



Issue Brief

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July 11, 2005

The View from the IT Industry—What States Can Do to Improve Government Efficiency and Service Delivery

Summary

Information technology (IT) in recent years has become a critical component of state government infrastructure. Government employs technology to enhance the delivery of services to citizens and businesses, reduce costs, and streamline processes for greater efficiency. However, the next generation of state IT deployment is in flux. To help governors evaluate their IT deployment strategies, the National Governors Association Center for Best Practices convened a group of IT industry experts to answer the following question:

What are the most important actions a governor can take regarding information technology to improve service delivery and/or government efficiency in his or her state?

The discussion concluded with the following key recommendations on actions states can take to improve service delivery and government efficiency.

- **Implement an IT governance model focused on results.** By creating a single government agency or oversight board for IT, governors can ensure that IT spending and management adheres to a strategic approach.
- **Establish a decision-making body and process for IT investment.** An IT capital investment board or advisory council should review the investment process across the government enterprise to ensure coordination and oversight.
- **Empower a trusted advisor to bridge policy and technology.** Governors should rely on one individual—either the state CIO or another trusted senior advisor—for statewide IT management and policy advice.
- **Develop an enterprise model for managing technology.** Government should be viewed as a single enterprise with IT used to support the business of government, enable cross-agency data sharing, integrate applications, and provide common capabilities.

- **Effectively leverage IT to solve business problems.** IT can be most effective when it enables a good business solution to meet citizens' needs, facilitate business-government interaction, and improve internal government processes.
- **Use IT to understand and better manage federal funds.** One of the most important ways IT can be used as a business solution is in a centralized system for tracking, analyzing, and managing federal funds received by states.
- **Reform procurement to save money and improve outcomes.** To improve the cost effectiveness of buying technology, states can employ various creative processes and funding methods in their procurement practices.
- **Make information sharing a priority.** Information sharing within and among states is a critical tool that creates efficiencies in many important areas, such as public safety and social service case management.
- **Encourage and leverage IT innovation.** State governments can promote IT innovation by providing incentives to employees and creating opportunities to exchange ideas.

States that successfully put these actions into place will save money, serve citizens and business more efficiently, and enable better performance management, agency collaboration, and decisionmaking.

Background

The next generation of state information technology deployment is in flux. To help governors evaluate their IT deployment strategies, the National Governors Association Center for Best Practices convened a group of IT industry experts to answer the following question:

What are the most important actions a governor can take regarding information technology to improve service delivery and/or government efficiency in his or her state?

This issue brief reflects this discussion, outlining what states should be doing to improve statewide service delivery and government efficiency and providing examples of states that have successfully implemented these actions.

In recent years, IT has become a critical component of state government infrastructure. Driven by budget pressures, a demand for return on investment, the expectations of a technology-savvy public, and a post-9/11 press for improvements in information and intelligence sharing, states have looked to IT to improve the ways they do business. States employ technology to enhance the delivery of services to citizens and businesses, reduce costs, and streamline processes for greater efficiency.

State governments spent close to \$40.7 billion in 2004 on IT, and spending is expected to grow by about 2 percent in 2005 and 2006—mainly for Medicare, education, and homeland security programs.¹ States are expected to spend about \$650 million on technology upgrades for Medicaid

management information systems this year alone. Substantial funding also is demanded for other health and human services technology, integrated voice and data communications, and homeland security systems for first responders and public health officials.²

Initially, state governments focused IT policy on data management, data storage, and posting information on the Web. Technology served as a tool to store data, provide analysis, and manage large automated systems such as payroll. Providing information through the Internet became a goal of state governments as citizens became more Web-savvy and grew to expect this type of service.

In the next stage—toward the late 1990s—state IT focused on giving citizens more access to government resources. E-government—electronic transactions and services—has grown significantly in recent years to provide a variety of government services, including renewing driver’s and occupational licenses, managing child support payments, registering to vote, applying for employment, and filing taxes. States also can use electronic tools for on-line training, telemedicine, and education. Many states have been effective in consolidating all electronic transactions into one portal—a “one-stop shop” for citizens and businesses.

Now attention has shifted to using IT to solve problems in government operations. As states identify how changing their business practices can produce desired outcomes, they may turn to technology to “enable” the solution. However, choosing an IT application requires a strong case that it can better meet citizens’ needs, facilitate business-government interactions, and improve internal government processes—at reasonable cost and with ease of implementation.

Implement an IT Governance Model Focused on Results

The most important action a governor can take to effectively use IT is to establish a state governance model to track IT spending, ensure that projects are carried out in a timely manner, and drive state government in the strategic direction the governor wants to take. Without a governing body with executive support, state governments are bound to spend more, duplicate purchases and systems unknowingly, create unnecessary work for employees, and develop incompatible applications.

A governance structure should provide leadership, organization, direction, credibility, and accountability. Centralizing IT authority and budget under one governance structure often leads to improved oversight, coordinated strategic planning, cost-effective program management, increased job and training opportunities for employees, and cost savings through leveraging purchasing power and eliminating duplication.³ Governance structures should be designed to establish accountability at all levels—policy, agency, and project oversight.

Governors have taken two major approaches to creating governance models: creating a single government agency responsible for IT and establishing an IT oversight board. Some states may have both. In general these structures are responsible for the following major IT tasks:

- Establishing an overall architecture
- Supporting the infrastructure
- Overseeing necessary budgets and purchasing
- Supervising business applications and large projects⁴

State governance structures may also be responsible for creating a prioritized list of IT applications and projects; periodically evaluating critical infrastructure and security for potential risk; and overseeing IT management by hiring and training certified managers and procurement officers to work in the state IT operation.

The ideal governance model is created or formalized by legislation. Statutory requirements ensure that IT governance structures are not subject to changing administrations and political climates. Institutionalizing the structure also emphasizes the importance of technology in the business of government and places the leader of the structure at the decision-making table.

Creating a Single Government Agency Responsible for IT

One governance approach consolidates IT under a single department or agency that oversees all IT staff, budgets, and assets, while working with state agencies on business processes. A single agency can achieve economies of scale, establish governance and accountability, and implement enterprise-focused solutions—which address the whole enterprise of state government across all functions and enables the use of common software, hardware, communication systems, and data applications. IT departments have authority over rules and standards for electronic transactions—such as data and security standards—which promotes consistency and interoperability of functions shared by agencies. They also can centralize numerous distinct financial management, payroll, and human resource systems into one statewide system. Typically, the department is led by a cabinet-level secretary or a state chief information officer (CIO).

The **Georgia [Technology Authority](#)** (GTA) was established by the general assembly to set the direction for the state’s use of technology. GTA develops statewide policies and standards, oversees technology purchasing, reviews new technology projects, and manages large projects. An important aspect of GTA’s leadership role is working with state agencies to develop strategic plans and facilitate the sharing of technology and information. GTA also operates the state’s data center and oversees the state’s telecommunications network. GTA’s consolidated purchasing power allows the state to obtain greater value for its technology expenditures.

Former **Michigan** Governor John Engler created a strong, centralized IT governance structure by [executive order](#) in 2001. The order consolidated all executive branch IT functions under the [department of information technology](#), which oversees all resources, including staff, budget, and hardware and software assets. It also enumerated the duties of the state CIO, including strategic planning, overseeing project management, developing agreements between agencies, and developing IT budgets. Michigan continues to have one of the strongest centralized IT structures.

Virginia Governor Mark Warner orchestrated passage of [legislation](#) to consolidate agency IT departments—including their purchasing, infrastructure, and human resources—into the [Virginia Information Technology Agency](#) (VITA) in 2003. VITA was created to manage, plan, and

develop nearly all statewide technology programs. The new agency is overseen by a board composed mainly of citizens and is managed by the state CIO, who is hired by the board rather than appointed by the governor—which is traditional.

Establishing an Oversight Board

Most states have a governing board that oversees IT functions—typically a commission or committee chaired by the state CIO that reviews and approves enterprise standards and policies. Usually the board serves as an oversight body for the state IT agency, or it can stand alone and leave IT implementation to the individual agencies. Many boards include representatives from agencies (28 states), each branch of government (about 20 states), public education (17 states), and the private sector (20 states). Some states have specialized subgroups to oversee issues such as digital government and justice integration.⁵

North Carolina established an IT advisory board through [legislation](#) with the explicit purpose of increasing efficiency and accountability, reducing cost overruns, and providing assistance to agencies. The board provides input to the state CIO, meeting at least quarterly to review and comment on the state IT plan, agency technology plans, and statewide technology initiatives. The board is staffed by the [office of technology services](#) and consists of 12 members who are appointed by the governor, president pro tempore of the senate, and speaker of the house of representatives.

The **Kansas** [Information Technology Executive Council](#) is made up of 17 members, including cabinet agency heads, budget directors, CIOs from each branch of government, local representatives, and private-sector representatives. The **Tennessee** Information Systems Council is the governing oversight authority for technology, composed of eleven representatives from all three branches of government and two private-sector representatives. The council's [annual objective](#) is to review and approve a consolidated statewide plan based on individual agency plans.

By [executive order](#), in 2004 **Ohio** Governor Bob Taft created the Information Technology Investment Authority Council to oversee purchasing, to work enterprise-wide on all areas of IT, and the Multi-Agency Information Officer Advisory Council to bring together officials across the state. **Pennsylvania** Governor Ed Rendell issued an [executive order](#) in 2004 creating the Enterprise Information Technology Governance Board, composed of the secretaries of administration, budget, general services, and information technology, and the governor's chief of staff.

Establish a Decision-Making Body and Process for IT Investment

Governors should empower their IT agencies or oversight boards to review the investment process across the entire enterprise of state government. State governments spend billions annually on IT, in many cases without any coordination or oversight. Often individual agencies are left to make purchasing decisions on a case-by-case basis, which results in purchase

duplication and the acquisition of software and equipment that are incompatible with other government systems.

Advisory boards usually are established in coordination with the overall IT governance structure (see previous section). Sometimes an investment board is created as a subset of the overall advisory body, with responsibility for purchasing, budgets, and capital investments. Investment boards may include procurement and budget officers that governance structures may not.

The oversight board should bring together stakeholders from each branch of government that is overseen by the governing body, the agencies responsible for IT in the state, and, in some cases, the private sector. Private-sector participation helps ensure that IT is approached from a broad perspective.

Ohio Governor Taft created the Information Technology Investment Advisory Council and the [office of information technology](#) (OIT) by [executive order](#) in 2004. OIT also has an [investment and governance division](#) that provides enterprise-wide structure for managing technology acquisition and use to support agencies, boards, and commissions. The division operates an acquisition management office to assist agencies in procurement; a policy office to develop statewide policies and enterprise architecture; an enterprise planning and project management office; and a business office to provide budgetary, personnel, and purchase-related services.

TexasOnline, the one-stop online portal for state and local government, is overseen by the seven-member board of directors of the department of information resources. Appointed by the governor, the board of directors oversees money generated by the portal, which is reinvested for the operation and expansion of [TexasOnline](#).

The **Virginia Information Technology Investment Board** (ITIB) was created in 2003 to provide oversight for extensive IT reform. The same [legislation](#) that created the Virginia Information Technology Agency (VITA) charged ITIB with reviewing and prioritizing enterprise-wide technology investments across state government. Board appointments are made by the governor and general assembly in cooperation with the secretary of technology and auditor of public accounts. ITIB has submitted a report on the recommended technology investment priorities to the governor and general assembly. The fiscal 2004 budget projected \$37 million in savings as a result of the creation of VITA and ITIB.

Implementing an IT Investment Process

IT investment bodies should ensure that state agencies are using innovative, smart buying and investment techniques. For example, state governments can improve their processes by strategically planning for upgrades, transferring cost savings to fund applications, and implementing return on investment programs. States should consider the following recommendations for improving the IT investment process:

- **Create an investment plan for completing upgrades strategically rather than at will.** By strategically planning upgrades, the state can budget appropriately and ensure that renewals are sensible. **North Carolina's** CIO was one of the first to

perform a comprehensive inventory of all state legacy systems to inform and improve future replacement decisions.

- **Identify, develop, and invest in shared services, such as customer relationship management, and utility services, such as data centers and networks.** Minnesota Governor Tim Pawlenty's [Drive to Excellence Reform](#) outlines a process to identify, develop, and invest in shared services to move to an enterprise view and reduce costs.
- **Transfer the savings from consolidation or other IT initiatives to fund applications and upgrades.** For example, in **Virginia**, the Information Technology Investment Board oversees a technology fund that provides a portion of the savings generated by consolidation efforts to fund ongoing enterprise-wide technology investments. Recent "[quick win](#)" initiatives, such as server consolidation and operations automation, have saved an estimated \$6.7 million annually, which was retained by agencies to offset the 5.52 percent administrative fee in fiscal 2005.
- **Implement a total cost of ownership or return on investment program for all IT investments.** Agencies can be made responsible for the costs of their own technology and also reap the returns on their IT investments. If states assign the cost of ownership to agencies and track returns on investments, agencies may make more strategic IT decisions.
- **Implement a risk assessment program for all budget requests.** In **Massachusetts**, state agencies are required to submit "investment briefs" to the information technology division detailing each funded project, its risks, benefits, and integration with the state's IT strategy. This approach assists the legislature by avoiding state agency solicitations for authorizations and ensures that the IT division is supportive of projects across the enterprise.⁶ One goal of **North Carolina's** [Portfolio Management Implementation Project](#) is to manage legacy application to reduce risks of failure and optimize life-cycle benefits and costs.
- **Require the approval of a governing body or senior official for all budget requests before submission to the legislature.** For example, state [law](#) requires the **Utah** Division of Technology Services director to review all purchases for the division and determine if they are practical, efficient, and economically beneficial to the state. The director must conduct a business case analysis, in adherence to the state procurement code, before any purchase is made. In **Missouri**, the Division of Purchasing oversees all state IT procurement processes.

Empower a Trusted Advisor to Bridge Policy and Technology

When states decide to implement IT projects, the necessary technology usually exists or can be easily developed. However, projects and reforms can be held back if they are not led by an empowered, experienced advisor or decisionmaker who understands how the technology can enable government processes and the policies behind them. Governors should rely on one individual—either the CIO or another trusted executive-level policy advisor—for statewide IT management and advice on related policies. The advisor must understand technology and its potential uses, but ideally is not a technical- or operational-level employee. A trusted advisor

must have the capability to bridge policy and technology and the authority to make decisions necessary to implement statewide IT management solutions.

State CIOs work with agencies, recommending best practices, approving policies, and managing their IT operations. Their authority varies from state to state and may include architecture and standards development, budgeting, human resources, outsourcing, privacy policies, procurement, project management, system auditing, and training.⁷⁸ Operational decisions addressed by the office of the CIO generally include:

- Application development and large projects
- Statewide desktop platforms, updates, and interoperability functions
- Purchase and design of mainframe systems and data centers
- Security plans
- Privacy policy
- Telecommunications functions

Some CIOs serve as members of their governor's cabinets, while others report to the state's chief executive through a cabinet official, budget director, or chief operating officer. For example, when **Delaware** Governor Ruth Ann Minner appointed a [task force](#) in 2001 to overhaul the state's IT operations, it recommended the creation of a [state CIO](#) position, and the office of information systems was replaced with a new, cabinet-level [department of technology and information](#).

Approximately 20 state CIOs oversee freestanding IT departments or offices that are attached to their governors' offices. In **North Carolina**, the CIO reports directly to the governor's office and regularly informs legislative IT oversight leaders of project status. In 2004, the legislature and Governor Michael Easley agreed that for major changes to occur, there needed to be one central and final decisionmaker. Key policymakers worked with the North Carolina CIO to empower the office through [legislation](#) to make enterprise decisions that cut across state government. This reform has resulted in contract negotiations with key IT companies that already have saved the state millions through better bargaining power. The CIO has hired an "assistant project manager" team that works with various executive branch departments to provide oversight of key high-cost IT projects.

Sixteen CIOs oversee IT divisions that are nested within larger departments, such as the department of administration or finance. A few CIOs oversee offices that work between a subdepartmental IT function and the governor's office. State CIOs oversee an average of 200–300 full-time employees in their office or department, but CIOs that oversee offices with dispersed IT operations tend to directly manage fewer than 100 full-time employees.⁹

In most cases, the CIO also serves as the most trusted IT advisor to the governor. However, some states choose to use the CIO in a more managerial role of chief operating officer, with responsibility for running networks and overseeing purchasing. In these cases, governors may need to appoint a senior advisor to address IT strategies and overall policy. Such an advisor works closely with the governor and state CIO to implement statewide IT projects and policies.

For example, in **Illinois**, a chief technology officer (CTO) was created by executive order. The CTO reports directly to the governor but does not hold a cabinet-level post. As a member of the senior staff, the CTO has access to the governor and sits in on cabinet meetings. The CTO makes recommendations to the governor, who then directs the cabinet to act on them. The CTO also works with CIOs from state agencies who serve on an advisory board.

Develop an Enterprise Model for Managing Technology

States historically have had a “siloeed” or decentralized approach to IT, in which each agency makes decisions about its own applications and purchasing that sometimes lead to expensive, incompatible, and short-lived solutions. Because many IT functions—particularly administrative and support functions—serve similar purposes throughout state government, decentralized structures typically result in duplicative systems that may not be interoperable across all levels of government. In contrast, enterprise architecture addresses the whole enterprise of state government and enables data sharing across all government functions. It supports the business of government by enabling the use of common software, hardware, communication systems, and data applications.

Taking an enterprise view can help states improve service delivery, establish accountability, eliminate redundancy and inefficiencies, provide security and communications guideline for all state activity, and cut purchasing costs by leveraging the state’s buying power. Statewide enterprise architecture can lower costs by increasing a state’s ability to reuse software, buy off-the-shelf solutions, and work with a wider variety of vendors.

What is enterprise architecture?

Enterprise architecture is the infrastructure for a statewide IT system. It is a holistic, comprehensive blueprint for government enterprise that integrates information and services across agency boundaries.^x Enterprise architecture supports the coordination of various IT support functions. It also can create and enforce statewide standards for data, security, purchasing, management, and operational procedures.

Implementing an Enterprise Approach

When **Michigan**’s IT operations were centralized by executive order, the IT services of 19 state agencies were placed under one cabinet-level agency led by the CIO. The department of information technology oversees all state IT resources, including staff, budget, and hardware and software assets. The goal was to consolidate cross-agency applications, by centrally managing contractual arrangements and administering infrastructure services, such as desktop services, data center operations, telecommunications, help desks, and network management. The state is on track to realize annual savings of \$50 million to \$70 million through consolidating IT in an enterprise model.

As part of Governor Pawlenty’s [Drive to Excellence Initiative](#), a **Minnesota** statute applied an enterprise model to the [office of technology](#) that enabled the office to inventory all agency

assets—including hardware, software, and property—to identify duplication. Rather than starting by consolidating data centers or other back-office applications (those that may not involve an interface with citizens), the initiative addressed front-end business problems—such as licensing, building codes, property management, and sourcing—and then worked to apply technology solutions to those problems. The state estimates that by 2011 it will save \$570 million, some of which will be reinvested.

Under his [Fiscal Fitness](#) government efficiency program, **Rhode Island** Governor Don Carcieri signed an [executive order](#) in 2004 creating an [information technology division](#) within the department of administration. The order centralized the management of dozens of consultants, hundreds of computer applications, 250 servers, and 280 employees, as well as the operation of more than 8,000 desktop computers. Consolidating and standardizing the state's IT functions is expected to generate annual taxpayer savings of more than \$6.3 million.

Establishing and Enforcing Standards

One role of a central management agency is to establish and enforce security standards for the enterprise. Historically, implementation of IT security programs has been decentralized in each agency, leaving state business more susceptible to security breaches. An enterprise security policy is critical as viruses, Web-site hacking, code corruption, and attempted unauthorized access to databases have increased in recent years. In **Michigan**, the office of the auditor general conducted recent performance audits of the state's IT systems that illuminate the strengths and weaknesses of the [IT security](#) framework. In addition to statewide auditing, the office of enterprise security assesses vulnerabilities and risks daily, and all state employees are trained in cybersecurity.

In addition, state agencies that manage their own applications in an enterprise architecture typically are required to adhere to statewide formats and standards. In **New York**, the statewide enterprise systems facilitated the redesign of the unemployment insurance system while allowing the [department of labor](#) to “own” the project. The state enterprise architecture gave the department of labor a clear sense of direction that is consistent with where the state was headed and is expected to result in long term savings.¹¹

In **Kansas**, the [geospatial services and data policy](#) requires that all state agencies, boards, commissions, and Regents' institutions develop and maintain digital documentation of their geographic information systems (GIS) databases in compliance with a statewide metadata standard. The state also implemented [standards and methodology](#) for project development, saving over \$2.2 million through early implementation of a human resources and payroll system. The state also avoided more than \$2.8 million in federal penalties by implementing a state child support enforcement system.

A central management agency can ensure enterprise architecture becomes implemented and adopted in agencies by establishing an enterprise and project management certification program for employees. In 1998, **Kansas** adopted project management [standards](#), based on other states' best practices and federal government standards, and trained and certified project managers through a 120-hour class with a final exam. The state has trained and certified 89 project managers. The program is highly popular among vendors who do business with the state. The state has trained and certified a number of vendor personnel, responded to numerous requests

from other states and foreign countries to use the text and certification materials, and exceeded its objectives for return on investment.

Consolidating and Centralizing Infrastructure

Many governmentwide functions can be consolidated¹ and coordinated under an enterprise architecture to reduce initial and long-term maintenance costs, ensure better use of existing infrastructure, and promote interoperability. Functions include various IT areas—including mainframes, e-mail systems, data centers, servers, vendor platforms, storage, help desks, applications, and networks—and other areas that may be enabled by IT, such as the management of property, inventory, payroll, and accounts receivable.

States are increasingly adopting a federated IT model, in which common infrastructure components and services—such as e-mail, data centers, and network management—are centralized, while systems and applications that are unique to individual agencies are decentralized.¹² For example, **New Mexico** Governor Bill Richardson signed an [executive order](#) in 2004 requiring state agencies to consolidate IT resources and have all IT employees report to the general services department. The order mandated consolidation across agencies of redundant IT services, such as e-mail, accounting systems, data centers, and network security. **Pennsylvania** went further, designating one agency to operate and standardize business processes, including accounting, budgeting, payroll, human resources, and procurement. The [bureau of integrated enterprise system](#), which is part of the [office of information technology](#) in the office of administration, accommodates all administrative and operation activities.

Many states have targeted data centers for consolidation. **Pennsylvania**'s Data PowerHouse consolidated 20 separate data centers into a single data center, resulting in more efficient use of personnel and more than \$100 million in avoided costs from server consolidation.¹³

Technology has enabled the consolidation of various manual processes into one online system, in some cases for enterprise IT review and management. The **Illinois Technology Enterprise Planning System** (ITEPS), a Web-based, technology planning system, has moved the state from a paper submission process to an on-line process for all agency IT plans, requests, survey responses, and other relevant documentation. Information from the ITEPS system provides the metrics for measuring progress on a variety of projects as well as strategic planning and new technology initiatives. The system has saved Illinois over \$35 million.

Effectively Leverage IT to Solve Business Problems

Problems can arise when state governments try to fit a solution to a technology, rather than first finding a solution and then determining if technology can enable the solution. When used correctly, IT can be a powerful tool for improving government operations and services. IT can be most effective when it enables a good business solution that meets citizens' needs, facilitates government-business interactions, or enables and improves internal government processes. IT solutions can be used to standardize and streamline internal functions such as human resources,

¹ Consolidation can refer to one or more technical actions, including centralization of server and storage sites, physical consolidation, data integration, contract consolidation, and application integration.

finance, and training—and reduce the costs of public programs such as welfare, licensing, and health care. IT solutions can be especially helpful in preparing for an aging and declining public sector workforce by automating and streamlining highly transactional activities.

The examples of IT's power to improve citizens' services and back-office operations are too numerous to include in this paper. However, the state examples cited below illustrate how IT can be used to meet citizens' needs, facilitate business-government interaction, and enable and improve internal government processes.

Meeting Citizens' Needs

To meet citizens' needs, states must move beyond posting information to providing state employees and citizens with interactive access to government.

Providing citizens with a simple, efficient process often saves agencies work and money. The **Michigan** Electronic Filed Unemployment Claim Project provides self-service access 24 hours a day through the Internet or telephone interactive voice response. The project saves an estimated \$25 million a year by eliminating 43 unemployment branch offices, reducing staff by about 51 percent. This project was driven by the need to mitigate the impact of early retirement and keep up with industry trends. The director of the department of labor and economic growth estimates that filing a claim used to take six hours, but with the new system, that time has been reduced to less than 90 minutes.¹⁴

To provide citizens with a simple, easy, “no wrong door” reception, governments can use integrated client eligibility system programs. Multi-agency and multiprogram client indexes are an effective approach. Several states offer automated systems for determining eligibility and applying for federal public assistance programs that are administered by various agencies. For example, the **Pennsylvania** [Access to Social Services](#) Web site offers screening and application options for health-care coverage, food stamps, cash assistance, long-term care, some waiver services, and other social services. Accounts summarizing individuals' benefit details are available through the [department of public welfare](#). **Wisconsin** [CARES](#) is a similar automated system for determining eligibility and benefit levels for federal public assistance programs.

Other systems have helped states return unclaimed money. The **North Carolina** [Department of State Treasurer](#) built a data warehouse system that allows the department to clean up address data so the state can accurately match unclaimed funds with rightful owners. The software used by the Treasurer's office provides sophisticated matching and standardization routines that enable them to analyze, cleanse, and standardize data across various platforms, thus identifying duplicate names, addresses, and other identifying data. Using these software capabilities, the department has returned millions of dollars in unclaimed cash.

Facilitating Business-Government Interaction

IT solutions not only assist in citizen-government relationships, but they also can facilitate corporate-government interactions and promote entrepreneurship. By implementing electronic corporate registration and filing, several states have streamlined processes and achieved positive outcomes.

Michigan created one-stop shopping for permit applications, the [Michigan Timely Application and Permit Service](#), which includes an online monitoring tool to check the status of permits and licenses. The site allows businesses to determine which permits are needed to do business in Michigan, regardless of the authorizing department or agency. In comments about the permitting process, Governor Jennifer Granholm said, “We are proclaiming ourselves fastest in the nation as a result of our IT efforts. When businesses...say it used to take 18 months to get a permit and now it takes just 22 days, that’s the best kind of promotion we can offer them.”¹⁵

Enabling and Improving Internal Government Processes

Technology can be a valuable tool for enabling and improving internal government processes, such as preventing fraud, implementing performance management, tracking diseases, and ensuring tax compliance.

States have used technology to ensure tax compliance, reaping billions of dollars as a result. **Florida’s** integrated [System for Unified Taxation](#) (SUNTAX) administers four of the state’s largest revenue sources—sales tax, corporate income tax, documentary stamp tax, and communications services tax—as well as several minor taxes to collect more than \$30 billion per year. By 2007, the [department of revenue](#) (DOR) expects to use SUNTAX to manage all 36 DOR-administered taxes and fees. SUNTAX and related technologies already have saved more than the projected \$40 million cost of the system. Through 2003, the system generated \$141 million through increased compliance and cut administrative costs by \$44 million. In a recent initiative, SUNTAX helped DOR compare property tax records to sales tax registrations and find businesses that might owe tax on commercial rentals. Thousands of businesses paid more than \$34 million in back taxes, penalties, and interest in 2003.

States have leveraged analytic and data quality capabilities to detect and prevent millions of dollars of fraud and overpayments in areas such as revenue, Medicaid, child support, and unemployment insurance. The **Louisiana [Social Services Department](#)** replaced a manual system—in which employees spent hours poring over documents to detect food-stamp fraud—with a Web-based [system](#) that can access transactional data and display it geographically using geographic information systems (GIS) technology. The new system takes about 30 minutes to review food-stamp activity in a designated region or neighborhood to find patterns and anomalies that would not appear in tabular data.

IT also is a valuable tool in performance management. The **Kansas [Department of Revenue](#)** offers a variety of e-government services through sites such as [Trucking Kansas](#) and the [Kansas Business Center](#). Using software for data warehousing, analysis, and reporting, the department CIO and his team integrate data from Web transactions with financial data and other internal data sources. Using this process, agency executives can easily measure performance relative to their goals. This process supports nearly 1100 employees with more than 400 different reports that are available online and via e-mail.

Electronic laboratory reporting (ELR) applications can reduce reporting hours and cycle times, improve data accuracy, and reduce response times for public health staff to investigate diseases. For example, the **Pennsylvania** Department of Health (DOH) developed the [National Electronic](#)

[Disease Surveillance System](#) (NEDSS) as an integrated, streamlined, and secure process for laboratories to report patient test results and for DOH to process these results.

Use IT to Understand and Better Manage Federal Funds

One of the most important ways IT can be used as a business solution is in analyzing and managing federal funds received by states. States pursue, distribute, and manage billions of dollars from hundreds of different grants. By developing a model for managing federal funds across the enterprise using IT, states can expect more effective and efficient federal grant applications and awards. Creating a centralized grants management system can maximize federal funds coming to the state and minimize funds sent back to the federal government.

Federal funds management models should be designed to work across the enterprise, bridging agencies and programs. By managing funds holistically through a centralized grants management system, states can coordinate applications, avoid purchase duplication, leverage purchasing power, align goals with purchases, and facilitate information sharing and integration.

In their efforts to increase federal funds to their states, a few governors' offices have created an internal office to coordinate this function and implemented IT solutions for managing and analyzing these resources. For example, **Maryland** Governor Bob Ehrlich launched the state grants office in 2004 to coordinate state activity, win federal grants, and help local governments and community-based organizations identify federal grant opportunities. The [Grants Office Web site](#) has a state clearinghouse, Census Bureau grants data, and links to federal, state, and foundation resources.

In **Illinois**, former Governor George Ryan created an office to increase the flow of federal funds returning to the state. The system used a consolidated, Web-based, searchable grants database to assist the state's federal lobbying efforts. The office was staffed by a key policy advisor, who reported to the policy director and the director of the Illinois Washington, D.C., office. The clearinghouse helped increase the level of federal funding received by Illinois state agencies by 18.7 percent in two years.¹⁶

Minnesota Governor Pawlenty's [Drive to Excellence Reform](#) calls for a single enterprise governance process of all grant management, facilitated by a single IT solution. Related process improvements include standard approval processes, grantee audit procedures, and a single repository for posting all grant opportunities. A proposed statewide system will allow improved management and leveraging of state funds, as well as transparency. The state estimates the system will cost approximately \$650,000, which will be paid back in one year and annually generate \$1.2 million. The report also recommends that a governing body be responsible for existing process documents and system redesign efforts.

Reform Procurement to Save Money and Improve Outcomes

States can improve the cost effectiveness of technology by reforming the procurement process for buying it. Traditional procurement systems and practices sometimes create delays, have unnecessarily complex specifications, don't typically leverage volume purchasing advantages, consider only purchase costs, and assign all risks to the vendor. The process limits innovation and does not lend itself to long-term projects.¹⁷ Tight budget concerns and a need to fund multiyear, multiagency IT projects have forced states to be creative with procurement processes and use funding methods such as bonds, investment funds, performance-based contracting, outsourcing, and public-private partnerships.¹⁸

Centralized procurement management can be implemented without taking flexibility and influence from the purchasers. Agencies must be involved in the process, so that the reform is not perceived as an imposition but rather is a collaborative effort benefiting everyone. Agencies are the technical experts on what is needed, but the central procurement office must manage and have authority over procurement in the state.¹⁹

States have used several approaches to improve the timeliness, efficiency, and quality of IT purchases. Using these innovative approaches in enterprisewide procurement is described as strategic sourcing.

- **Write solution-oriented bids** designed to encourage vendors to propose IT solutions to state-identified problems and goals, rather than specifying a solution and asking vendors to meet the requirements. The **South Carolina Information Technology Management Office** saved \$4.7 million by using solution-oriented procurement techniques that ask the vendors to craft the most cost-efficient solution.
- **Consolidate contracts** to simplify the process, ensure IT is implemented on an enterprise level, and obtain discounts on volume purchases. For example, **North Carolina's** CIO implemented a [volume purchasing initiative](#) to cut costs and make procurement more efficient. The **Texas** Department of Information Resources [Go DIRect Program](#) offers agencies and other public-sector entities access to state-negotiated contracts for many goods and services, including hardware and software, training, security products, and communications equipment. The program was designed to facilitate agency purchases without bidding out separate contracts.
- **Utilize multi-state contracts** to reduce overhead, streamline the procurement process, and drive discounts. The [Western States Contracting Alliance](#) of the National Association of Procurement Officials has developed contracts with manufacturers of personal computers, printers, and storage devices that are available to many public entities. These contracts, administered by the state of **Minnesota**, consolidate state purchases in excess of \$1.3 billion annually and make volume-based discounts available on small and large purchases alike.
- **Use value-based purchasing** to judge the merit of proposed solutions based on life-cycle costs, quality, vendor performance, revenue generation, and other benefits. By taking into consideration more than just the simple cost of the technology application, best-value decisions save states money.
- **Use e-procurement solutions** to target small, repetitive purchases, discourage "maverick buying," and speed up the procurement process. These applications can include electronic requests for proposals and reverse auctions to drive prices lower.

- **Form long-term strategic partnerships** with qualified vendors to solve IT problems using streamlined, solution-oriented contracts. Typically these vendors must achieve certification or qualification to become strategic partners. Once they enter into a long-term partnership, the procurement process can be accelerated by streamlining vendor and agency requirements.
- **Share risks and benefits** with vendors to avoid failures and improve the performance of large, complex contracts. This can be accomplished by paying contractors through the savings generated by IT solutions or making payment contingent on the benefits realized to the state. For example, **Texas** created a partnership with a private-sector vendor using a performance-based contract to develop, operate, and market the state portal, [TexasOnline](#). The vendor had responsibility for all costs associated with the portal, regardless of its profitability. Initially, the vendor retained 90 percent of the revenue generated through service fees to offset their initial investment. After they broke even, the revenue was split equally between the state and the vendor.
- **Incorporate enterprise architecture compliance into requests for proposals** and subsequent contracts to ensure that vendors take the enterprise approach. Under such an approach, the CIO and advisory board can ensure that all system deployments meet enterprise standards.
- **Create a pool of qualified vendors** to make day-to-day purchases more cost effective. These vendors must conform to certain procedures, have a single point of contact for all price quotes and services, and meet standards to ensure system compatibility. In **Wisconsin**, the [VendorNet](#) Web portal enables state agencies to make small purchases without going through the central procurement office, saving the state \$2 million in 2004.²⁰ Alternately, states can consider using GSA Schedule 70 contractors that have extended their pricing agreements to state and local governments. This approach leverages agreements between the federal government and vendor community in negotiating technology procurement against a standard set of terms and conditions well known to the vendor community.

Many states have implemented comprehensive procurement reform initiatives that incorporate the approaches listed above and others, including leveraging state buying power to improve contracts; employing centralized ordering; and using innovative funding methods such as bonds. **Pennsylvania** Governor Rendell's [Strategic Sourcing Program](#) was designed to cut government spending on goods and services by using several of the smart-buying techniques listed above, including value-based purchasing and consolidated contracts. The initiative has saved the state \$118 million to date, including \$19.8 million through a contract for IT staff augmentation and \$13.4 million through strategic purchasing of computer servers and storage.

Strategic sourcing is also a centerpiece of **Minnesota** Governor Tim Pawlenty's [Drive to Excellence](#) initiative. The state has awarded more than 100 contracts utilizing reverse auctions rather than traditional bids, resulting in savings of over \$4.7 million. In some cases, over 200 pre-qualified computer consulting firms participate. Through the Drive to Excellence initiative, Minnesota has launched a multi-agency steering team to develop a procurement strategy for the state. Efforts to date include expanding use of market research with new data analysis tools and increasing the relative weight of pricing in "best value" determinations.

Virginia Governor Warner’s ProReform Initiative was designed to streamline IT. The state was spending over \$900 million per year on IT services and paying over \$154 million annually to 2,200 state IT professionals. Before the initiative was launched, the state experienced significant duplication of systems and multimillion-dollar project failures. ProReform implemented a solutions-based approach, improved asset management through centralized ordering, and lowered costs by leveraging buying power.²¹

Massachusetts used a value-based contract to return an agency from fiscal receivership to financial health. The state contracted with a vendor to create a system for processing federal reimbursements. The contractor agreed to receive payment only if the agency received at least as much money from the new system for processing federal reimbursements as it did before project implementation. As the agency became more proficient at processing federal forms, generating more money for the state, the contractor’s share of the benefits increased. Annual agency benefits increased from \$120 million to \$217 million. In addition, the contract automated the forms processing, making the agency more efficient and saving additional money.²² The state also issued [bonds](#) for IT projects and created a mechanism to manage funds in the [Information Technology Division](#) (ITD). For each bond issuance, ITD had to report on expenditures and scheduling timelines for the projects funded to the state secretary of finance and administration as well as legislative committees.²³

To leverage the state’s buying power and secure better prices, **Oregon** Governor Ted Kulongoski recently launched [Oregon Smart Buy](#). Oregon currently invests about \$48 million annually in computer technology projects. Smart Buy reviews procurement processes and techniques in state agencies to identify and eliminate inefficient practices. Purchasing methods include reverse auctions, benchmarking prices and conducting market analysis, examining automatic renewals, and implementing a multiround, competitive negotiation process for bids. A recent [price agreement](#) for laptops and peripherals will allow 100 state agencies to take advantage of procurement efficiencies through volume purchasing. In a similar effort, the [New York Office of General Services](#) worked with local governments and New York City to conduct an aggregate purchase of 23,000 PCs for a savings of over \$15 million. By setting a predetermined standard configuration and aggregating the potential for high volume sales, New York leveraged the state’s purchasing power to achieve steep discounts.

Make Information Sharing a Priority

Government agencies at all levels—federal, state and local—must be able to share information to operate efficiently and effectively. Information sharing is a critical tool for state and interstate response to public safety emergencies, gathering and analyzing environmental data, providing services to citizens, and reducing traffic congestion. Information sharing empowers and enables governing bodies and employees to work in an enterprise-oriented structure.

Without an enterprise orientation that facilitates information sharing, state agencies interact individually with citizens and other clients without delivering services in an integrated manner. For example, in many states, human service agencies open a separate case for each client based on the service provided. Thus, the [Michigan Department of Human Services](#) could be serving a

family through Medicaid, foster care, or food stamps, while the education department and department of community health might each have separate files of information on that same family. In response, the state established a Family Resource Center program that places caseworkers in schools and provides them with family information from various agencies. State CIO Teri Takai says that information sharing is “absolutely critical to have units of government deliver the best to assist taxpayers. If you cannot share data, then you are not delivering the biggest bang for your buck, whether it’s for homeland security or education or technology or portability of medical records.”²⁴

Many IT applications offer solutions for information sharing. However, often the major barrier is not technology but rather a problem of the organization and users. Information sharing prerequisites for organizations and users include the following:

- Established standards
- Well-understood rules for sharing that are consistently and effectively applied
- Employees that think with an enterprise view, accepting and embracing changing boundaries, job scope, and business processes
- Full disclosure of information
- Properly managed and secured information²⁵

Information Sharing Within States

Many state agencies and departments are realizing the benefits of integrating the information systems used for law enforcement, health care, revenue collection, and public safety.

Public safety interoperability requires instant information sharing for quick incident response between localities, state agencies, and first responders, including law enforcement, fire, public health, and emergency management personnel. The [Florida Department of Corrections](#) must provide quick responses to requests from prison and probation officials, prosecutors, state legislators, local police departments, and other government agencies. To supplement its own data, the department uses software to access, combine, and analyze data from other state departments, such as law enforcement, juvenile justice, and education.

Virginia launched a statewide wireless E-911 deployment project, which provides information about the location of the caller to speed the processing of the call. The plan works to expand statewide use of common language and communication protocols, plan for future technology purchases, and provide frequent and routine training for public safety personnel. Although E-911 had always been a local service-delivery issue, Virginia established the statewide deployment project as a partnership among state and local government agencies and the wireless and landline telecommunications providers.

As a result of the project, wireless E-911 service is now available to almost 80 percent of all wireless subscribers in Virginia. The U.S. Department of Homeland Security uses the state [Interoperable Communications Strategic Plan](#) as a best practice model. Currently, the state has 30 regional 800-MHz trunked systems and is building a system to be used by 19 agencies to patch all 132 localities into one communications system.

The health care industry has retained a paper-based system of recordkeeping, billing, and information exchange that contributes to administrative costs, inefficiencies, and uninformed patient care. Employing technology solutions can facilitate information standards, storage, and sharing. The **Massachusetts** state hospital system began [converting paper medical records to electronic forms](#) in 2004. This initiative is expected to facilitate information sharing among physician groups, health centers, and other healthcare providers; prevent medical errors, fatalities, and injuries due to medication errors; and reduce costs by up to 30 percent.

Revenue collection is an area in which states can benefit immensely by using integrated information systems. The **North Carolina** [Department of State Treasurer](#) shares its data-quality and analytic efforts with other state agencies to match unclaimed money to its rightful owners. Other functions of the state also have benefited from this software. For example, the division of child development ran a sampling of its data and accurately located parents who owed a combined \$76,000 in overdue child support.

Information Sharing Among States

Interstate information sharing is critical to many government activities, such as public safety operations, environmental initiatives, and disease tracking. Sharing information among states can also be particularly useful in compiling benchmark and performance data, so that state governments can understand their status and progress. Sharing information often requires agreements to formalize the process. For example, a data-sharing memorandum of understanding (MOU) or compact may include information about project management, terms of agreement, restrictions, administration, access, and confidentiality.

Several interstate environmental projects have demonstrated interstate cooperation and the use of efficiency tools. **Delaware, New Jersey, New York, and Pennsylvania** have implemented the [Delaware Bay Project](#) that pulls together live, up-to-date information from each state and presents it visually on the Internet, with interactive tools to query the data and generate custom maps. **Illinois, Indiana, Kansas, and Ohio** partnered to pool data in real time on the Internet for environmental scientists analyzing carbon dioxide levels in soil. Soil samples were collected using handheld GIS technology to record the time, date, and location from which the sample was taken.²⁶

Information sharing among states often is critical to criminal justice and homeland security operations, as criminals, hazardous agents, and other threats are not contained within lines of jurisdiction. For example, the **Connecticut** Department of Public Safety and **Rhode Island** Office of the Attorney General have signed an [MOU](#) for shared usage of a single Automated Fingerprint Identification System (AFIS) that allows for the electronic transmission or receipt of fingerprints from the FBI's integrated system. The shared AFIS also serves noncriminal-justice agencies that face expanding requirements for background checks in fields such as child care. The states also participate (with several others) in the New England State Police Administrator's Conference, which has a [compact](#) to provide the authority for states to share law enforcement functions across state lines. The **Alaska** Department of Public Safety, several local police departments, and a Northwest technology center of the U.S. Department of Justice have agreed through an [MOU](#) on the use, governance, access, security, and information ownership of the [Alaska Law Enforcement Information Sharing System](#).

Encourage and Leverage IT Innovation

State governments should encourage their employees to look for innovative ways to apply IT to business problems and keep government from falling “behind the curve” of technology development. State governments can promote IT innovation through agency and employee incentives and by creating opportunities to exchange ideas.

States can provide incentives for agency or employee innovation by:

- Leaving most of the savings achieved through IT solutions in the agency budgets specifically to fund additional IT and business innovation projects.
- Increasing agency funding for IT projects.
- Exempting agencies from reporting requirements or other burdensome requirements to reward them for innovative uses of IT.
- Formally recognizing innovative teams, individuals, and agencies. For example, **Washington**’s Governor’s Awards for Service and Quality Improvements recognize individuals and teams of employees for process improvements.
- Providing awards or bonuses to individuals. For example, **Texas** recently provided incentives for agencies and employees, authorizing bonuses for employees who “directly contributed to improvements” in agencies that achieved 80 percent of their key performance objectives.²⁷

To help encourage the sharing of innovation, **Pennsylvania** has developed the concept of centers of excellence. State agencies are divided among four [Communities of Practice](#) as identified in the Continuity of Government system—health and human services, public safety, environmental, and operations—to share resources, methodologies, and best practices. The Communities of Practice system creates an enterprise-level process for selecting and prioritizing agency-proposed IT initiatives and projects. The system provides an opportunity to share projects and discuss collaboration opportunities as IT projects are identified by agencies.

Conclusion

Following the initial push use electronic IT to increase state government accountability and efficiency and improve customer interaction, state governments are in the next stage of IT deployment. IT can be used to advance the policy goals and business objectives of the governor, as well as to address budget shortfalls and improve citizen and business interactions with government. States that successfully put these actions into place will save money, serve citizens and business more efficiently, and enable better performance management, agency collaboration, and data analysis.

This Issue Brief was developed by the National Governors Association (NGA) [Center for Best Practices](#) in cooperation with NGA [Corporate Fellows](#)—corporations that contribute to state leadership by sharing their perspective and expertise to find solutions to public policy challenges. Special thanks to the following corporate fellows and individuals who contributed to this brief:

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