapt in their own agencies.

A key factor in encouraging greater use of IT-based innovations in regulatory management is, ironically, information. Officials in federal regulatory agencies were sometimes unaware of the innovative uses of IT to improve regulatory management in other agencies, and sometimes in other parts of their own agencies. As a result, federal agencies may either not adopt innovative approaches that could be useful to them or reinvent the wheel as they develop their own approaches in those areas. Federal regulatory agency officials told us that there is a need for better communication and sharing of information about innovative IT applications and indicated that existing organizations, such as the CIO Council and the Regulatory Working Group, be used to facilitate information sharing.

Representatives of the nongovernmental organizations and officials and staff in the regulatory agencies themselves also called for greater consistency across agencies' IT-based regulatory management systems. However, both parties cautioned against mandatory conformity. As agency officials told us during our first review, agencies may need to have somewhat different systems because of differences in their operating environments. Also, common IT-based approaches may be more appropriate for some aspects of regulatory management than others. For example, federal rulemaking processes are somewhat similar across federal agencies, so common approaches regarding that aspect of regulatory management may be more appropriate than in other, more idiosyncratic parts of the process (e.g., enforcement or licensing requirements.) Specific options in the rulemaking area could include common approaches for accepting electronic comments on proposed rules, similarly structured electronic docketing systems, and tracking systems that allow agencies to understand the causes of delays in their rulemaking processes. Compliance assistance functions similar to DOL's elaws and OSHA's expert advisor programs appear to have broad applicability.

OIRA is responsible for providing guidance and oversight for both IT and regulatory issues. The OIRA Administrator sits on the CIO Council, which Executive Order 13011 says should allow agencies to "share experiences, ideas, and promising practices." The OIRA Administrator chairs the Regulatory Working Group, which Executive Order 12866 says "shall serve as a forum to assist agencies in identifying and analyzing important

regulatory issues,” including “the development of innovative regulatory techniques.” Although OIRA has taken some steps to encourage the use of IT in regulatory agencies, we believe that it could do more to encourage information sharing among the agencies on IT innovations. For example, OIRA could encourage additional forums on the use of IT in regulatory management, devote a portion of its Web site to innovative IT applications, or work with the CIO Council to encourage dialogue between the regulatory and IT elements of agencies’ workforces. It could also make the use of IT in regulatory management a specific focus in its implementation of GPEA. We also believe that OIRA can work with the agencies to identify specific types of innovative IT-based approaches that multiple agencies could use to improve regulatory management. By implementing common approaches regarding regulatory functions that are used in multiple agencies, the regulatory management approaches can begin to have a more consistent “look and feel,” which some nongovernmental and federal representatives believed is needed.

Recommendations for Executive Action

We recommend that the OIRA Administrator develop a systematic process by which federal agencies can share information regarding the use of innovative IT-based applications in regulatory management. We also recommend that the Administrator work with federal agencies to identify types of innovative IT-based approaches that multiple agencies could use to improve regulatory management.

Agency Comments

On December 20, 2000, we sent a draft of this report to the Director of OMB for his review and comment. OMB officials told us that OMB had no comments on the draft report. We also provided federal and state agency officials with the relevant draft report sections attributed to them to ensure that we correctly characterized their systems and comments. These officials provided several technical corrections, which we incorporated as appropriate.

As we arranged with your offices, unless you publicly announce this report’s contents earlier, we plan no further distribution of it until 30 days after the date of this letter. We will then send copies to Representative Dan Burton, Chairman of the House Committee on Government Reform. We will also provide copies to the Honorable Mitchell E. Daniels, Jr., Director, OMB; the Honorable Ann Veneman, Secretary of Agriculture; the

Honorable Tommy Thompson, Secretary of Health and Human Services; the Honorable Elaine Chao, Secretary of Labor; the Honorable Norman Y. Mineta, Secretary of Transportation; and the Honorable Christine Todd Whitman, Administrator, EPA. We will also make copies available to others and post this report on GAO's home page at www.gao.gov.

If you have any questions regarding this report, please contact me or Curtis Copeland on (202) 512-6806. Key contributors to this assignment were Elizabeth Powell, Joseph Santiago, and Ellen Grady.

A handwritten signature in black ink that reads "Carlotta Joyner". The script is cursive and fluid, with the first name "Carlotta" and last name "Joyner" clearly distinguishable.

Carlotta C. Joyner
Director, Strategic Issues

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