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State E-Government Strategies: Identifying Best Practices and Applications

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Jeffrey W. Seifert
Specialist in Information Science and Technoloy Policy
Research, Science, and Industry Division

Glenn J. McLoughlin
Specialist in Technology and Telecommunications Policy
Research, Science, and Industry Division

Congressional Research Service

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State E-Government Strategies: Identifying Best Practices and Applications

Summary

Although electronic government ("e-government") is currently one of the leading approaches to government reform, a lack of coordination or communication between various initiatives increases the risk of creating more so-called "islands of automation" and "stovepipes" within and between levels of government. To address these issues, Congress is actively overseeing e-government initiatives and is attempting to work with the Office of Management and Budget (OMB) and state governments to identify best practices, standards, and strategies.

This report is based on research conducted under contract by the Lyndon B. Johnson School of Public Affairs as a Policy Research Project (PRP). For this project, graduate students in the Masters of Public Affairs program at the LBJ School of Public Affairs undertook a two semester research program in 2005-2006 to identify some of the best practices in e-government strategies and management being carried out by state governments. Surveys were sent to all 50 states and the District of Columbia, yielding 38 completed surveys. The study also included site visits to six case study states: California, Kentucky, Massachusetts, Texas, Utah, and Washington. A set of core questions was used for each case study interview along with state-specific questions. Based on the results of the surveys and interviews, the students identified several critical factors that influence state e-government programs. They are summarized below:

- Strategies are essential to e-government formulation because they provide objectives for state agencies and governments. The report identifies and analyzes numerous types of strategies.
- Outsourcing is a controversial issue in many states, with a spectrum of policies represented across the country, ranging from prohibiting outsourcing, to near total adoption of outsourcing.
- Funding is an important issue because IT projects are costly and success is uncertain. Legislatures must choose between programs and, in many cases, e-government competes with other priorities.
- State politics and culture can impede or support e-government development. While IT can alter employee and agency functions, such enhancements do not typically cause agencies to be eliminated.
- Strong leadership can support e-government programs and drive IT improvements by encouraging and promoting new projects.
- The degree of centralization or decentralization is a key component in e-government management because it affects the level of interaction between agencies. Web portal centralization is a common trend among many states, and it is often separate from agency organization and decision making. E-government performance measures are essential in evaluating the success of programs, identifying challenges, and addressing specific formulation and implementation challenges.

This report will not be updated.

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State E-Government Strategies: Identifying Best Practices and Applications

Introduction

This report, *State E-Government Strategies: Identifying Best Practices and Applications,* is based on research conducted in 2005-2006 under contract by the Lyndon B. Johnson School of Public Affairs as a Policy Research Project (PRP). PRPs are designed to give students a realistic policy research experience, culminating in a final research product for a client. This PRP involved nine students from the Masters of Public Affairs Program. Professor Sherri Greenberg served as the faculty director.

Electronic government ("e-government") is currently one of the leading approaches to government reform, with initiatives being carried out at the local, tribal, state, national, and international levels. However, frequently there is little meaningful coordination or communication between various e-government initiatives. As a result of independently maturing technologies, there is a risk of creating more so-called "islands of automation" and "stovepipes" within and between levels of government. These problems are further exacerbated by human and financial resource constraints. To address these issues, Congress is actively overseeing e-government initiatives and is attempting to work with OMB and state governments to identify best practices, common standards, and successful strategies.

Due to their variation in geography, demographics, and infrastructure, states serve as laboratories of experimentation for e-government. Federal policymakers may find aspects of state e-government planning and implementation useful examples for future decisions regarding the integration of federal information and services. To that end, graduate students from the LBJ School of Public Affairs at the University of Texas at Austin undertook a two semester research program to identify some of the best practices in e-government strategies and management being carried out by state governments.

For the purposes of this report, electronic government is defined as the use of information technology (IT) to integrate government information and services for citizen, business, government, and other institutional uses. Many consider e-government as part of the evolution and extension of traditional governance. Just as in earlier times when the telephone and fax machine were innovations for government transactions, so is e-government today.

Overview. Increasingly, e-government is an important component in the study of governance. Its role in providing services in a quick, efficient manner to people who may not have had a direct connection to governing institutions in the past makes

it a ripe subject for study. In addition, federal and state e-government programs have evolved considerably since their inception in the early 1990s, and are now much more prevalent. These changes parallel the ever-changing technological environment and shifts in attitudes regarding the relationships between government, and citizens and business.

In this report, the students identified several critical factors that influence state e-government programs. They are summarized below:

- Strategies are essential to e-government formulation because they provide objectives for state agencies and governments. The report identifies and analyzes numerous types of strategies.

- Outsourcing is a controversial issue in many states. The students' research revealed that state governments develop a spectrum of outsourcing policies from balancing in-house projects with outsourced projects, to prohibiting outsourcing, to promoting outsourcing.

- Funding is an important e-government issue because IT projects are costly and their success is uncertain. Legislatures must choose between multiple programs during the budget process and, in many cases, e-government competes with other needs for funding.

- State politics and culture can impede or support e-government development. Public agencies are often averse to IT changes because they can alter employee and agency functions. However, IT enhancements do not typically cause agencies to be eliminated.

- Strong leadership can support e-government programs and drive IT improvements by encouraging and promoting new projects among civil servants and citizens.

- The degree of centralization or decentralization is a key component in e-government management because it determines the level of interaction between administrative agencies involved in IT projects. Web portal centralization is a common trend among many states, and it is often separate from agency organization and decision making. E-government performance measures are essential in evaluating the success of programs, identifying challenges, and addressing specific formulation and implementation challenges.

Surveys and site visits can provide valuable information regarding e-government management and strategies. The students at the LBJ School of Public Affairs created the survey by researching similar surveys, contacting e-government experts, and consulting with CRS specialists. They sent 51 surveys to all 50 states and the District of Columbia and received back 38 completed surveys. They conducted site visits in six case study states: California, Kentucky, Massachusetts, Texas, Utah, and Washington. A set of core questions was used for each case study interview, along with state-specific questions.

The survey results also provide general understanding of e-government differences among the states. The survey trends indicate that most e-government leaders have access to the state governor as needed. Questions about outsourcing show that most states either outsource the majority of their projects (75 — 100%) or outsource very little (0 — 25%). The most frequent leader in state e-government initiatives is the state Chief Information Officer (CIO). However, there are multiple departments involved in e-government, including Finance and Accounting Offices, IT Departments, and Information Resources Departments. States finance e-government from a variety of sources, including operating budgets, federal funds and grants, user fees, and capital funds. The majority of states use at least these four funding mechanisms in addition to secondary sources. Some states voice e-government security concerns for citizens and agency employees. Survey results show that many states are aware of legal restrictions on certain e-services, whereas other states are unaware. States use multiple performance measures to track programs; the most popular methods are customer satisfaction surveys and web tracking using specified metrics for evaluating site and service use online. The types of strategy documents used by states vary widely. Documents named in the survey include IT Plans, information management plans, and IT business plans, among others.

The case study site visits elicited insightful information about interagency management strategies and decision-making processes. States vary in how they conduct e-government initiatives. Some governments, such as Texas, prefer to outsource software and applications development to consulting firms, while other states, such as Massachusetts, emphasize in-house development. Some states, such as Kentucky, encourage public-private partnerships and work closely with community leaders, while others use only intra-agency methods to create e-government programs. Each case study in the report includes state specific information on leadership, strategy documents, implementation, outsourcing, funding, centralization, and state politics and culture. In addition, this report contains a best practices section for each state case study that discusses successful program attributes such as effective communication on all levels, pilot projects for specific applications, and diversified methods of funding.

The findings section of the report discusses the importance of strong leadership in furthering e-government initiatives. Devising a strategy is important, but not all states follow the same process. State e-government strategies vary significantly. Through the survey results and site visits, it was found that multiple entities are involved in the e-government implementation process, ranging from educational institutions to government agencies. In addition, survey respondents contend that there is a trend towards creating centralized systems and procedures for citizens to obtain information through state web portals and other forms of enterprise architecture. Survey evidence also found that funding sources in many states are diverse. While e-government is often implemented as a measure to provide efficiencies and to save costs (e.g., reducing the need for employees to perform some routine tasks such as customer service), actual dollar savings are not always realized by the states. However, e-government presents management challenges, and cost

savings typically do not occur until the later phases of e-government implementation when at least a 30% adoption rate is realized.[1]

Identifying e-government planning and management concepts can facilitate a comparative analysis of state programs. In addition, strategies and management at the state level may provide important "lessons learned" for potential federal e-government initiatives.

President George W. Bush has described new goals and policies for government reform that include citizen-centric online governance and the establishment of the E-Government Fund.[2] This federal mandate proposes to "shift power from a handful of leaders in Washington to individual citizens" by increasing interagency cooperation and reducing redundant applications and procedures. Chief among the federal government changes is the establishment of USA.gov (formerly Firstgov.gov). This portal acts as the official gateway to federal government information and services, and facilitates citizen interaction with the federal government.[3]

Furthermore, e-government is one of the primary oversight jurisdictions of both the U.S. House Committee on Government Reform and the U.S. Senate Committee on Homeland Security and Governmental Affairs. Members of Congress will continue to propose and contemplate legislation regarding e-government. Future legislation could address a number of e-government issues, such as: citizen privacy and safety, national security, intergovernmental coordination, funding and management innovation.

In addition to federal transformation, states also have implemented changes in governance. Many state governments started instituting e-government programs nearly a decade ago to improve interactions with citizens and customers. This report examines the e-government policies and strategies of state governments to provide effective practices and processes. While the public face of e-government tends to be a web page, the larger focus of this report is on management and strategies. Although service provision and site design are critical for effective e-government implementation, management structures and government culture define the direction of the e-government development process.

Methodology. This report includes an examination of existing e-government research to determine critical factors for state e-government evaluation. The students at the LBJ School of Public Policy devised a survey to obtain information on e-government practices which was sent to state Chief Information Officers (CIOs) or equivalent positions. In addition, the report provides a detailed review of the six case

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[1] Val Oveson, CGI-AMS Consultant and Former CIO of the State of Utah, Presentation at the Government Technology Conference, Austin, TX. February 2, 2006.

[2] A Blueprint For New Beginnings — IX. Government Reform [http://www.whitehouse.gov/news/usbudget/blueprint/budix.html].

[3] See [http://www.USA.gov].

study states that were selected for site visits: California, Kentucky, Massachusetts, Texas, Utah, and Washington.

The students reviewed other surveys related to e-government management, service provision, and policy implementation. The research team communicated with university professors and CRS policy specialists to develop and refine survey questions that met the objectives of this study.

The students discussed among themselves and with CRS specialists different methods for determining case study states, and researched which criteria would be the most helpful in identifying potential "e-government best practices and applications." They used the following factors, based on agreed upon categories for evaluation: e-services, integration, centralized versus decentralized systems, e-democracy, and online help. They assigned a number from 1 — 5 (1 being "poor," 5 being "excellent") for each criterion and calculated the sums of each state. The states in different regions were chosen based on evaluation results and CRS guidance. In addition, they considered geographic dispersion, population and demographics in selecting the case study states. They conducted interviews with public officials and contractors using a core set of questions, with additional questions particular to each case study state. Finally, they devised a case study outline format for the final report, which was presented to CRS in July 2006.

Critical Factors for State E-Government Evaluation

A number of factors contributed to the functioning of state e-government programs. Identifying the factors and using them to evaluate programs helped to draw distinctions and make comparisons. Although state e-government programs are markedly different from one another, the factors below are essential in understanding the e-government formulation and implementation process.

Strategies. States utilize different techniques in designing strategies to accomplish their e-government goals. Case studies and research in this report convey a broad spectrum of formal and informal strategies. The documents collected from states include intra-agency communication documents, IT plans, and other documents which do not appear to be "e-government" specific plans, but have e-government goals and strategies embedded in them. Some states may adopt formal published documents, while others may use fluid guidelines or flexible plans which may be augmented as needed. Still other states do not distinguish between "e-government" and "government." The diverse set of strategies among states indicates that there is no single successful formula. While vision is critical to any program, defined processes, strategies, and performance measures also are necessary to achieve e-government goals.[4]

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[4] Schedler et al., *Managing the Electronic Government: From Vision to Practice* (Information Age Publishing Inc., 2004), p. 9; Katherine Barrett and Richard Greene, *Powering Up: How Public Managers Can Take Control of Information Technology* (Congressional Quarterly Press, 2001), p. 66.

Outsourcing. The process of outsourcing, or contracting with an outside firm to develop IT projects, is often contentious.[5] The decision to outsource may depend on the complexity of a new program. Programs that are simple to develop can be administered in-house, or within the public agency. However, "If the system is complex … governments generally have to rely on expertise from the private and nonprofit sectors. This involves some loss of control and decline in autonomy on the part of the bureaucratic agency."[6] Some public officials may choose outsourcing over in-house development because they believe outsourcing reduces the government payroll and improves accountability in the public sector.[7] For some public officials the incentive to outsource is financial: since many technology tasks are now routinely administered, they are 'commoditized' and inexpensive.[8] At times, outsourcing is necessary because governments may lack sufficient funding or expertise to complete projects in-house.[9] Technology companies that have already developed software applications may be less expensive to use because they do not incur the initial research and development costs that an in-house IT department would incur.[10] Also, agencies may lack jurisdiction to provide particular services that are deemed outside of their legal bounds.[11]

Additionally, there are no guarantees that outsourcing projects will lead to successful applications and programs. Although many observers believe e-government will yield high savings, "the upfront investment costs of new technology are substantial and costs savings do not emerge until enough users start taking advantage of electronic delivery systems that government can save money through traditional bricks-and-mortar delivery systems [e.g., traditional office functions associated with service provision]."[12] Moreover, due to the immense costs of many e-government projects, the competitive bidding process, and competition among private vendors in the awarding of contracts, outsourcing has become highly politicized.[13] Contracting problems associated with certain governors and public agencies, often revealed through critical media sources, can undermine the original goals of e-government programs and change the public's perception about the

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[5] Darrell West, *Digital Government: Technology and Public Sector Performance* (Princeton, NJ: Princeton University Press, 2005), p. 35.

[6] Ibid., p. 37.

[7] Ibid., p. 36.

[8] Ibid., p. 35.

[9] Barrett and Greene, op. cit., pp. 88-89.

[10] Blackstone, Erwin A., Michael L. Bognanno, and Simon Hakim. *Innovations in E-Government: The Thoughts of Governors and Mayors*. Lanham, Rowman & Littlefield Publishers, Inc., 2005. p. 7.

[11] John A. O'Looney, *Wiring Governments: Challenges and Possibilities for Public Managers* (Westport, CT: Quorum Books, 2002), pp. 58-59.

[12] West, op. cit., p. 30.

[13] Barrett and Greene, op. cit., p. 20.; West, op. cit., p. 40.

government's ability to administer and provide e-services.[14] Thus, outsourcing and the publicity associated with failed e-government programs can create controversy within administrations and among citizens.

Funding. Governments fund their e-government programs in a variety of ways. These include user fees, financing through a general fund, and public-private partnerships. The financing options may rely on a single funding stream or a combination of multiple funding streams. According to Darrell M. West, a leading expert on digital government, "When economic times are good and governments have abundant resources, tax revenues are a popular way to pay for e-government."[15] However, when resources are limited, "spending on e-government must compete with expenditures for education, health care, and welfare."[16] As a result, proponents of e-government may find it difficult to prioritize e-government over basic social services and other public goods that may be considered more important.

State Culture and Politics. Public officials can enable or hinder the development of state e-government programs. The organizational culture of a public agency often can resist dramatic change within a short amount of time. In addition to organizational factors, the technology field changes very quickly creating a challenges for the public sector to keep pace with innovations. Hence, "public agencies are sometimes reluctant to change course and alter their way of doing things."[17] While state legislatures may mandate specific missions, and technology sometimes can facilitate these objectives, it often is difficult to use new programs and retrain staff in the alternative techniques of a new system.[18] Even with a comprehensive strategy document, lack of agency approval and enthusiasm for new IT programs presents a challenge for executing e-government objectives.[19]

Leadership. Execution of e-government objectives requires strong leadership that champions e-government and works to increase buy-in among stakeholders.[20] Adoption of IT reforms is possible when a leader in the management chain has the power, in terms of political will and capacity, to impose change on the current system.[21] Public officials must operate with long-term vision, overcome implementation challenges, and reinforce the agency's mission.[22] They must mitigate the immediate challenges of agency buy-in and potential resistance. Leaders must

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[14] Barrett and Greene, op. cit., p. 93; West, op. cit., p. 40.

[15] West, op. cit., p. 33.

[16] Ibid.

[17] Ibid., p. 31.

[18] Ibid.

[19] Jane Fountain, *Building the Virtual State: Information Technology and Institutional Change* (Washington D.C.: Brookings Institution Press, 2001), p. 14.

[20] Barrett and Greene, op. cit., p. 70.

[21] Bhatnagar, *E-Government: From Vision to Implementation: A Practical Guide with Case Studies*, (New Delhi: Sage Publications, 2004), p. 93.

[22] Barrett and Greene, op. cit., p. 66.

identify, articulate, and advocate the benefits of e-government and its programs. The difficulty for leaders lies in changing the status quo within the office and encouraging employees to "think outside the box" in how they provide services to the public and businesses.[23]

Centralized/Decentralized Technology Management. The degree of centralization in e-government refers to the administrative structure that manages e-government as well as to the specific infrastructure and presentation of information. The concept of centralization of e-government programs is best understood as a continuum where a system may have both centralized and decentralized processes for implementing and executing agency e-government goals, but may lean more toward one end of the spectrum. The pendulum may swing back and forth, and programs may be more centralized or decentralized depending on state culture, politics, and agency cultures. Neither system guarantees "success" of e-government programs; rather, both systems have advantages and disadvantages.

Usually, centralized administrative systems can allow IT requests to be filtered through one agency or private firm, reducing the variation and duplication in e-government systems. In terms of presentation of e-services and information, states with centralized systems often use a web portal, or a "one-stop-shop," as a way to promote a fully integrated, user-friendly system.

Arguably, states with decentralized e-government systems allow individual agencies more control over e-government administration and content. Agencies can choose which firms to use when they outsource e-services. Some agencies also share the view that decentralized information is considered more accurate because it is provided as close to the source as possible.[24] Decentralized systems arguably can provide agencies with a sense of ownership that can encourage better site management and design.[25] The decision to develop a centralized or decentralized e-government system depends on the economic and political circumstances within a state and the objectives stated in e-government strategies.

Performance Measures. Applying performance measures is essential to evaluate whether e-government is cost efficient, is serving stakeholders, and is being used effectively by government agencies, staff, citizens, and businesses.[26] Depending on the mode of e-government service delivery, agencies can use various quantitative and qualitative output measures to evaluate their e-government programs, including the number of hits on a site, user contact sessions, number of downloads, amount of time spent on site, information accessed most frequently, and number of times forms

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[23] West, op. cit., p. 31.

[24] Franzel and Coursey, "Government Web Portals: Management Issues and the Approaches of Five States" in David G. Garson and Alexei Pavlichev, *Digital Government: Principles and Best Practices* (Hershey, PA: Idea Group Publishing, 2004), 68.

[25] Ibid.

[26] Fountain, op. cit., p. 41; Schedler et al., op. cit., p. 62.

are completed.[27] In terms of cost measures, agencies can evaluate cost savings related to overhead and operating costs, such as paper use, postage, and transportation costs that are incurred through traditional modes of communication. They can also evaluate how employees manage caseloads through face-to-face interaction in contrast to e-government interaction. Performance measures need to be implemented on a regular basis to allow for comprehensive evaluation.[28] Agencies may develop detailed performance measures or they may choose to develop broad measures that can be transferred within the agency among multiple departments.

These critical factors are fundamental to e-government program development and implementation. The survey analysis and case study sections describe differences in them on a state level, and elaborate on their specific affect in managing e-government. Future e-government programs must take these factors into account while considering economic and political constraints that inevitably shape e-government programs.

Phases of E-Government Development. The evolution of e-government programs can be conceptualized in a number of ways. Given a state's political and economic circumstances, programs can develop and change quickly, sometimes "skipping" a developmental phase. In contrast, programs may remain in a particular phase for a longer period due to funding constraints or political pressure to maintain the status quo. A Gartner Group Report from 2000 identified four phases of e-government development that considered the level of information technology used by the government to relay information online (see **Table 1**).[29]

The Gartner Group report identified key development stages for e-government programs describing the level of technological advancement, information and communication abilities, and the kinds of services offered in each phase. The report also noted that there are few countries in the final stages ("transformation") for a number of economic and political reasons. Contrasting and comparing different programs on this level may help researchers and policymakers understand what the next step is for their particular program. It may also enable them to guide the development process toward a more integrative e-government program that allows for more communication and interaction between agencies and citizens and businesses.[30]

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[27] Stowers, Genie N.L., *Issues in E-Commerce and E-Government Service Delivery in Pavlichev and Garson* (Hershey, PA: IGI Global, 2003), p. 175.

[28] Barrett and Greene, op. cit., p. 67.

[29] Sood, Rishi, *The Four Phases of E-Government in the Public Sector Market* (Gartner Group Report, 2000). Cited in Pavlichev, Alexei, and G. David Garson, *Digital Government: Principles and Best Practices* (Hershey, PA: IGI Global, 2003), p. 173.

[30] Another way to conceptualize e-government development comes from a 2002 United Nations (U.N.) report that specifically identified e-government service capabilities at each phase of development. It also accounts for the level of sophistication of websites and describes the kind of information available at each stage. Ronaghan, Stephen A., *Benchmarking E-Government: A Global Perspective, Assessing the Progress of the UN*

(continued...)

Table 1. Delivery of E-Services: Technologies and Examples by Stages of E-Government Developments

Stages of E-Government Development	Service Delivery Modes	Examples of E-Government Services-Internet or Intranet
Presence	- Information access and delivery - Document access and download - Online Mapping/GIS Applications	Providing names and phone numbers of government officials. Allow access to government documents.
Interaction and Communication	- Communication with officials - Multimedia-Streaming and Playback - Interactive discussions	Email forms to allow citizens to send requests for services to government officials Multimedia presentations
Transaction	- Online databases - Online forms - E-Commerce Applications	E-commerce transactions such as the purchase and renewal of licenses, and the purchase of government data or documents
Transformation	- Online Mapping/GIS Applications - E-Permitting/Wireless Applications	Smart permitting involving online request submissions, GIS, document management, 3D modeling of proposed projects, wireless applications

Source: Ronaghan, Stephen A., *Benchmarking E-Government: A Global Perspective, Assessing the Progress of the UN Member States*, as cited in Alexei Pavlichev and G. David Garson, 2003, *Digital Government: Principles and Best Practices* (Hershey, PA: IGI Global), pp. 38-39.

Analysis of Strategy Documents and Survey Results

In this section, the report addresses a number of issues related to identifying recurring themes in e-government implementation. These issues include leadership,

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[30] (...continued)
Member States, as cited in Pavlichev and Garson, op. cit., pp. 38-39.

outsourcing, influence of federal e-government initiatives, strategy development and management, funding, legal and security issues, usage and performance measures, and written strategy documents. Information about these issues was collected by the LBJ students from a review of state government documents and surveys that were mailed and e-mailed to each state's Office of the Chief Information Officer (CIO) or equivalent. Roughly 75% (37 states and the District of Columbia) completed and returned the survey.

Leadership. Leadership is defined as the will of political leaders, management, and line staff to support e-government implementation as a strategy to provide electronically government services to states' clients. These leaders may include the governor, lieutenant governor, house and senate leaders, CIO, agency secretaries (governor's cabinet), agency managers, and IT staff. Leadership may take different forms, such as: governor's IT council, IT boards, IT agencies, or information systems departments, among others.

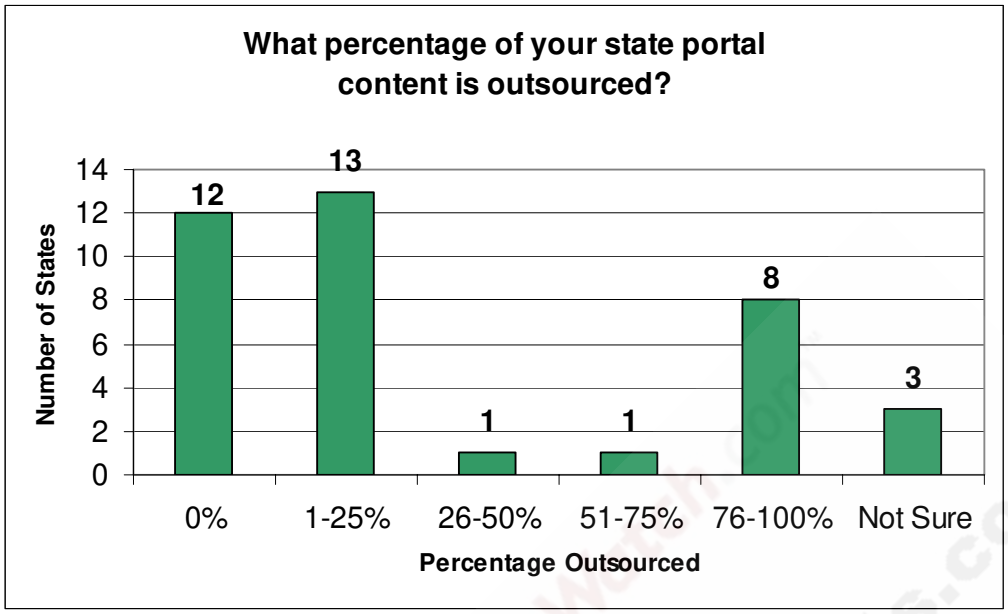
As a leadership factor, the survey asked, "Does your state have an e-government strategy?" Sixty-three percent of respondents indicated that their states have written e-government strategy documents. Thirty-four percent reported not having a document.

While leadership may come from different government positions, the following questions focused on the state CIOs' interactions with their governors. The survey asked, "Do you have direct access to your governor," and "If yes, how often do you have access to the governor?" Nearly 60% of the responses affirmed direct access to the governor, while 38% indicated they did not have direct access. Regarding contact frequency with the governor, 21% reported meeting weekly with the governor, 13% reported meeting monthly, and 21% reported "other," meaning that these states have a different meeting schedule. Approximately 80% of the respondents reported meeting with the governor regularly.

Outsourcing. IT outsourcing is defined as the use by state governments of contracts with private sector companies to provide a host of IT-related services. These services may include website maintenance, database maintenance, state portal website design where visual representation of information is consistent, purchasing, or help desk functions.

The survey asked, "What percentage of your e-government services are outsourced?" Thirty percent of the responding states reported that none of their e-government services were outsourced. Thirty-four percent of the responding states reported outsourcing up to 25% of e-government services. Over 20% reported outsourcing from 75 to 100% of e-government services. Another 5% reported outsourcing levels somewhere between 25 and 75% (see **Figure 1**).

Figure 1. Percentage of Outsourced State Portal Content



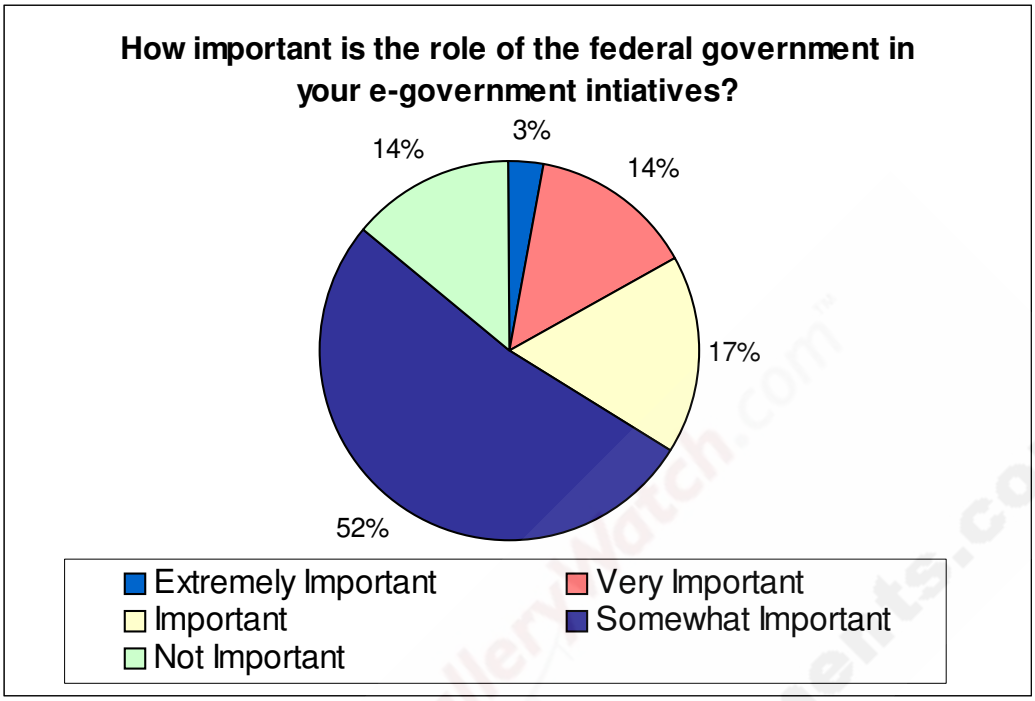
It appears that most states either engage to a large extent in outsourcing or use little to no outsourcing. Additional research could provide greater understanding of outsourcing issues. Specifically, it may be useful for congressional policymakers to know which e-government services states outsource, and the reasons that these services are outsourced, when considering federal initiatives.

Influence of Federal E-Government Initiatives. In 2001, President Bush initiated the President's Management Agenda (PMA), a collection of five government reform efforts with the goal of making the federal government more results-oriented, efficient, and citizen-centered.[31] One of the five PMA key elements deals with expanding e-government in an effort to use IT investments for improving government response time to citizens and businesses. In light of these developments, the survey explored the potential effect of federal e-government initiatives on state e-government formulation and implementation. A look at the relationship between the two could show what kind of influence, if any, the federal government has on state e-government programs.

Question 4 asked whether the survey respondent was familiar with the federal government's e-government strategy. Thirty of the 38 survey respondents answered this question (respondents were given the option to skip to Question 8 if they did not have a written e-government strategic document). Even though not all respondents were state CIOs, many were still senior-level authorities in IT offices (e.g., Deputy Secretary of Information Technology, State Portal Manager, IT Manager, etc.). Out of 30 respondents to this question, ten of them (30%) were not familiar with the federal government's strategy.

[31] Ibid.

Figure 2. Federal Government Relevance in E-Government Initiatives



Of the 29 states that responded to question #5, the 15 states (52%) responded that the federal government was only "Somewhat Important," and 4 states said "Not Important." Of those 19 states that responded either "Somewhat Important" or "Not Important," 10 states did not know what the federal government's e-government initiatives entailed (from Question 4). Thus, even though a response of "Somewhat Important" is open to interpretation and could vary from state to state, the survey results strongly suggested that the role of the federal government is not significant for many states (see **Figure 2**).

Based on these two questions, the results suggest that federal e-government formulation and implementation has been important to relatively few states' e-government planning and execution.

Strategy Development and Management. There are many different players involved in the establishment of e-government strategy, which is represented by Question 7 of the survey. Some states have one person draft the strategy; some states form IT councils; other states have multiple departments working together. The most common model is shared by only 5 states; thus, most states have their own unique model.

Six out of the 38 respondents had one actor establishing e-government strategy. In five states that actor is the CIO, and in the sixth state the governor established the strategy. It is interesting to note that this particular state is also the only state that reported the role of the federal government to be "Extremely Important," and has the most daily unique site visits to its state portal. Other entities involved in e-government strategy include the Department of Finance, the State Legislature or

Executive branch, the Council on Electronic Commerce, and the State Treasurer's Office.

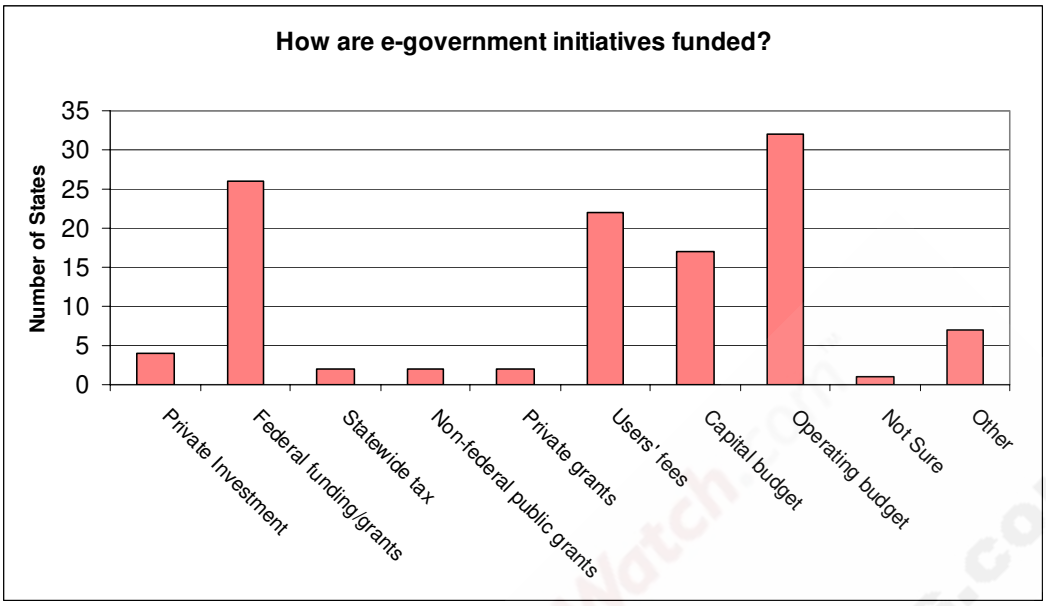
Similarly, Question 8 asked about the players involved in the day-to-day management of state e-government, with a wide range of actors being reported. Again, the most frequent manager is the state CIO, but for many, the management of e-government is carried out by someone other than the CIO. The range of responses included private contracted businesses, the Comptroller, the Department of Accounting and General Services, the Department of Administration, and the Department of Budget and Management.

Despite the presence of many unique models, there was still a clear representation of two heavily involved departments in e-government strategy and activities: information technology and finance/accounting. The two departments or offices nearly rival each other in their roles in e-government. Such a close relationship to financial departments indicates that perhaps e-government is generally still in the stage of providing online services and transactions such as renewing drivers' licenses or filing taxes.

Funding. Transforming and streamlining e-government services and applications for citizens, businesses, and public agencies can be an expensive enterprise. As cited earlier, IT projects often are overlooked when more pressing social concerns, such as health care and social welfare, are at hand. Question 11 of the survey asked how e-government initiatives are funded. The survey focused only on methods of funding and did not ask for the dollar amounts spent on each service or application.

A limitation of this survey question is the inseparable nature of IT programs. For example, e-government necessitates acquiring equipment such as computers for departments to carry out projects. This report is not concerned with how much funding is secured for computer hardware supplies such as replacement keyboards or new LCD monitors, but instead is directed toward e-government initiatives and implementation. However, the nature of IT requires a large expenditure of time and resources in maintaining and upgrading computer-related supplies, so IT equipment acquisitions and e-government initiatives are most likely combined in many governments' financial statements.

Figure 3. Funding for E-Government Initiatives



An examination of the results shows that the state general fund/operating budget is the most common source of funding (32 out of 38 respondents), and that numerous states use two or more types of funding. Out of the six states that do not draw resources from the general fund, four of them have completely different funding models. One is categorized as a business-type activity, since it is a self-funding model that generates revenue through convenience, transaction, and subscription fees. Another state's financing structure is completely decentralized, since it does not have a state IT agency. Hence, individual agency IT departments are forced to fund their own initiatives (see Figure 3). An unconventional funding model reported by one state, relies on data sales such as licensing data to private industries (Texas).

The second most common funding source is the federal government (26 out of 38 respondents). Federal e-government initiatives may not substantially influence state e-government programs, but federal funding certainly has a large impact on state resources, as evidenced by the survey results.

Another significant funding model relies on user fees, employed by 22 out of 38 respondents. User fees are the simplest way of generating revenue, and, with an increasing trend of citizen and business adoption rates, a user fee only model arguably could support most e-government transactions. However, only a little over half of the respondents utilize user fees to finance their e-government initiatives, and in some cases instigating user fees may cause a short-term decrease in adoption rates.

Legal Issues and Security. Security concerns regarding personal information have increased as people rely increasingly upon the Internet for transporting sensitive and personal data. For state governments, this is an important issue because many e-government services require the entry of personal information to complete the transaction. Almost one-fourth of the respondents stated that 50-100% of their portal management is outsourced. Thus, there is a potential need to know who is storing the personal information and where it is stored. Some states

require legislative action to address this concern, while others have left the decision to state CIOs or their equivalents.

The survey included a question regarding the actions states have taken to ensure the privacy and security of citizen information. Almost every state reported employee training and encryption among their top security measures. Furthermore, although there is no recognized universal standard for digital signatures, 50% of respondents say they currently use digital signatures.

Over 40% of the respondents did not have, or were unaware of, legal restrictions on online e-government activities. However, there are certain states that do have statutes specifically limiting what they are able to offer online. For example, the state of Iowa describes the hurdles to providing certain services online:

> The ramifications of signature requirements provide a legal hurdle for the adoption of more online services. The practices of the credit card industry and their requirements in relation to general financial practices of state government also provide impairments. Privacy, security, and identity issues are always addressed by state governments in online services and can provide obstacles for government to implement certain services online.[32]

In stark contrast, Idaho states:

> Currently, none of our planned services are restricted due to legal barriers. There are, however, a number of documents and applications that are not made available online due to privacy or security considerations. Additionally, statute currently requests handwritten or notarized signature for certain filings.[33]

Connecticut said that, in the past, its primary barrier to online services had been financial; fees for services are set by statute. Therefore, agencies would be required to assume the costs of credit card transactions and may not have the funds available to do so.[34]

Although many states do not require legislative authority, the key legal barrier reported in the survey results was providing e-services through secure channels, especially for documents that require signatures. Legislation has typically dealt with the financial structures of e-government, with some limiting what an agency is allowed to charge for online services because of costs associated with credit card transactions.

Usage and Performance Measures. This section of the survey focused on how states market their web presence and how they measure performance. Measuring the value of the return on investment in e-government is difficult without knowing the usage and adoption rates for online services and applications. States

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[32] State of Iowa Survey Response.

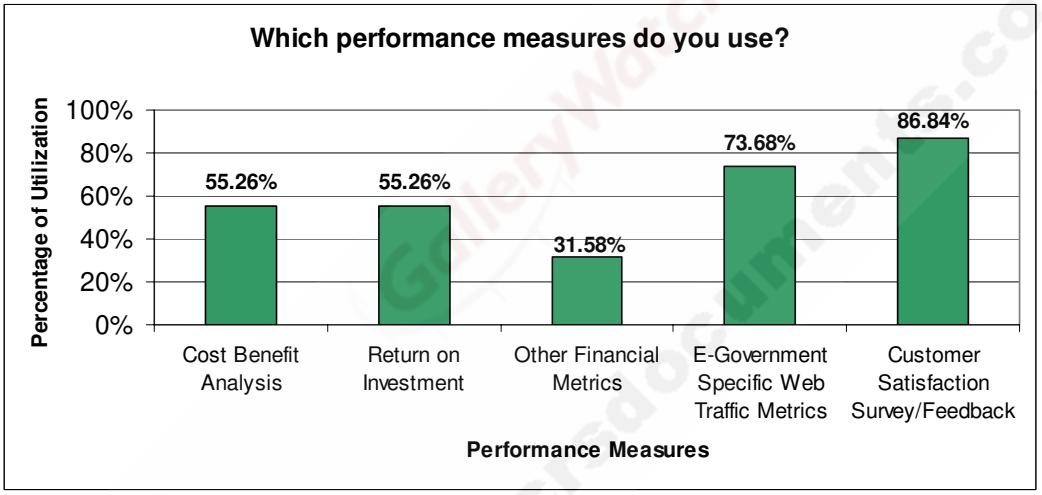
[33] State of Idaho Survey Response.

[34] State of Connecticut Survey Response.

attempt to promote their online existence and measure their performance in a number of ways.

Promoting an online presence is essential for state governments to accomplish goals of increased usage by citizens, businesses, and public agencies. According to survey results, the majority of respondent states use print advertising and e-mail announcements. Over half of the survey respondents still use radio, television, and direct mail to increase awareness of state web portals. Alternative methods include printing the portal web address on license plates and using billboard advertisements to promote the state portals. Marketing specific applications towards target groups appears to be an effective marketing strategy. For example, Kentucky Interactive educates lawyer associations, doctors, and other groups about renewing their licenses online.[35]

Figure 4. E-Government Utilization and Performance Measures



States used multiple performance measures. Eighty-six percent of the respondents used customer satisfaction surveys and feedback as a performance measure. Almost 74% reported using e-government specific web traffic metrics, which are defined as tools used by those who manage and implement web portals to gather data on the amount or type of traffic on a website or web portal (see Figure 4). Such tracking may include most visited sites and the frequency and duration of visits.

About half of the respondents reported using cost benefit analyses and looking at return on investments. It appears that tracking which pages are visited the most, and actually listening to customer feedback using exit surveys and citizen requests are the most beneficial means for continuous improvement because they allow government to address citizen needs more effectively.

Oregon is a state that publicly monitors its online presence. It has a specific web page for web traffic metrics, showing the number of visitors by week, number of visits, the amount of time spent per visit, top five entry and exit pages, and the top five downloads. Knowing this information allows Oregon to adjust its web portal to

[35] Lee Thompson, interview by Renaetta Nance and Lewis Leff, January 26, 2006.

citizens' needs and measure citizen response to different forms of advertising and marketing.[36]

Another important performance measure is adoption rates. Adoption rates measure the usage of online services by comparing the number of transactions processed via the online service with the total number of transactions processed through the phone, web, mail, and at the counter during the same time period. The percentage completed online is the adoption rate for the service. Tracking adoption rates is important to ensure that the e-government service is meeting customer expectations. A marketing plan can drive up adoption rates. However, states must ensure feedback on the service and functionality of online applications.[37]

Written Strategy Documents. A key question in this study is how states use strategy documents to plan and implement e-government initiatives. After researching all 50 states' websites and conducting interviews with high-level state officials in the case study states, it was determined that there is a wide range of beliefs regarding the importance and usefulness of strategy documents.

Over 60% of the responding states have comprehensive IT strategic plans and policy documents. Some of these plans provide insight to specific e-government goals and strategies, but the majority of the plans are general IT strategies. A wide variety of plan authors exist, including technology councils, offices of CTO/CIO, governors' offices, and even private businesses. Information technology strategic plans, enterprise IT plans, e-government strategic plans, statewide IT policies, information management plans, and IT business plans are among the types of documents received from states or found on state websites.

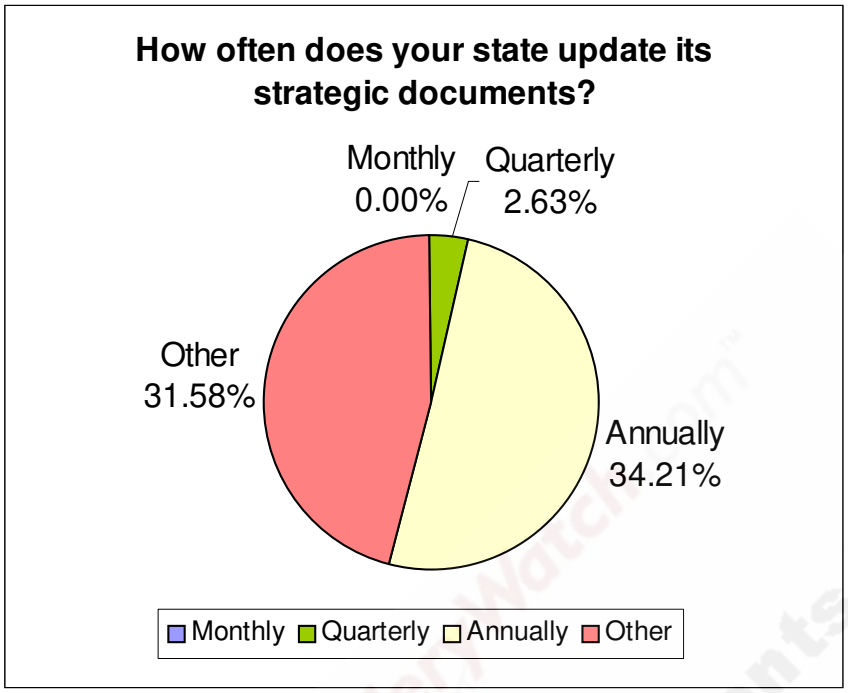
These documents are used to track progress by defining the IT plan and continually monitoring government agencies to ensure the plan is on track. This report reviews documents available from state websites and the documents received with our survey responses. Most states have annual or biennial update periods, but some states have strategy documents that are currently more than two years old (see **Figure 5**).

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[36] Oregon E-Government Program Web Traffic Metrics. December 8, 2005, [http://egov.oregon.gov/DAS/IRMD/EGOV/web_traffic.shtml].

[37] Information Resource of Maine, Adoption Rates. 2005, [http://www.maine.gov/informe/state/marketing/adoption.htm].

Figure 5. State Update of Strategic Documents



A few of the individuals interviewed during the case study site visits said that the strategy documents were not able to keep up with the speed of technology development. One Kentucky official said that it is not worth the time and effort required to write and maintain "glossy" strategy documents when considering the quickness of new program innovation and implementation in real-time.[38] Utah officials said it is not a guiding principle, but the documents do help to keep the agencies better coordinated. Other states clearly put a great deal of effort into their strategy documents because they believe that it helps to measure progress and meet goals. Based on survey responses and case study interviews, there is no universal strategy document or planning process for e-government programs. While strategy documents may be a variable in planning, success also depends on effective implementation, state culture, and state e-government stakeholders.

[38] Former Commissioner Mike Inman, interview by Renaetta Nance and Lewis Leff, Commonwealth Office of Technology, Kentucky, January 26, 2006.

State Case Studies

California

Our goal is a simple one: We want to do IT right.[39]

Leadership. Despite recent IT procurement problems in California, the state has never stopped planning and implementing e-government initiatives. On May 31, 2001, the California Department of Technology Services (DOIT) contracted with Oracle to provide costly software for all state employee computers. However, the $95 million Oracle contract was awarded as a no-bid contract without conducting a departmental needs assessment, and problems ensued. As a result, the governor suspended the state CIO on May 2, 2002; the California Legislature eliminated the DOIT on June 30, 2002; and the State of California canceled the Oracle contract.

The following news report relays the gravity of the offense and the demise of the DOIT:

> The Oracle computer software scandal claimed another casualty Friday when the Department of Information Technology bowed out of state government, closing its doors for the last time ...The demise of the technology oversight body represents a rare — if not unique — case of the sun actually setting on a state department .... 'This is unprecedented, definitely,' said Assemblyman Dean Florez, D-Shafter….[40]

As a result of the Oracle situation and the California Legislature's termination of the DOIT, the governor of California drafted an executive order on July 1, 2002, reassigning duties from the DOIT to other state agencies. In 2003, the state legislature and the Office of the Governor began reconfiguring IT in California.

Support from the Office of the Governor, legislature, and cabinet secretaries is important for the successful implementation of e-government services. The Office of the Governor, following the Oracle problems, appointed a CIO on September 20, 2002. Currently, the state CIO does not head an agency and does not have budgetary authority or formal policy authority. There was a consensus among those interviewed that the state CIO should have IT budget and policy authority. Otherwise, the CIO has limited control over implementation of the state's e-government plan.

Strategy Document. Planning for IT programs in California resumed in 2003. At that time, most IT-related documents were reports created by the state CIO. The first strategic plan was released in 2004 and included six goals:

- Make services more accessible to citizens and state clients.

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[39] Clark Kelso. California State Information Technology Strategic Plan, 2005, [http://www.cio.ca.gov/PDFs/IT_Strategic_Plan_R2.pdf] (April 3, 2006).

[40] Emily Bazar, Oracle Scandal Shuts the Doors at Agency. *The Sacramento Bee*, June 29, 2002, [http://www.sacbee.com/content/politics/story/3387929p-4418355c.html].

- Implement common business applications and systems to improve efficiency and cost-effectiveness.
- Ensure state technology systems are secure and privacy is protected.
- Lower costs and improve the security, reliability and performance of the state's IT infrastructure.
- Develop and rebuild our technology workforce.
- Establish a technology governance structure.[41]

The 2006 strategic plan maintains the same goals as the 2004 plan and its 2005 update,[42] and is a five-year strategic plan with the ultimate goal of "doing IT right." The plan reflects the "collective research and judgement of literally hundreds of the State's IT and program leaders." As part of the effort to accomplish the six strategic goals, a number of other objectives are also outlined. Some of these objectives include promoting interagency and intergovernmental data sharing; leveraging the state's geospatial information assets; promoting the development of a health information exchange; expanding broadband access; developing an integrated financial management system; instituting processes to preserve digital materials; adopting statewide information security and privacy standards; adopting a statewide enterprise architecture; providing for succession planning; investing in personnel; and implementing performance measures. The 2006 strategic plan provides specific dates by which action items are to be initiated or completed, and claims to demonstrate that California has "transitioned from planning to execution."[43]

Implementation. The IT Council makes recommendations for implementation of statewide IT initiatives. Membership on this council consists of information officers and other representatives from a number of state agencies. After projects are reviewed by the IT Council, each representative returns to his or her respective agency to commence implementation. However, uniformity of implementation is difficult to assess because of California government's high level of decentralization.

California offers a variety of online services, such as filing of income tax returns, payment of income taxes, filing of sales and use tax returns, setting of Department of Motor Vehicles (DMV) appointments, and settling of traffic citations. Before the DMV offered online appointment-setting, Californians stood in long lines to complete DMV transactions. In general, Californians responded to these improved online government services favorably. The following article captures this sentiment:

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[41] Office of the California State Information Officer. California State Information Technology Strategic Plan, November 2004. [http://www.cio.ca.gov/pubs/pdf/ITStrategicPlan_111704.pdf].

[42] Governor Arnold Schwarzenegger and Clark Kelso, California State Information Technology Strategic Plan: Update to the 2004 Plan, November 2005, [http://www.cio.ca.gov/pubs/pdf/IT_Strategic_Plan_R2.pdf].

[43] Governor Arnold Schwarzenegger and Clark Kelso, California State Information Technology Strategic Plan: Update to the 2005 Plan, November 2006, [http://www.cio.ca.gov/pubs/pdf/2006StrategicPlanFinal.pdf].

> … Sacramentans have found it to be a timesaver. Tom Rankin, who lives in the Bay area but works in Sacramento, said he tried calling the El Cerrito office many times, but could not get through …. "When I called here (Sacramento), I got through right away, on the first call," Rankin said at the 24th Street headquarters office Tuesday.[44]

One of the goals of the state CIO is to reduce the amount of time constituents spend completing government transactions.

At the time that the interviews were conducted, 100% of vital records were provided online, while rough estimates of the percentage of transactions customers can complete online range from a low of about 25% to a high of about 60% to 70%. Most of these services are transactional. For example, a customer may apply and pay for a driver's license online while also checking the status of the applications.

The Department of Education provides another example explaining why state agencies implement electronic systems. The department has special reporting and performance requirements. For example, the federal No Child Left Behind law requires tracking of academic achievement for individual students. Therefore, the department developed a system to track this data. Enacted in September 2002, Senate Bill 1453 established the California Longitudinal Pupil Achievement Data System (CALPADS), which calls for unique student identification numbers for all students. The longitudinal data collected via this program is linked to achievement standards. Reports are provided to public schools, districts, elected officials, and the general public, as well as to comply with federal reporting requirements.

Outsourcing. Laws and collective bargaining contracts limit the state's ability to outsource. The California State Employees Union (CSEU) is a significant force. The CSEU successfully negotiated with the state to ensure that outsourcing is utilized minimally.[45]

Interviewees indicated that collective bargaining unit contracts are obstacles to outsourcing IT projects. Policy and process modifications are suggested to give the state more outsourcing flexibility. The current process for outsourcing involves the Department of Finance, Department of Personnel, the CSEU, and the department recommending outsourcing. The collective bargaining unit contracts delineate specific timelines, and require consensus before final action may be taken. This process can take up to two years to complete, and advocates for changing the approval process indicate that newer technologies, which are better suited for the project, may become available before approval occurs.

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[44] DMV Appointments Boon to Some Drivers, *The Sacramento Bee*, August 15, 1984, p. B3.

[45] California State Employees Union, SEIU Local 1000, Unit 01 Contract, 2003-2005. [http://www.seiu1000.org/docUploads/FinalBU1-2003-2005.pdf] (February 27, 2006). In its collective bargaining unit contracts, "[t]he union has presented evidence that State departments are presently contracting out work appropriately done by Unit 1, 4, 11, 14, 15 and 20 employees, and that said contracting results in unnecessary additional costs to the State."

Funding. Financing IT projects in California is similar to other states. Projects are funded by a state agency through the state's budget process and finance department. Prior to its elimination, the DOIT reviewed most statewide information technology initiatives. However, since the department's demise, this responsibility is now delegated to each state agency. Thus, funding is very decentralized.

To continue implementing IT plans and raising support for IT, ongoing collaborative research is conducted by subgroups of department CIOs. These subgroups forward their recommendations to the full IT Council. If approved by the IT Council, each department is responsible for implementation of the subgroup's recommendations. An important note here is that the IT Council's decisions are advisory in nature. However, the lead person for each agency serves on this council and has decision authority in their agency.

Once the IT Council agrees that a project should move forward, the Department of Finance (DOF), the state legislature, and governor approve funding through the budget process. The Department of General Services (DGS) does the procurement for state IT services. However, technology changes at a rapid pace and the DOF must screen new programs through a lengthy benefit/cost analysis process. This process may take up to two to three years before technology can be purchased. By this time, prices may increase or newer and better technology may become available.

E-government initiatives also are financed by means other than state funding. In the case of the Department of Education, some programs are funded with federal formula assistance or through competitive grant programs. For example, the California Longitudinal Pupil Achievement Data System is funded with Title VI federal formula assistance. Additional funding was received through competitive grant programs.

Centralized/Decentralized Technology Management. In its current configuration, California's IT system is highly decentralized. One interviewee indicated that centralization may be an appropriate IT governance structure in smaller states, but not for California. However, to develop a similar website look and feel, each agency has a CIO who is a member of the IT Council. The IT Council's mission is to provide guidance to the State CIO, make IT recommendations for implementation by executive agency departments, and consider issues initiated by the state CIO.

IT issues are presented to the IT Council for its consideration. All agency CIOs then work on completion of the approved IT initiatives. This is one manner in which the state CIO is able to effect change without formal budgetary or policy authority.

Best Practices.

- **Planning:** California state leaders identify planning as the first step of e-government development. After consensus is built around a plan, implementation is focused on accomplishing the goals set out in the plan.

- **Buy-in Strategies:** In promoting the plan within the state legislature, e-government leaders in California argue that it is important that IT remain a non-partisan issue.

- **Collaboration:** Due to the decentralized nature of e-governance in California, there is strong intra-agency collaboration that successfully implements e-government strategies by acknowledging different agency goals and circumstances.[46]
- **IT Council:** Collaboration is exemplified in the IT Council that includes high-ranking agency officials and agency CIOs from a variety of different areas in the public sector. The IT Council allows California agencies to develop a common language for conveying expectations and goals in online service provision and intra-agency communication.

- **High-Level Leadership:** The governor supports e-government leaders, enabling the state to advocate and promote initiatives within different levels of government with strong backing from the top. Garnering the governor's support bolsters IT and e-government-friendly legislation and prioritizes IT initiatives.

- **Consolidation:** Consolidation of California's two largest data centers has been one of the top issues for the governor and state CIO in recent years.[47] Despite the historical independence of the two data centers, consolidation is underway with the support of the current governor and state CIO.

Kentucky

> Though Kentucky's recent progress has been swift, there remains much to be accomplished. If we do not act on our dreams, we are destined to remain at the bottom of most technology rankings.[48]

Leadership. Enterprise portal projects benefit from strong enterprise support, particularly when this support comes from all three branches of government. Strong support at all levels of government, or at minimum from one leader such as the governor, can initiate broader acceptance, support, and faster growth. In Kentucky, Governor Ernie Fletcher has emphasized the potential economic benefits of Internet

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[46] Susannah Patton, "Reforming California IT," *CIO Magazine*, 1 December 2004, [http://www.cio.com/archive/120104/reform.html].

[47] Ibid.

[48] ConnectKentucky, Daviess County Strategic Technology Plan, [http://www.connectkentucky.org/NR/rdonlyres/C9FA37EC-F174-4C0F-8F66-EC9FE6CA81FD/0/1_DAVIESSSTRATEGICTECHNOLOGYPLAN.pdf].

broadband availability through his *Prescription for Innovation* plan.[49] The plan is used to help channel the activities of vested parties, from the local level to the Commonwealth Office of Technology (COT), to develop services and encourage citizen use of computers.

Strategy Document. Kentucky does not have a single statewide e-government-specific strategy document. However, the governor's *Prescription for Innovation*, in conjunction with the individual county strategic plans facilitated by ConnectKentucky, appears to many to be an appropriate overall strategy for the Commonwealth. Kentucky Interactive, ConnectKentucky, and the COT may have different responsibilities and internal strategies, but they are interconnected through the governor's *Prescription for Innovation*.

Mike Inman, the COT Commissioner until August 2006, explained that his overarching strategy for better government was guided by four IT factors: improving security, improving services to citizens and government, reducing the cost of IT while enhancing value to business and government, and the governor's *Prescription for Innovation*.[50] ConnectKentucky also refers to the governor's plan to develop e-government strategy. Prior to drafting the *Prescription for Innovation*, the governor met with Brian Mefford, CEO/President of ConnectKentucky, to discuss ConnectKentucky's role in facilitating the plan. From the grassroots level to the Commissioner of Technology, groups work together to implement the *Prescription for Innovation*.

The governor's plan stands as a framework, or living document, that is used as a guide by all planning groups. It establishes aggressive goals for broadband deployment and technology adoption, including:

- Making broadband available to all citizens, businesses, and local governments by 2007;
- Dramatically improving adoption of computers and the Internet;
- Developing meaningful online applications for local government, businesses, educators, and other sectors;
- Establishing local "eCommunity Leadership Teams" in every county to promote technology growth for local government, business, education, healthcare, agriculture, libraries, tourism, and city-based organizations.[51]

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[49] Governor Fletcher's Prescription for Innovation: Broadband for a 21st Century Kentucky, 2004, [http://www.connectkentucky.org/NR/rdonlyres/C1442B01-F774-4DAC-BE0C-A5A50AE447D9/0/PrescriptionforInnovationExecutiveSummary.pdf].

[50] Commissioner Mike Inman, interview by Renaetta Nance and Lewis Leff, January 26, 2006.

[51] ConnectKentucky, Daviess County Strategic Technology Plan, [http://www.connectkentucky.org/NR/rdonlyres/C9FA37EC-F174-4C0F-8F66-

As a largely rural state, an important challenge for the governor and other e-government leaders has been to increase the availability of broadband and develop a stronger government presence online. The governor's plan has proven to be successful. According to a recently released report from the FCC, Kentucky leads the nation in its rate of broadband adoption growth over the past two years. In 2003, approximately 60% of Kentucky households had the ability to subscribe to broadband. At the end of 2005, an estimated 77% of households could access broadband.[52] This is an increase of more than 240,000 households over a two-year time period.[53] During this same time actual home broadband usage increased from 22% to 32%.[54]

Governor Fletcher's *Prescription for Innovation* is being implemented through ConnectKentucky in partnership with local community leaders. The individual county strategic plans, developed by the local technology leadership teams, complement the recent surge in broadband adoption. These documents serve as roadmaps for technology-based growth and economic development. ConnectKentucky assists community leaders with the development of county plans by engaging in many strategic activities, including benchmarking current uses of technology, recommending a strategic approach to adopting appropriate applications, researching applications that will enhance the economic vitality of the community, providing project management to ensure successful implementation, and encouraging investment from providers such as cable or telecommunications companies and municipalities.[55]

Implementation. Kentucky's approach is based on the collaborative efforts of government, citizens, businesses, educational institutions, and the private sector. However, the core of this relationship is three-tiered. It is comprised of the COT; Kentucky Interactive, LLC; and ConnectKentucky.

The COT is Kentucky's primary technology organization for providing leadership and governance of all aspects of information technology. The commissioner's priorities are for an efficient, effective, and economical administration of IT and related sources. In a more practical sense, the COT oversees all IT projects and focuses on back-end system management, including IT security, redundancy, data storage, server hosting, and voice communication networks.

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[51] (...continued)
EC9FE6CA81FD/0/1_DAVIESSSTRATEGICTECHNOLOGYPLAN.pdf].

[52] Ibid.

[53] Ibid.

[54] ConnectKentucky, Broadband Adoption and Barriers, [http://connectkentucky.org/NR/rdonlyres/2F6BAAC1-A6D0-4DD7-BEDF-385030488D6C/0/CKdocSRSBroadbandAdoptionBenchmarks.pdf], August 2006.

[55] ConnectKentucky, Daviess County Strategic Technology Plan, [http://www.connectkentucky.org/NR/rdonlyres/C9FA37EC-F174-4C0F-8F66-EC9FE6CA81FD/0/1_DAVIESSSTRATEGICTECHNOLOGYPLAN.pdf].

With more than 500 employees and three main offices, the commissioner of the COT organizes and manages the infrastructure of e-government while granting a large amount of autonomy in the area of portal management to the state's private partner, Kentucky Interactive. For example, if a state agency wants to develop a particular service online it has two channels. It can file a request through the COT or it can go to Kentucky Interactive/Kentucky.gov directly. If it goes directly to Kentucky Interactive, the portal manager must share that information with COT. However, the portal manager will prioritize the project under the oversight of the Commissioner's office and begin to develop it with a lot of independence from the COT. When it is a project that will require back-end modifications or mainframe integration, there is a collaborative approach between the COT and Kentucky Interactive.[56]

Kentucky Interactive is a wholly-owned subsidiary of NIC, Inc., a publicly held company that builds and manages official government websites and e-government services. Kentucky Interactive is responsible for the development, management, hosting and marketing of the state portal on behalf of the Commonwealth of Kentucky. Awarded the contract in February 2003, Kentucky Interactive's goals are to expand the base of users who can access public information, increase the amount of public information available, and provide more opportunities for online transactions with the Commonwealth of Kentucky.[57]

The third player is ConnectKentucky, a not-for-profit "alliance of leaders in private industry, government, and universities," formed in 2000 by then-Governor Paul Patton.[58] ConnectKentucky and Governor Patton met once a quarter to work on behalf of the legislative and executive branches as a consulting-type resource. Both parties tracked the progress of technology use in Kentucky, investigated upcoming innovations, and benchmarked Kentucky with other states. When Governor Fletcher came into office, ConnectKentucky was asked to lead his *Prescription for Innovation*, one of his main policy initiatives. Today, ConnectKentucky serves as a unified effort to drive technology policy and e-government initiatives.

A notable feature of ConnectKentucky's methodology is the grassroots nature of its approach. Whereas many states develop top down approaches to e-government strategy, Kentucky starts at the bottom to generate vision and support for the larger state plan. The governor's state IT plan becomes increasingly effective as more citizens on the county and local levels develop a sense of ownership.

At the local level, the process of building an online presence for local government normally begins with a kick-off event in each county. ConnectKentucky lays out what is happening in macro terms, transfers ownership of the state initiative to local leaders, and generates excitement about projects. Teams are comprised of local and county leaders, educators, hospital CEOs, local businesses, county judges, and mayors, among others. The team monitors county plans through self-evaluation

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[56] Lee Tompkins, interview by Renaetta Nance and Lewis Leff, January 26, 2006.

[57] See [http://www.kentucky.gov/about/faqkygov.htm].

[58] See [http://www.connectkentucky.org/about/].

and development of a business plan tailored to the needs of the specific county.[59] Through this innovative strategy, citizens at the local level are empowered to explore how e-government can improve their lives and communities through decisions that delineate services most appropriate for their county.

Outsourcing. Brian Mefford, the President and CEO of ConnectKentucky, believes that independence and the public/private partnership model are critical to the success of e-government in Kentucky. The main state portal, Kentucky.gov, is a government service administered for the good of the public that also benefits from the entrepreneurial spirit and efficiencies found in private business. It exemplifies a true public-private partnership between the Commonwealth and Kentucky Interactive, LLC.[60]

A benefit of this particular private partnership derives from the fact that Kentucky Interactive is a subsidiary of a larger company, NIC, which works in 17 other states across the United States.[61] Thus, Kentucky Interactive can share knowledge about application development and execution. This works to the advantage of the state because Kentucky.gov is able to integrate proven applications in a shorter time frame than those states that must finance their own research and development of new applications.

Funding. During the bidding process, one of the most important factors was the no-cost, self-funding financial component. Primary funding for the portal comes from the assessment of enhanced access fees for a select set of commercially valuable services without the use of any tax dollar appropriations. Leveraging enhanced access fees for a small number of services that are traditionally coupled with fees (primarily high-volume business applications) allows Kentucky Interactive to develop a tremendous range of free services that provide a public good.[62]

According to Kentucky Interactive, the self-funding model encourages the private partner and the Commonwealth to build online services that the constituents want, works efficiently to identify and create new online services, and invests in marketing activities to drive e-government adoption.[63] Increased online service adoption is essential to the private partner because fees drive the return on investment. However, "99% of all information and services available on Kentucky.gov are free to the public."[64]

In February 2005, the Commonwealth renewed its e-government services contract with Kentucky Interactive for two more years. Under the procurement and budget process of the Commonwealth, the contract may be renewed for three

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[59] Brian Mefford, interview by Renaetta Nance and Lewis Leff, January 27, 2006.

[60] Ibid.

[61] See [http://www.nicusa.com/html/].

[62] See [http://www.kentucky.gov/about/].

[63] Ibid.

[64] See [http://www.techlines.ky.gov/2007/jun/].

additional two-year periods. It is important to note that, if the contract is not renewed and either awarded to another private party or managed in-house, Kentucky Interactive can grant the Commonwealth a perpetual use license so that the software-based applications can still be used. However, Kentucky Interactive will own the intellectual property rights to the software and would have to transition the applicable assets per the contract to the Commonwealth while continuing to receive revenue from the applications it developed during the term of the contract.

Centralized/Decentralized Technology Management. The "All State Agency Contract" with Kentucky Interactive allows a wide range of public agencies and offices to use the contract without going through a request for proposal (RFP) process every time they want to provide a new service to their constituency. In many cases, an RFP can take as long as six months or more to process. The all agency contract allows state agencies and local government to work directly with Kentucky Interactive to develop their services. Kentucky Interactive provides a template of the agency's main business elements, and works with the agency to develop and personalize its webpage and services.

All state websites are encouraged to exhibit a "common look and feel." The end result is an aesthetically fluid state portal with the new state brand incorporated on nearly every page. Furthermore, intention-based navigation, combined with topical and organizational navigation, provides a view of Kentucky government as a single entity, not as a series of independent agencies and support processes. The portal provides a consistent, intention-driven way to access government information and services.

Kentucky Interactive creates the websites for state or local government agencies. It also manages the content on the larger sites, including the portal, or it provides enterprise content management tools and training to individual agencies so they can manage their own content and site. Kentucky Interactive trains agencies to use the tools so they can quickly and efficiently maintain the content on their state or local government site. Following a free training session on the content management tool, a public employee may manage the site's content in various ways. Employees can make graphic image changes, generate press releases, and update photo galleries, speeches, or event calendars on their websites without filing an RFP or contacting Kentucky Interactive.

Best Practices.

- **Public/Private/Non-profit Partnership:** The partnership with NIC provides access to many shared resources at no cost to the state. This partnership allows Kentucky's e-government programs to keep up with technology through an efficient and effective private business model while avoiding traditionally slow bureaucratic decision models.

- **Existing Infrastructure:** Kentucky has the basic technology infrastructure in place for expanding e-government.

- **Secure Systems and Widespread Access:** Kentucky is committed to maintaining a high-level of security, redundancy systems, and high-speed Internet access for most citizens.

- **All-inclusive Strategy:** The state has a far-reaching strategy with strong support from the governor that includes a wide range of interested parties: local and state government, universities, private businesses, and citizens.

- **Regional Approach:** Kentucky's approach is regional as opposed to top-down.
- **Target Marketing:** Kentucky Interactive markets and promotes applications for agencies to help them drive the adoption of their online services and specifically targets the users benefitting most from the services to drive adoption rates. ConnectKentucky's style of marketing frames the issue with the five 'As': availability, affordability, awareness, applications, and adoption at the tip of the pyramid.[65]

Massachusetts

> The continued effectiveness of state government depends on the health and strength of the state's information technology foundation.[66]

Leadership. In Massachusetts, the executive branch consists of four independently elected constitutional officers (Attorney General, Auditor, Secretary of State and Treasurer) and the executive department (the governor, lieutenant governor, and the executive offices and agencies reporting to the governor).

Under the Executive Office of Administration and Finance, the CIO has the "responsibility to set IT standards; review and approve secretariat and department IT strategic plans; be involved in the planning, design, and operation of IT systems; and manage central IT systems, as well as the Commonwealth's mailing operations" for Executive Department agencies.[67] The subdivisions within the Information Technology Division (ITD) that report to the CIO and/or Deputy CIO are Operational Services, Portal and Customer Outreach, Applications Services, Human Resources, Project Management, Enterprise Security, and Technology Finance. Each of these

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[65] ConnectKentucky, Daviess County Strategic Technology Plan, [http://www.connectkentucky.org/NR/rdonlyres/C9FA37EC-F174-4C0F-8F66-EC9FE6CA81FD/0/1_DAVIESSSTRATEGICTECHNOLOGYPLAN.pdf].

[66] Office of the CIO, Information Technology Division of the Commonwealth of Massachusetts, Message from the CIO. 2006, [http://www.mass.gov/?pageID=itdutilities&L=1&sid=Aitd&U=cio_gutierrez_message].

[67] Office of the CIO, Information Technology Division of the Commonwealth of Massachusetts, 2006, [http://www.mass.gov/?pageID=itdmodulechunk&&L=1&L0=Home&sid=Aitd&b=terminalcontent&f=_organization_administration&csid=Aitd].

functional groups has a group manager. Each group also has its own management structure.

The ITD coordinates e-government initiatives within the executive department via the Mass.Gov portal and other means. However, executive department e-government planning decisions do not influence IT planning in other branches and constitutional offices due to the constitutional separation of powers.[68] Still, the ITD and the other branches and constitutional offices have worked together to produce uniformity, and the ITD has "sponsored or supported several successful multibranch efforts to reach across branches to address IT issues."[69] Although the ITD and the CIO exist within the Executive Department, the CIO is not, in itself, a cabinet-level position. Nevertheless, the CIO reports directly to the Secretary of Administration and Finance, and in such a manner can influence key policy initiatives.

Although the ITD has a CIO as the head of the division, IT leadership is far from a single-person effort. All those with a vested interest in the enterprise have a say in IT governance initiatives. For instance, the IT Commission — a joint public-private effort — advises the CIO on matters concerning future direction and management.[70] Additionally, former CIO Peter Quinn created an informal "kitchen cabinet" with the goal of involving the large Executive Department agencies that had a major stake in the success of e-government. He gathered major players from the Department of Revenue, Massachusetts Highway Department, and Health and Human Services, to name a few. Since clients would now have access to e-government services, the CIO realized the need to incorporate unique agency needs.

Strategic Documents. In March 2001, a 75-member cross-branch, public-private E-Government Task Force, led by the governor, Administration and Finance, and the ITD, published the "E-Gov Strategic Plan." This document, the result of several months of work, provided the long-term vision, strategic intent, and conceptual direction for the Commonwealth's e-government future. The "E-Gov Strategic Plan" noted the benefits of e-government, the then current environment of e-government, new investment opportunities, and a roadmap for future project development. The Commonwealth is still working to implement components of this comprehensive plan. Additional direction on e-government is prescribed by the Enterprise Technical Reference Model (ETRM). The ETRM "[provides] an architectural framework used to identify the standards, specifications and technologies that support the Commonwealth's computing environment."[71] This document notes issues pertaining to domain management, technical advancement, and other disciplines essential to the administration of the e-government portal and services. Additionally, the IT Commission's "Enterprise IT Strategy" provides

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[68] Linda Hamel, Esq., General Counsel, e-mail message, April 28, 2006.

[69] Ibid.

[70] Claudia Boldman, Director of Policy and Architecture, e-mail message, May 12, 2006.

[71] Enterprise Technical Reference Model Version 3.5, Information Technology Division of the Commonwealth of Massachusetts, 21 September 2005, [http://www.mass.gov/?pageID=itdsubtopic&L=4&L0=Home&L1=Open+Initiatives&L2=Policies&L3=Enterprise+Technical+Reference+Model+-+Version+3.5&sid=Aitd].

direction for the Commonwealth's IT initiatives. For example, the document notes that improvements and additions to IT face certain challenges: mainly, (1) expectations by constituents for e-government services; (2) the emphasis on homeland security; (3) the current economic environment; and (4) transitions in leadership.[72]

Implementation. Recently, Massachusetts has made efforts to better coordinate the numerous governmental agencies both within branches (vertical coordination) and cross-jurisdiction (horizontal coordination). Most notable in this endeavor is the establishment of open standards. In its Open Standards Policy, the "[government] must ensure that its investments in IT result in systems that are sufficiently interoperable to meet business requirements of its agencies and to effectively serve its constituents."[73] By establishing this standard, the ITD maintains a degree of uniformity in technology and decision-making across agencies. In the IT Acquisition Policy, the Commonwealth notes a responsibility to provide IT solutions based on "best value after careful consideration of all possible alternatives including proprietary, public sector code sharing and open source solutions."[74] Thus, the Commonwealth recognizes that certain solutions may not be available or cost-effective from private vendors. At such a point, the Commonwealth may explore open source solutions. Open source refers to software "built upon the principle that end users should be given source code and should be free to use, share, modify and enhance software products, with the goal of widespread interoperability and permissive incorporation into new technology."[75]

In terms of benchmarks and performance measures, Massachusetts has no defined targets. Nevertheless, a few subjects interest the government and have a bearing on how agencies manage Mass.Gov and e-government. The simplest mark to determine usage is a traffic count. However, this measure fails to explain project successes, as it does not quantify user satisfaction and ease of operation. In the past, the web portal had a user survey link, but Mass.Gov no longer uses the questionnaire. Mass.Gov serves as an aggregator of services and information. Individual agencies may have their own performance measures. In addition to measuring within the site, Massachusetts also realizes the importance of searching beyond its borders. It acknowledges other state e-government projects, with Utah, Texas, and Virginia

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[72] Executive Summary, Enterprise IT Strategy, IT Commission, Commonwealth of Massachusetts, February 2003.

[73] Enterprise Open Standards Policy, Information Technology Division of the Commonwealth of Massachusetts, January 13, 2004, [http://www.mass.gov/?pageID=itdterminal&&L=3&L0=Home&L1=Policies%2c+Standards+%26+Legal&L2=Open+Standards&sid=Aitd&b=terminalcontent&f=_policies_standards_open_standards_policy&csid=Aitd].

[74] IT Acquisition Policy, Information Technology Division of the Commonwealth of Massachusetts,13 January 2004, [http://www.mass.gov/?pageID=itdterminal&L=3&L0=Home&L1=Policies%2C+Standards+%26+Legal&L2=Open+Standards&sid=Aitd&b=terminalcontent&f=_policies_standards_it_acquisition_policy1&csid=Aitd].

[75] Open Sources, Information Technology Division of the Commonwealth of Massachusetts, October 16, 2003, [http://www.mass.gov/?pageID=itdsubtopic&L=3&L0=Home&L1=Open+Initiatives&L2=Open+Source&sid=Aitd].

serving as peer examples. Maine and Rhode Island offer expertise in New England. Individuals interviewed in the Mass.Gov offices particularly favored the manner in which Fairfax County, Virginia, has established its framework for e-government.

Outsourcing. The Commonwealth of Massachusetts employs a combination of in-house and outsourced approaches to IT project implementation and management, depending on the size and scope of the project. For instance, the Commonwealth recently established an office within the Application Services group, which can take on small to mid-sized development efforts using a team of individuals with various open-source and proprietary skill sets. However, there are many other instances where the Commonwealth does not possess the necessary resources or skill sets to implement a particular IT solution. In those situations, the Commonwealth engages the services of IT vendors, who are chosen through pre-established competitive procurement guidelines. However, the Commonwealth does not outsource jobs that can be done by state employees, pursuant to the 1993 Privatization Law (sometimes referred to as the Pacheco Law, in reference to State Senator Marc Pacheco, who introduced the legislation).[76]

Funding. Another concern for e-government is adequate funding. The chief concern of government and IT agencies is demographic change. Massachusetts has an aging population with approximately 1.85 million citizens 62 years or older.[77] This population comprises roughly 30% of the Commonwealth's estimated 6.3 million citizens. Given this demographic sector, more money from the annual budget will be earmarked for Health and Human Services to meet growing medical costs in future years. As a result, the ITD must search for creative methods to adequately provide services to citizens with the possibility of receiving smaller budget allotments. Currently, ITD finances its projects through a combination of direct legislative appropriations, IT bonds, and charge-back fees. The ITD is constantly researching and implementing strategies to more efficiently meet the IT needs of its agencies. One recent initiative is the development of a framework of guidelines and open standards aimed at long-term interoperability.

Centralized/Decentralized Technology Management. In Massachusetts, the branches of government have little cross-agency interaction and conformity. This type of government leads to an entrenched agency or branch identity, and makes it difficult to integrate e-government services under a uniform standard. In order to obtain the desired interoperability, agencies need to understand the mission of e-government and, in particular, the concept of open standards. The implementation of e-government is decentralized. However, it is moving toward greater integration. Similarly, e-government management also is decentralized. While the CIO and the ITD strive to coordinate agencies, they have yet to convince all agencies to get on board. According to interviewees, agencies will be more convinced when they begin to see the effectiveness of the open standards initiative.

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[76] Linda Hamel, Esq. General Counsel, interview by Michael D. MacVay and Jon Lee, January 23, 2006.

[77] Profile of General Demographic Characteristics: 2000. Census 2000, The Commonwealth of Massachusetts, [http://www.nmcog.org/Census/General_Demographic_2000.htm].

Best Practices.

- **Mass.Gov:** For Massachusetts, the idea of electronic governance is based on efficiency and facilitation. ITD sees Mass.Gov as a way to "enable a citizen, or business, to work with several different government organizations at the same time from within a single web page."[78]
- **Open Standards:** The ITD believes an open standards policy prevents having to "re-architect"[79] as new problems arise.[80] Open standards allow for an interchangeability of solutions and promote coordination across the entire enterprise.

- **Streamlining Government and Cost Effectiveness:** Massachusetts searches for efficient solutions to IT problems. The solutions may involve the use of private vendors or the possibility of open source software providing flexibility to meet changing circumstances.

- **In-house Decision Making:** The ITD does not outsource any of its management workload, and only the processing of transactions involving money transfers is outsourced. By retaining the management of its electronic government, the ITD believes that it maintains the core-competency of government.

- **Easy Access to Services:** Mass.Gov attempts to ease access to services most frequently requested through a short-list on the portal's home page with an end goal that all state government services be included within the portal. These services are the "low-hanging fruit" that attract most transactions.[81]

- **Cross-Agency Coordination:** The ITD and its portal management at Mass.Gov have a goal to create a highly mobile exchange across jurisdictions, so its vision of open standards and cooperation can take hold.[82] The ITD seeks to overcome the healthy mistrust amongst the different governmental agencies and branches.

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[78] Task Force Workgroup Reports, Information Technology Division of The Commonwealth of Massachusetts, 2006, [http://www.mass.gov/?pageID=itdterminal&&L=4&L0=Home&L1=IT+Planning+%26+Finance&L2=Strategic+Planning&L3=E-Gov+Strategic+Plan&sid=Aitd&b=terminalcontent&f=publications_6_workgroup_reports&csid=Aitd].

[79] Re-architect: refers to redesigning infrastructure, policy, or software to fit the needs of new policies or departments.

[80] Lawrence Gilmond, Chief Applications Officer, interview by Michael D. MacVay and Jon Lee, January 24, 2006.

[81] Bob Nevins, Chief, Portal and Customer Outreach, and Susan Parker, Director of Mass.Gov, interview by Michael D. MacVay and Jon Lee, January 24, 2006.

[82] Lawrence Gilmond, Chief Applications Officer, interview by Michael D. MacVay and Jon Lee, January 24, 2006.

Texas

Effective planning and management are key to judicious use of taxpayer funds by state government for IT initiatives.[83]

Leadership. The Texas Department of Information Resources (DIR) directs and implements IT initiatives that assist the state government in reaching constituencies and efficiently performing governmental operations. The primary mission of the DIR is to develop and manage a clear vision of IT-enabled government. In a more practical sense, the department supports agency needs through IT procurement and service development, coordination of enterprise-wide projects, and active communication with the state legislature.

Primary leadership for state IT initiatives is vested in both the Chief Technology Officer (CTO), Larry Olson, and a group of gubernatorial appointees from the private sector, non-profit environment, and academia. They constitute the DIR Board of Directors. Board members meet on a quarterly basis to review strategy and monitor performance. Together, the CTO and the Board provide the leadership and vision required to successfully implement such a large enterprise portal project.

The governor acts as an interested participant, often sharing ideas and vision with the DIR, but does not take an active public role in leading the charge. Unlike other states that have a centralized cabinet under the executive branch, DIR Director Larry Olson (who is also the CTO for the state) and other state agency directors are semi-independent agencies in the executive branch. In spite of this decentralized system, the DIR and other agency directors maintain an open working relationship with the governor's office. Ideas about IT and e-government are shared for mutual benefit. In other words, "[the director] has the Governor's offices' ear."[84]

Strategic Documents. The DIR has authored the State Strategic Plan FY2005-FY2009, an internal document with basic targets, directions, and goals for fiscal years 2005-2009. The document sets a mission, vision, and philosophy, and also reveals statewide goals and benchmarks. The Strategic Plan FY2005-FY2009 also discusses organizational structure, financial aspects, economic variables, and legal issues and statutes.[85] In addition to addressing issues specific to the department, the State Strategic Plan also sets statewide direction with respect to information and communications technologies. Texas Technology, a magazine produced by eRepublic, is a quarterly publication offering regional news and best practices germane to state and local government.[86]

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[83] Department of Information Resources, Agency Strategic Plan for Fiscal Years 2005-09, [http://www.dir.state.tx.us/dir_overview/stratplan2005-9/index.htm].

[84] Larry Olson, interview by Renaetta Nance, Mike MacVey, and Ladi Mosadomi, February 23, 2006.

[85] Department of Information Resources, Agency Strategic Plan for Fiscal Years 2005-09, [http://www.dir.state.tx.us/dir_overview/stratplan2005-9/index.htm].

[86] Larry Olson, interview by Renaetta Nance, Mike MacVey, and Ladi Mosadomi, February

(continued...)

Implementation. For any large decentralized state, a clear and effective division of labor is key to successful implementation of public initiatives. The DIR executes the Board of Director's initiatives through five specialized divisions: Strategic Initiatives, IT security, Telecommunications, Service Delivery, and Statewide Technology Operations. Service improvement and design is very important to both the DIR and BearingPoint, the consulting company that the state primarily contracts with for e-government application research and development. The DIR utilizes a wide variety of user input mechanisms to refine its applications, including a general design and function road map that is heavily constituent-based.[87] Moreover, a customer service team works with agencies to develop satisfactory practices and applications while the Executive Director of the agency works with each DIR division.

Five Divisions of DIR.

- **Strategic Initiatives Division:** This division of the DIR is primarily responsible for the research and development of IT throughout the state. One of its primary responsibilities involves the development of the state strategic plan for information resources management. This plan is heavily influenced by research on IT trends, periodic policy and standards reviews, and best practices noticed within the state.

- **IT Security Division:** IT Security currently is a top priority for the DIR, and this division is responsible for working with state agencies on the security of their data, portals, and information systems. It also is responsible for assessing and implementing statewide online security, communicating emergency alerts, and periodic threat assessments.

- **Telecommunications Division:** This division maintains the 211 networks for information for the state and is vital in providing communication services to citizens. Among other tasks, the division maintains the Capital Complex Telephone System and the statewide telecommunications network, TEX-AN 200. This division of the DIR was integral in enabling the routing of 211 calls around the state during Hurricanes Katrina and Rita.

- **Service Delivery Division:** This division is responsible for overseeing the implementation of statewide initiatives. As the supply-chain implementer, this division does the contracting and procurement for IT for education, state government agencies, and local government agencies. It also maintains customer service with the agencies and other public-sector customers. The Service

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[86] (...continued)
23, 2006.

[87] Ibid.

Delivery Division is the primary group responsible for administering the TexasOnline contract.

- **Statewide Technology Operations Division:** This division is responsible for the consolidation of statewide data to increase security, improve disaster recovery speed, and enable agencies to share data. It is also responsible for statewide email and messaging services.

The DIR allows each state agency to operate at its own pace, while attempting to bring all agencies under a shared web portal. Individual agencies maintain control of their portal and are the hosts and managers of their own content and applications.[88] When necessary, an agency will inform BearingPoint of particular online needs, and work with the company to develop online services and applications to execute state services more efficiently.

The CTO strongly believes that the mission of a state agency is not to concern itself with IT infrastructure functions and needs. Instead, the core missions of the agencies should be to execute their mission strategy, while sharing common IT services. The DIR equips state agencies with the proper tools for successful execution of their strategies, including, but not limited to, the provision of data management systems, security, networking, performance measurement, shared applications, interoperability, and commodity procurements. The DIR is accountable for the procurement and management of technical services to facilitate the execution of individual agency missions, thereby reducing overall costs of daily operations.[89]

Outsourcing. Texas maintains an interesting relationship with the private sector in terms of the management of its online content. To keep the costs of developing and maintaining IT infrastructure and applications low and to avoid any up-front investment, the DIR has contracted with BearingPoint, a private consulting company. Speaking on behalf of the DIR, the CTO maintained that the partnership is an efficient relationship in which BearingPoint maintains financial incentive to improve e-government services for Texas and the state maintains ownership of those services.

The public-private contract exit strategy is unique to Texas. This exit strategy, engineered with the winning bidder and designed to expire in 2009, gives Texas ownership, while still generating significant revenue for the state. By offering incentives, this fundamental business concept provides Texas with a win-win partnership designed to improve its services.

Funding. TexasOnline assesses user fees for online service transactions (approximately 800 online applications). Through May 2004, users conducted more than 25.6 million payment transactions online. The DIR anticipates that cumulative

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[88] Ryan Coates. interview by Renaetta Nance and Mike MacVay, February 23, 2006.

[89] Department of Information Resources, Message From the Director, [http://www.dir.state.tx.us/dir_overview/director.htm].

revenue collected via the portal will top $3.4 billion by September 2006, and the site currently receives more than two million unique visitors each month.[90] The DIR will have collected over $35 million dollars for the state of Texas in unappropriated general revenue by 2009.[91] More importantly, non-revenue generating services, like veteran's affairs, governmental business, and voter registration projects, are supported through the revenue generated by other fee-for-service transactions.

Texas House Bill (HB) 1516, passed by the 79th Legislature in 2005 and signed into law by Governor Rick Perry on June 18, 2005 (effective 9/1/2005), mandates that the DIR negotiate statewide contracts for commercially available items like hardware, software, and technology services with outside vendors. By centralizing procurement statewide, the DIR can "leverage the purchasing power of all state agencies when negotiating contracts with the vendor community."[92] Aggregating the state's commodity purchases through common contract vehicles is intended to (1) reduce IT costs, (2) decrease administrative costs, (3) maximize value, (4) develop common IT procurement processes, and (5) create an advocate on an enterprise level. The legislation is a cost-effective measure because it also requires all state agencies to procure necessary and related items only through DIR centrally-negotiated contracts. In fact, the Texas Legislative Budget Board estimates that HB1516 will have a two-year net positive impact of $15,436,963 towards the state's general revenue.

Centralized/Decentralized Technology Management. The public face of Texas state government is the state's online portal. However, the portal is a collaborative effort stemming from the partnership of public and private enterprise. Based on the State Constitution, the State of Texas has a highly decentralized governance system, since the governor does not have a cabinet. Unlike other governments where agencies are integrated within branches and are accountable to cabinet authorities, Texas agencies have great autonomy and personal accountability. This governance style has created roadblocks in coordinating state technological initiatives. For the last year and a half, the DIR has been able to gather different bodies under shared applications, while maintaining individual agency self-determination. Prior to that point, overcoming strong bureaucratic identities made integration of technology very difficult.[93]

Management within the DIR is centralized, but the relationship between the DIR and BearingPoint creates a more decentralized overall structure. As explained previously, the internal hierarchy consists of a head, the CTO, and five main divisions. The private vendor houses data, manages the day-to-day portal activities,

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[90] Department of Information Resources, Agency Strategic Plan for Fiscal Years 2005-09, [http://www.dir.state.tx.us/dir_overview/stratplan2005-9/index.htm].

[91] Larry Olson, interview by Renaetta Nance, Mike MacVay, and Ladi Mosadomi, February 23, 2006.

[92] Department of Information Resources, IT Commodity Purchasing Program-Guidelines and Instructions, [http://www.dir.state.tx.us/commodities/program.htm].

[93] Department of Information Resources, IT Commodity Purchasing Program-Guidelines and Instructions, [http://www.dir.state.tx.us/commodities/program.htm].

and is responsible for marketing the site. While BearingPoint appears to function with a great deal of autonomy, the DIR and its Board of Directors have the final say on budgets and all new portal projects.

Best Practices.

- **DIR Board of Directors:** This appointed body provides leadership through input from the public and private sector, non-profits, and academia.

- **Division of Labor:** The DIR delegates responsibility to smaller internal bodies in order to create a more precise focus on the Board of Directors' initiatives.

- **Public-Private Partnership:** The relationship with BearingPoint allows the DIR to focus on management and decision-making without the concern of data maintenance. Also, the DIR achieves cost minimization and "profit" maximization through its partnership with BearingPoint.

- **Securing Property Rights:** Although the DIR outsources some of the labor, the department maintains control over intellectual property rights.

- **Limited Control of Other Agencies:** The DIR allows state agencies to pursue their core mission objectives by providing adequate technical support for those mission objectives.

- **Understanding of Cost Savings in E-Government:** Texas has completed a number of studies of online services that identify how much the state could save if citizen adoption rates were to reach different levels. For example, for online tax services, the state could save up to $1.9 million if "they achieved a 30 percent take-up rate, but fully $6.3 million if the adoption rate was 100 percent."[94] Additionally, the Texas Department of Agriculture has studied adoption rates in relation to cost savings.[95] Thus, Texas state agencies are aware of the potential cost savings that occur when adoption rates pass a certain threshold.

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[94] Cost-Benefit Study of Online Services, Texas Online Authority, Department of Information Resources, January 2006. [http://www.dir.state.tx.us/TIC/dir_info/dirpubs.htm] As cited in "Cutting Fat, Adding Muscle: The Power of Information Technology in Addressing Budget Shortfalls," Deloitte Research Public Sector Study, 2006. p. 19.

[95] Presentation by Victor Gonzalez, Chief Information Officer, Texas Department of Agriculture, Government Technology Conference, Austin, TX. February 2, 2006.

Utah

> We document the State of Utah's IT strategic direction based on the articulated strategies and business plans of State officials, Agencies, and other key stakeholders, coupled with ongoing understanding of IT industry and technology trends .... Our goal is to maintain an IT Strategic Plan that optimizes both State-wide needs and the priority local needs of State Agencies.[96]

Leadership. Former Utah Governor Mike Leavitt championed the incorporation of e-government in state governance as early as 1993. Under his direction, the Utah Information Technology Commission (ITC) was created to include the three branches of government, as well as citizens and businesses. The commission was established to review and propose legislation enabling transparent, efficient, and accessible government. Over time, this group has been adjusted to form the Utah Technology Commission (UTC), with a similar agenda. An Executive Branch committee, referred to as the Product Management Council, is a collection of product managers from state agencies. These managers are dedicated to facilitating cross-agency collaboration, offering input to the CIO regarding agency e-government initiatives, and providing recommendations to the CIO and business on e-government directions. Some of the most relevant actors in the e-government strategy development process are the Product Management Council, business leaders, and the CIO. Currently, the CIO coordinates with the Product Management Council in developing the state's overall e-government strategic process. Together, they take recommendations from agencies and make suggestions to agencies on implementation.

The CIO and Product Management Council monitor state services from the centralized Department of Technology Services (DTS) and agency perspectives. In 2005, House Bill 109 established the DTS as a centralized IT agency. State agencies are responsible for developing their own e-government strategies and using those strategies to drive product delivery in their business models.

Strategy and execution of the e-government process is managed by experienced individuals with a history of government work. Information technology is critical in executing the e-government process; technological infrastructure is necessary to offer services. Utah adheres to management and planning processes with the goal of improving governance to drive its e-government strategy. Actors within the DTS, the governor's office, and an integration partner, Utah Interactive, are committed to managing "Utah.gov" and its domains to the best of their abilities, making the site user-friendly and relevant to constituents.

Strategy Document. Utah has several e-government strategic documents that define its operating parameters and guide the progress of e-government initiatives, including IT strategy and enterprise architecture documents, which will continue to evolve throughout the DTS transition process. The IT plans are created within the executive branch agencies and summarize each of the agencies' unique IT and

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[96] Foundational Requirements and Guiding Objectives for DTS. Department of Technology Services Transition Team, State of Utah. November 29, 2005.

e-government plans. The document "Foundational Requirements and Guiding Objectives for DTS" provides guidance for development of e-government goals and objectives.

During the research period in January 2006, Utah was modifying its formal information technology strategy. Before July 1, 2005, agencies maintained authority to execute their business services electronically using in-house IT personnel and resources. Since January 2006, Utah has been transitioning away from this system and creating an optimized IT department, the DTS, to consolidate all of the state agencies' IT functions into a single department.[97] The goal of the optimization is to increase the number and quality of services offered without increasing the costs of providing them.

Implementation. Utah's successful e-government program is largely the result of sound leadership and decentralized agency strategy execution. Former Governor Mike Leavitt sponsored the GRAMA (Government Records Access and Management Act).[98] This legislation mandated requirements for the digitization of records and the use of online communication; both tools were essential for transforming government into a more transparent entity. By 1995, Utah pioneered an early web presence and soon after began winning awards recognizing its homepage.[99]

In 1999, the state contracted with Utah Interactive, a subsidiary of NIC, Inc., to privately manage the web portal and centralize Utah's major online operations and applications. Agencies, which are responsible for executing their services, negotiate with Utah Interactive in developing their services. Since 1999, over 400 services have been brought online to the "one-stop shopping" portal. The state's e-government actors emphasize customer service in the e-government strategy development process.

Utah uses performance measures, including returns-on-investment; increasing services, but not budgets; e-government web trafficking matrices; and customer satisfaction and feedback. Each agency utilizes additional agency-specific performance measures to evaluate its business models. These measures include tracking repeat usage, adoption, and efficiency (compared to private markets). Utah's overall e-government strategy is framed with agencies' business goals in mind. Each agency has input into what applications and services are offered to best serve its customers. New agency portals accessed through Utah.gov undergo extensive testing by new and old users to measure ease of navigation and relevance of information. Extensive marketing to promote brand familiarity is also conducted. Expanding suites of services and service improvement remain top priorities for Utah's DTS.

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[97] Randy Hughes and David Fletcher, interview by Sumaya Saati and Oladimeji Mosadomi, 23 January 2006.

[98] Rich North, Policy Analyst and Utah Technology Commission Member, interview by Sumaya Saati and Oladimeji Mosadomi, January 24, 2006.

[99] Presentation by David Fletcher, eGov Summit, Salt Lake City, Utah, January 23, 2006.

Outsourcing. Utah Interactive develops user-friendly, self-funding applications and services at no cost to the state. As a subsidiary of NIC, Inc., the entity focuses on e-government portal management, successful initiatives, and has an advantage of institutional knowledge and replicable models. If Utah Interactive is unable to provide cost-effective services, an agency is permitted to outsource projects with the permission of the CIO, who is also the Executive Director of the DTS.

Funding. Since agencies are responsible for their own e-government initiatives, agency budgets cover expenses for new online projects supported by the DTS. An internal service fund finances the central IT department, eliminating the need to increase taxes or request more funding from the legislature. Since the creation of the DTS involves the re-organization and streamlining of existing positions, the state should not incur new costs.

Centralized/Decentralized Technology Management. As of January 2006, the state was undergoing a transition whereby roughly 1,000 ITS employees would be converted into DTS employees and given the option to convert from merit career civil-service status to at-will status. Relocating IT staff from individual agencies to a centralized structure while simultaneously altering individuals' employment status caused early concern for some employees, which was offset by incentives for those wishing to convert. The difficulty of altering 1,000 job descriptions, re-training employees, and eliminating positions was compounded by the lack of additional funding. House Bill 109 outlined the structure for IT in the state, but did not allocate new dollars to the process. The financial burden rests on agencies to develop contracts with the new state agency, the DTS.[100] Many state actors anticipate this strategy will be cost effective because IT services are provided by employees from one department rather than individual agencies.

The Product Management Council encourages collaboration between agency product managers on e-government initiatives.[101] For example, a product manager at the DMV can execute the department's mission statement by collaborating with sister agencies and Utah Interactive to develop online applications with the technical assistance of the DTS. Cooperation between the CIO's office, DTS, and agencies is summarized by the DTS Mission: bringing value and innovation to Utah through service and technology.

Best Practices.

- **Streamlined and Uniform Agency Platforms:** Coordinating the IT functions of numerous state agencies is facilitated by the Product Management Council. While the CIO and E-government Director play vital leadership roles in approving initiatives, various councils

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[100] Rich North, Policy Analyst and Utah Technology Commission Member, interview by Sumaya Saati and Oladimeji Mosadomi, 24 January 2006.

[101] Electronic Product Management Council. 2004, [http://path.utah.gov/tipofmonth/tipofmonth.htm].

comprised of agency heads, citizens, businesses and lawmakers collaborate to share information and pool resources.

- **Improvement-focused Agencies:** Agencies' individual mission statements are dedicated to efficiency in delivering services and information, often incorporating the use of technologies for service expansion. E-government initiatives utilized by each agency are summarized into "Plan IT" and shared throughout the enterprise.

- **Strong Leadership:** Support for e-government adoption comes from government leadership in both the legislative and executive branches. Agency heads are able to effectively communicate strategies and provide resources to their own agencies.

- **Efficiency and Cost-effectiveness:** Utah focuses on efficiency by providing more services at the same or reduced costs. House Bill 109's consolidation of government employees is expected to result in a more flexible agency able to support other agencies' IT needs with fewer employees and more resources.

- **Enabling Legislation:** Utah enacted legislation mandating digitized, open, and transparent government utilizing electronic technology to accomplish such goals. The GRAMA Act paves the way for e-government adoption by authorizing the exploration of revolutionary initiatives.

- **Uniting Agencies and Technology:** Utah aligns the business model of the state agency with IT capabilities to enhance or create e-government solutions. This forms a unique partnership across state government that transforms the method in which business is conducted.

Washington

> Effective Government - The Pacific Northwest is one of the most technology savvy areas in the country. To ensure that we meet the expectations of our citizens and deliver the most effective government possible, we must maximize our investment in technology, share infrastructure across government jurisdictions and evaluate and challenge business assumptions continually.[102]

Leadership. The current governor, Christine Gregoire, and her predecessor, Gary Locke, made technology a high priority in their administrations. Their actions gave the necessary resources and power to the CIO and Department of Information Services (DIS) to make huge advances in technology, trailblazing the way for e-government. The CIO also serves as the Director of the DIS. The dual role allows

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[102] Washington State Department of Information Services, 2005-2007 Strategic Plan May 2004, [http://dis.wa.gov/news/publications/05-07strategicplan.pdf].

for strategy and policy formation as well as for implementation and service delivery.[103]

Washington has instituted a program called GMAP (Government Management, Accountability & Performance) that establishes a management panel chaired by the governor, with participation by agency directors from the Finance Department, Personnel Department, and the CIO, among other agencies.[104] The panel considers the management of state programs, and how well state programs are meeting performance objectives. Information technology is a key component of GMAP program management and service delivery.[105]

Information technology strategy is based on the priorities of government (POG) established by the state so that all investments of public resources go to projects and services that are considered the highest priorities. The model is designed to bring together agencies with complementary services, and establishes interagency groups to determine the most efficient use of resources. The governor then uses that information in establishing budget priorities.[106]

Strategy Document. The DIS produces a Strategic Plan that is updated biennially. The former CIO released the 2005-2007 plan on May 1, 2004.[107] The guiding concepts of the plan are "Reliability" and "Effective Government."[108] Washington, in its Strategic Plan, recognizes that technology is vital to the provision of government services in the most "responsive and accountable" manner.[109] Some core values include "ethics and integrity, innovation, valued employees and customer service."[110] The strategic objectives and future direction include:

- Ensure business continuity for major IT systems;
- Continue digital government leadership through innovation;
- Balance stewardship and innovation with effective oversight practices;
- Encourage and enable collaboration;
- Seek additional cost advantages for DIS customers;
- Continue sound, strategic business practices to improve efficiency and effectiveness; and

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[103] Gary Robinson, interview by Eve Richter and Bill Moreno, January 3, 2006.

[104] Christine Gregoire, Government Accountability, 2005, [http://www.governor.wa.gov/gmap/].

[105] Ibid.

[106] Ibid.

[107] The most recent plan (2007-2009) was released in May 2006, after the research for this report was completed.

[108] Washington State Department of Information Services, 2005-2007 Strategic Plan May 2004, [http://dis.wa.gov/news/publications/05-07strategicplan.pdf].

[109] Ibid.

[110] Ibid.

- Attract, develop and retain human resources for continuity.[111]

The goals and strategies enumerated in the Strategic Plan are consistent with the information gathered from the interviews and from Washington's e-government success. The plan includes an assessment of performance and accomplishments from the previous iteration, and lays out goals for the next two years in the form of "Objectives, Strategies and Direction."[112]

Implementation. Washington treats its e-government initiative like a business, and employs continuous improvement strategies to ensure that customers are receiving the service that they need in a convenient manner. The Digital Properties and Interactive Technologies staff conducts focus groups and surveys of users to constantly collect and use feedback to improve service delivery. Rather than assuming or guessing how customers are using services or what improvements they need, they use data to strategize and make changes as needed. Customer service provides FAQs, self-guided online help, and live chat assistance, which is outsourced. Through this process, the state has determined that it has a 64% satisfaction rate among citizens, but lower scores (in the 50s) among business users.[113] This disparity has led to a renewed focus on improving provision of services to businesses. A business portal initiative is underway to address this deficit and better serve the business community in Washington. Washington uses benchmarking extensively, against FirstGov, the American Cancer Society, and certain government websites. Washington strives for a customer satisfaction rate of 68% or above.[114]

To improve citizen and business usage of online-provided services, Washington conducted a large media campaign in 2005. The media campaign lasted two months and included bus ads, radio spots, web ads, and local TV commercial spots. Digital Properties staff attends trade shows and cross-advertises with agency websites. Cross-advertising serves agencies and the state as visitors to an agency site are directed to the state site, and visitors to the state site are reminded of individual agency sites. A usage increase was evident during the peak of the media buy. While the success and impact of the campaign is unknown, the state has a largely tech-savvy population, and Department statistics indicate that adoption rates of e-government services are fairly high for both citizens and businesses.[115]

All branches of government appear to work well together in Washington. The legislature, judiciary, governor, and CIO cooperate to strategize and provide

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[111] Ibid.

[112] Ibid.

[113] Rhonda Polidori and Laura Parma, interview by Eve Richter and Bill Moreno, January 4, 2006.

[114] Ibid.

[115] Ibid.

e-government services. For the most part, when legislative solutions are needed, the legislature is responsive and willing to accommodate.[116]

Washington maintains a data warehouse offsite recovery center in the eastern part of the state. If the center has an outage, the state can get back up and run at the offsite location. Critical state services are a top priority for backup capability, and the state employs a common standard for emergency communication interoperability. The DIS offers consolidated enterprise disaster recovery management. The department works with agencies to identify needs and the governor approves the plans.[117] The Data Center is "one of the largest in the Northwest, processing 92.1 million online mainframe transactions each month."[118] Financial processing is one of the critical operations performed at the center, so reliability of the center is essential.[119]

Outsourcing. All portal and web services are provided by in-house technical staff, with some targeted outsourcing for search, help center, and translation services. Eighty percent of all DIS expenditures are to purchase services from the private sector, including telecommunications services and large application development. Only small to medium-sized applications are developed "in-house." The Digital Government Web Properties division at the DIS maintains primary responsibility for the web portal, and, with a relatively small budget, a small number of staff manages the operations of the portal and web services applications.[120]

Funding. Most DIS activity is supported by revolving accounts that fund the utilization of department services and are allocated to agencies in the budget. The agencies then "purchase" needed services from DIS at a price that includes the actual cost of the provision of services, depreciation calculations, and a margin. The excess above cost is used by the DIS to finance investments in new technology and infrastructure. The DIS strives to provide enterprise solutions that can be used by numerous agencies. Typically, infrastructure is provided by DIS, and funds to develop specific applications are obtained through the budget process. Some projects are financed traditionally through the budget process. In those cases, the legislature must decide directly if a project is worth the investment of the state. At times, transaction fees cover the costs of applications, as with hunting licenses.[121]

Centralized/Decentralized Technology Management. Washington is centralized to a great degree, and is focused on centralizing even more through enterprise strategies. The DIS has dual responsibility for providing services and

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[116] Gary Robinson, interview by Eve Richter and Bill Moreno, January 4, 2006.

[117] Ibid.

[118] Washington State Department of Information Services, 2005-2007 Strategic Plan May 2004, [http://dis.wa.gov/news/publications/05-07strategicplan.pdf].

[119] Ibid.

[120] Gary Robinson, interview by Eve Richter and Bill Moreno, January 4, 2006; Rhonda Polidori and Laura Parma, interview by Eve Richter and Bill Moreno, January 4, 2006.

[121] Gary Robinson, interview by Eve Richter and Bill Moreno, January 4, 2006.

strategy, standards, and project oversight. Therefore, DIS shares responsibility with any given agency for the success or failure of any technological undertaking. Through its enterprise approach, DIS has been working with agencies to consolidate services and information, not just for the efficiency and convenience of the government, but also for the citizens and businesses that utilize government services. The consolidation of services and data, as well as the provision of services in new ways, has allowed agencies to better serve citizens. Improvements for e-government users and traditional users occur because employee time is freed up. Thus, employees can offer better service to all customers.[122]

An interesting process used by Washington is the Digital Academy, wherein representatives from numerous agencies are brought together to solve an agency-specific problem. The problems are chosen so that the solution may be used by other agencies in similar situations. The representatives then work together over a period of days or weeks to develop a solution that can be packaged and shared among other agencies. The cooperation between agencies allows for greater buy-in to cooperative solutions and for more creative problem solving. Agencies feel a sense of ownership and participation that can potentially increase utilization of enterprise-wide solutions. This level of cooperation and sharing of solutions is a hallmark of Washington's e-government strategy.[123]

Best Practices.

- **Leadership:** Washington has strong leadership at the executive and agency level that places a priority on furthering e-government on all levels. Washington shows a proven and consistent commitment to e-government and the use of technology on all levels of government.

- **Cooperation and Collaboration:** Washington employs a cooperative/collaborative model that encourages both interagency and top-down activities.

- **Continuous Improvement:** Similar to modern businesses working to improve their business model, Washington employs a continuous improvement strategy to improve its offerings and methods. Washington actively seeks to benchmark its performance by employing performance measurements at all levels and consistent reevaluation of performance.

- **Risk-Taking:** E-government leaders in Washington are willing to take risks, to fail in order to do better in the future, and insist on using the most cutting edge technology available.

- **Bold and Innovative Programs:** Programs like Digital Academies and packaged enterprise solutions help keep Washington at the forefront of technology and interagency cooperation.

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[122] Ibid.

[123] Dave Kirk, interview by Eve Richter and Bill Moreno, January 4, 2006.

- **Centralization & Enterprise Solutions:** Infrastructure and services are centralized to the greatest extent possible and enterprise solutions are widely employed throughout the state.

Findings: Nationwide Trends and Best Practices

The survey and case studies elicited a number of concluding observations regarding nationwide trends and best practices. Findings in several noteworthy areas are detailed below.

Leadership. States that are leaders in e-government show strong support at all levels of government or, at minimum, from one publicly popular leader such as the governor. Strong leadership with an evident priority for the advancement of e-government can provide for broader acceptance, support, and faster growth of e-government programs. Those states that exhibit steadfast leadership and solid working relationships between those responsible for decision making and those responsible for e-government implementation tend to be leaders in e-government strategy and implementation. Therefore, it appears that leadership is a critical element to the advancement of e-government in a state. Strong and competent leadership by CIOs or their equivalents can also influence the success or failure of e-government. State CIO positions should be filled by professionals with relevant credentials. They should have similar authority in comparison to other cabinet-level positions. It should be noted that many states experience frequent turnover in the CIO position, which may make consistent strategizing and implementation difficult throughout numerous transitions.

Strategy Documents. Based on survey results and interviews, there are many innovative ways to accomplish a strategic vision for e-government that do not involve the distribution of one key strategic plan. For example, Kentucky's *Prescription for Innovation,* in conjunction with the individual county strategic plans facilitated by ConnectKentucky, could arguably be a better overall strategy for the Commonwealth and other similar states. In addition, the type of strategic document relied upon by different states varies widely from IT plans to enterprise architecture plans and express e-government strategies. Although e-government program strategy and planning is essential for performance measurement and benchmarking, the type of strategy or planning process varies and does not appear to affect the success, failure, or advancement of state e-government strategy and implementation. Thus, as evidenced in this study, states can develop a range of documents that span from traditional formal documents to a variety of other strategies and still plan e-government effectively and efficiently.

Implementation. Cooperation, communication, and collaboration are vital to the e-government program implementation process. Performance measures and constant evaluation of e-government programs and services are essential to the planning and implementation process. Regardless of state leadership, there needs to be a constant focus on the implementation of the state's e-government plan. The collaborative efforts of government leadership, citizens, businesses, educational institutions, and the private sector are ideal, but not always feasible. Some states find

that the sheer size of their constituencies and decentralization of agencies impede collaboration in e-government initiatives. Depending on state-specific situations, risk-taking can be very beneficial. States such as Washington that are willing to take risks and start trends tend to be at the forefront of technology and in the transformational e-government phase. Other states that are more risk-averse are more likely to wait until e-government technologies are proven and, thereby, safer to implement. Many states agree that marketing specific services to a targeted constituency is the most efficient and effective form of increasing the adoption rate of online services. In terms of e-government development, most states are in the transactional phase of e-government as mentioned in the research and methodology section of the report. However, states are moving toward the transformative phase, as evidenced in the increased desire to have "one-stop-shopping" operations on primary state portals and enterprise architecture development strategies.

Outsourcing. The trend in outsourcing tends to be toward all or nothing, with states either contracting out the majority of their services to a private vendor or providing all e-government and web portal services in-house. Outsourcing and contracting out e-government and portal services are becoming more commonplace, along with the attendant benefits and risks. Some states could find themselves tied to contractors who retain ownership of the systems they produce. Other states, such as Texas, maintain more flexibility in their contracting arrangements and ensure that the state has ownership of all web properties. The contracting field is narrow, with a few major players establishing a presence in many states and in some ways centralizing (or standardizing) portal development. With only a few providers of e-government contracting services, state e-government services could approach greater uniformity, as additional states contract with the same providers.

Outsourcing can be controversial due to the high costs of IT projects related to e-government programs and contracting issues. Problems with contracting and purchasing processes can influence the public's perception of IT investment and strip power from responsible parties such as state CIOs and IT directors who initiate e-government programs. Costly, unsuccessful programs can influence a CIO's ability to maintain consistent funding because state legislatures may be more skeptical in supporting future e-government projects.

Funding. Financing is of primary concern to most states and the issue is dealt with in a number of ways, including revolving accounts, transaction fees, general operating funds, capital funds and federal funds. Many states rely on a combination of general funds, capital funds, and user fees. Contracting agreements for e-government services can provide alternative methods for financing by reducing implementation costs and start-up costs. Some of these methods allow for revenue sharing in the implementation phase of the e-government process. Many respondents report that state budget or finance divisions have direct control over e-government day-to-day management. E-government oversight and management involves multiple entities, including budget and finance offices.

While e-government is considered a cost-saving measure, reducing the need for employees to perform some customer service tasks, actual dollar savings or cuts are often not realized. However, e-government may allow a state to do more with the same amount of resources. Customers who do not take advantage of e-government

services need the services of employees for their in-person or mail utilization of services. These customers still realize gains from e-government, as employees are better able to serve their needs. Some states find that e-government allows them to slow employment growth because workloads are shifted and reduced. Other states realize savings from reductions in staffing.

As evidenced in various agencies in Texas, adoption rates that cross the 30% threshold often indicate cost savings from online service provision. As adoption rates increase, savings can occur in many areas such as more staff time for new projects, a decrease in transportation and postage costs, and a greater capacity to manage high caseloads. E-government web portals may not increase revenues, but they are increasingly viewed as a necessary mechanism of information delivery to respond to public and private sectors that demand information and services.

Centralized/Decentralized Technology Management. The institutionalization of enterprise architecture planning seems to be the goal of many states, often leading to some form of centralization in terms of management of e-government programs and web portals that offer many services through one site. Centralization may be in the form of data sharing, application sharing, or even data consolidation. Moving toward a centralized structure works to benefit many states by avoiding overlap, allowing for cooperation and data sharing, and streamlining processes. In some large states, centralization is not always possible or desirable. In these states, enterprise orientation can still be part of the thinking and planning process. The "silo mentality" of agencies, a desire to be independent and to resist change, is a major obstacle for many states that desire greater centralization. Enterprise architecture planning is becoming more widespread and can be beneficial to e-government efforts.

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